

INTERNATIONAL MUSICIAN AND RECORDING WORLD

SEPTEMBER 1975 \$3.50

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John Entwistle**

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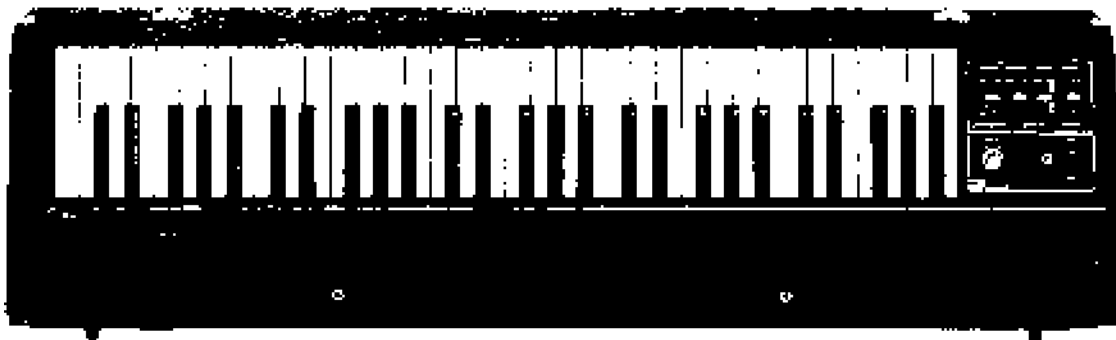
Hammond Story · Price Scanner

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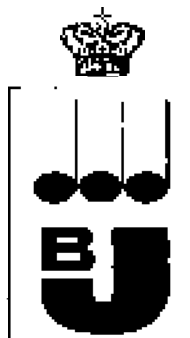
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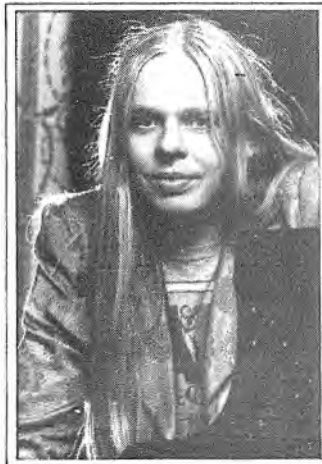
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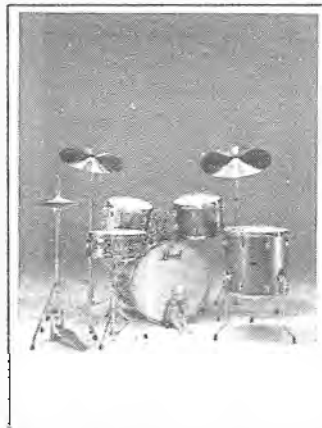
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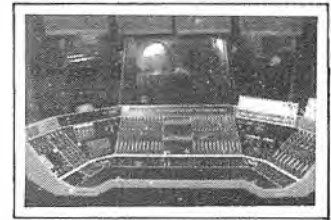
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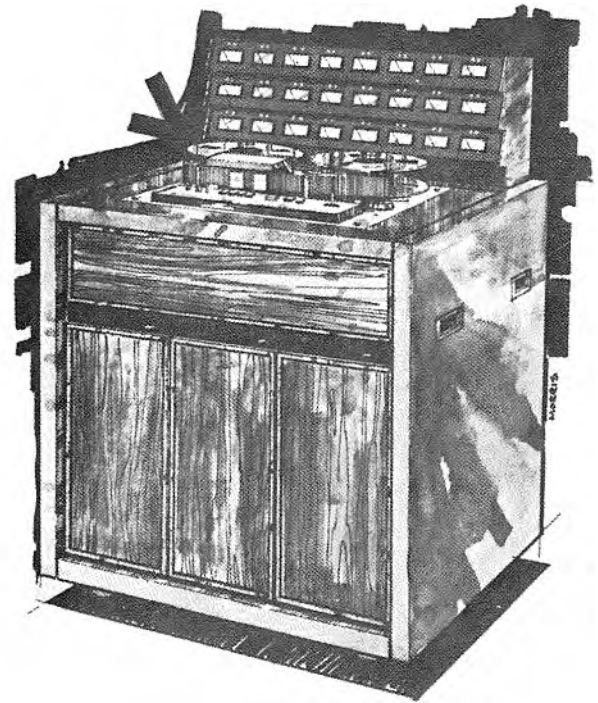
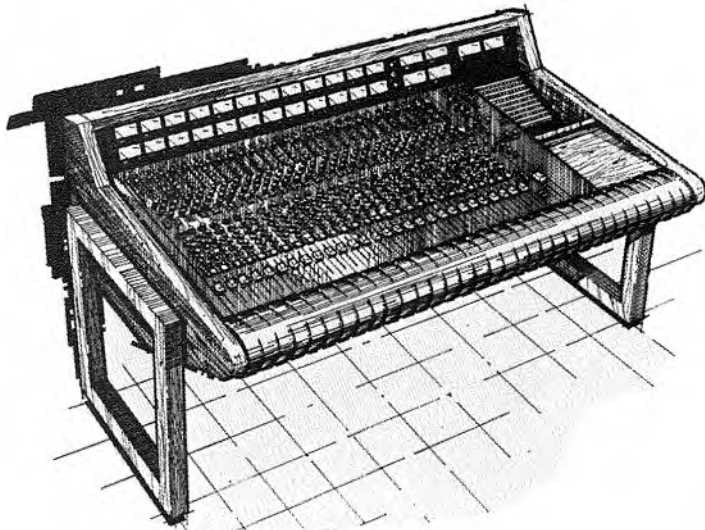
Hire Guide

Dealer Guide

101 Classified



MCI (Professional Studio Equipment) LTD, 21 Claremont Square LONDON N1 9IX 01-278 2288



The JH-428 is a comprehensive, cost effective recording console meeting all professional standards and offering the electrical and musical capabilities of consoles twice its price. There are no frills in this console, only functional, complete musical control of the mix.

The entire console has been built small enough so that the average person can reach most of the controls without moving. Yet, the profile is low creating minimum control room acoustic problems and permitting a clear view into the studio.

The JH-428 is styled in a durable synthetic walnut finish with control panels in a natural sugar maple colour. The armrest is large and well padded. These natural colours and comfort features minimize the tiring effect of late night mixing sessions.

For the small studio just getting started, every model of the JH-428 from 8 channels up comes fully wired and tested for 28 channels so the console can grow with the studio by simply plugging in additional modules. For the large studio, the JH-428's modular construction will permit full utilization of the recording facility by minimizing service "down time".

The JH-16 series of master recorders is available as an 8-track wired and expandable up to 16 tracks (ideal for the small studio). The JH-24 is available as a 16-track wired and expandable up to 24 tracks, which will meet all needs of the large professional studio.

A very useful (and some consider essential!) accessory is the AUTO LOCATOR 11, which can be programmed to locate any position on the tape precisely and speedily.

The JH-110 series is the latest range of professional recorders from M.C.I. These machines are $\frac{1}{4}$ " and $\frac{1}{2}$ " machines which have been designed utilising the latest techniques, i.e. phase lock capstan servo, D.C. spooling motor and the state of the art logic. This recorder has been designed to satisfy all European requirements.

The JH-528 series of mixing consoles designed to meet the needs of the large recording studio has in addition to all the facilities of the JH-400 series very much more comprehensive mid-range equalisation extending from 150 Hz to 8.5 KHz, with a choice of 24 frequencies in two independent groups. The console has 6 auxiliary sends which can be used for echo fold back or sub-mixes, with panning between groups five and six and slide-pots to control groups one and two.

The 528 is automation ready, all level functions control V.C.A.'s. There will be available an automation - processor together with a lock-up system enabling the multi-track machine to be locked up to a slave recorder so that data may be recorded on the slave machine without sacrificing tracks on the multi-track.

Both, the JH-428 and JH-528 are available as consoles with 28 or 40 input-output groups.

They are available as 16, 24, 28, 36 and 40 channel consoles, and can be readily expanded to a maximum of 40 channels



LETTERS

Sir: I bought a Stingray Super Combo Amp after reading your comments in a previous issue. However, when I am carrying the amp in my van, I can hear the reverb spring bouncing up and down. I am very pleased with the versatility of the amp, but worry about the longevity of the reverb. On the old Selmer Thunderbird amps there was a reverb locking arm to protect the spring. Is this no longer necessary on modern amps? Also, what about an article on the electrothamic bag? Are they produced commercially in the U.K.? Perhaps Stephen Delft could give a circuit diagram as I have tried unsuccessfully to make one with small amps and car radio speakers but can't get the sound to travel up the tubing.

Des Donnelly
Belfast

The reverb on the Carlsbro Stingray Super Combo is a Hammond spring reverb, which is a coiled spring suspended from a transducer at either end. I spoke to Noel Scott, who is the factory manager at Carlsbro, and he assured me that there have been very few problems with the reverb springs. Because of its flexibility, Noel feels that any attempt to restrain it, a locking arm for instance, would eventually stretch the spring. We hope to include an article and possibly a circuit diagram on the electrothamic bag, or "voice bag" as it's more popularly known, in a future issue.

Sir: I was very impressed by your articles on "Improving a Copy". My SG copy has similar tone control faults to the ones you described. The volume controls are 100K log, and the tone controls are 500K log. Should I use 500K log for volume? Also, should I get two more 250K for tone? The capacitors are 0.05— should they be changed to 0.02. Thank you for the marvellous articles.
Graham Smith
Middlesborough

Stephen Delft replies: Yes, 500K log is right for volume, and 250K will suffice for tone controls. You might be able to use 100K for tone controls: connect it, set the maximum treble, and listen; then disconnect one end of the capacitor and listen again. If it sounds brighter when disconnected, you need 250K pots: if not, 100K will do. Capacitors are a matter of taste and are least important.

Sir: I wonder if you could help me. On Saturday, July 12th, there was a group on the Old Grey Whistle Test called Moonrider, and in the last number the lead guitarist used a pedal halfway through which produced a fantastic sound, and changed the guitar completely. So if you could help me find the name of the pedal, I would be most grateful.
D. Allen
Norfolk

The song was called "Danger In the Night", and guitarist John Weider used a Guild Foxy Lady in conjunction with a Maestro Phase pedal set on medium phase. Incidentally, this track appears on their album Moonrider on Anchor Records (ANCL 2010).

Sir: I have an original Dobro guitar, bought by my father in 1934 from Whaley, Royce & Co. Ltd., of Toronto, Canada. Although it is still in fairly good condition, I would like to have it completely renovated, i.e. refretted, re-varnished and the metal resonator (which appears to be nickel-plated brass) replated. Could you advise me where I could have this job done professionally done and give me some idea of the cost.
Paul Gutteridge
Wirral

J.T. Coppock of Leeds distribute Dobro guitars in this country, and they hold a stock of all spares for these instruments. They also have facilities for renovations in their own workshop and estimate the cost very approximately at about £20. Obviously, without seeing the guitar, it is difficult to estimate the cost. If you take it to your local dealer, they will send it to J.T. Coppock and they, in turn, will inspect the guitar and give you an estimate.

Sir: Please could you tell me the price of Fender pick-ups and where they are available?
Marcel O'Connor
Co. Armagh

Fender pick-ups are available either on mail order from the Fender Soundhouse, 213-215 Tottenham Court Road, London W1, or from any Fender dealer. A Mustang or Telecaster lead pick-up costs £14.40, a Telecaster rhythm pick-up costs £18.00, a Jaguar or Stratocaster pick-up costs £22.35 and a Fender Humbucker costs £25. V.A.T. has to be added to all these prices and this is chargeable at 25%.

Sir: I thought I'd write to explain one or two things I'd like to see as articles in your magazine. First, I'd like to see an explanation of some of the lighting equipment used by name bands, the cost of it, where it can be bought, special effects and so on, with the action on lower cost, smaller systems suitable for smaller bands.

Also, an explanation of large P.A. systems, bins, horns, crossovers, multi-core and so forth in words of one syllable. I hope you'll be able to use some of these ideas. I find your magazine interesting, useful and informative without the trite journalism of other publications.

Brian Maxwell
Torquay

We plan to run a feature on P.A. systems in the very near future, and also hope to include a survey on lighting equipment.

Sir: Could you please give me the address of Hornby Skewes as I would like to know who is my local stockist of the Zenta guitars.
Alan Beavan
Birmingham

Write to Hornby Skewes Ltd., Salem House, Main Street, Garforth, Leeds.

Sir: Having taken all the issues of *International Musician* since its debut in March, may I offer bouquets all round for a magazine aimed at the genuine musician that has proved, month by month, a boon to all musicians seeking up to date information on the latest trends in equipment, as well as the informative Soundchecks and interviews, which are streets ahead of any other publications.

However, having handed out the aforesaid bouquets, may I be permitted to throw a gentle "wobbler". Being an ex-lead turned bass player, I have yet to read an interview with a leading bass player. So far, we've had Blackmore, Rossi, Gallagher, Trower, Sullivan and now, in the July issue, Jeff Beck. I am sure the many thousands of bass players who read your excellent magazine would be delighted to read an interview with a leading or session bass player, if only to see if they experience the same problems as a mere mortal like me.

Having said that, keep up the good work and I look forward to the next issue of *International Musician*.

Jim Spence
Aldershot

Thanks for your comments on the magazine. Regarding bass players, elsewhere in this issue you will find an interview with one of Britain's most fluent bassists — John Entwistle.

Sir: Thank you for printing my letter in your August edition. I hope we can all get something out of this. Since my last letter, I have found a few more places to play.

LEEDS POLYTECH COMMON ROOM,
Blackman Lane, Leeds 2.
STAGING POST, Seacroft, Leeds 14.
LEEDS UNIVERSITY DEBATING
CHAMBER, Blackman Lane, Leeds 2.
GATE HOTEL, Kentmere Avenue,
Leeds 14.
CHANGES, Sheffield Road, Barnsley;
Tel. 88859
Steve Parker
Leeds

If any other readers know of venues for rock bands, do write and let us know. In the next issue, you will find details on various London pubs which regularly book rock bands.

Sir: I have a fairly old Hofner bass guitar, similar to the HS 182 model, and recently its neck has warped in the opposite direction to the usual one — i.e. it's moved away from the strings at the head end. As you can imagine, this is very annoying since at any sensible action, the strings rattle on the frets. Adjusting the truss rod merely increases the amount of warp. What can I do?
Steve Kendall
Chester

This is a problem common to many old guitars. Warping can usually be remedied by adjustment of the truss rod, but it does sound as though the fault, in this case, lies with the truss rod itself. It's very difficult to answer your question without seeing the guitar but if the truss rod is at fault, you should get an expert to remove the fingerboard and replace the truss rod.



Photograph by Michael Putland.

Regarded by many as a musical genius; regarded by some as a plagiarising charlatan, Rick Wakeman at least evokes strong feeling. He is undoubtedly one of the most musical rock and roll stars and with a little care he will succeed in lifting that particular genre out of the image-ridden trough in which it has wallowed since its inception.

Above all, he is conscientious and careful and though some may be dubious about the end result, the means he uses are unique in an essentially inconsequential industry.

These days you're arranging, writing and playing — how much of your life is spent just being a keyboard player?

Not very much. I only play really when I'm actually performing on stage, which is very rare now. I do about 90 concerts a year, but the English concerts this year have been almost nil. That's not a comment on the English people, it's due to English venues — not the promoters, but the venues themselves. English venues just don't know how to cater for big concerts. They go out of their way to make life very difficult for artists. There's little point in trying to arrange things here when venues are so bad.

For example, with lights, the only people who have got Super Troopers — which are the best lights — are the Rolling Stones. So if you want to use Super Troopers, you've got to hire them from the Rolling Stones. If you can't get them and you play at a big venue, no one can see you. That's why there are so many complaints from English audiences about not being able to see people at Earl's Court and so on, it's the lights. The P.A. systems are the same. There isn't a good P.A. system available in this country — there is not one that is the equivalent of the Claire Brothers system in the States. With the money you make in America, you can afford to bring the Claire Brothers over once a year so people can hear you.

Has your keyboard technique suffered because you're playing so little?

No, because I still do all my practicing every day, three hours or so. *I know you haven't had time for three hours' practice today. Do you still get to play every day?*

No, today's been busy, but I still did an hour. I always sit down and seriously play each day.

Pressure is being put on you from all sides. How do you discipline yourself to allocate time in a particular direction?

Time is very difficult. Starting with the beginning of next year, I want to phase certain things out and do a cross thing. I'm getting very disillusioned with the whole rock and roll business. There's so much more to music than just electric guitar and electric keyboards. There are so many beautiful instruments in orchestras and there's so many beautiful choirs. I'm sure people don't realise that if you take a single piece of music, there's hundreds of different ways of singing it and playing it. I thought it would be really nice if all these different elements came together, not together musically, but together part and parcel. But it costs a lot of money.

I just tried and I thought I'd make enough money to break even, but I didn't. I was presenting many different sorts of music which I thought were so good that they ought to be put before people. People in the business said 'You can't do it, it costs too much money.' But it's just not viable financially. I know by losing 250,000 dollars on one American tour, playing to an average of 12,000 people a night. How can you play to an average of 12,000 people a night, paying around six dollars a head, on a 25 day tour — how can you be 250,000 dollars down?

OK. How?

Well, the expenses are phenomenal. Orchestras are expensive — there were 118 of them — and it cost a fortune. I thought I could pretty well break even. *You're speaking as though you were the only financier.*

Well, I was. Eventually, it all comes out of one pocket. To do the 'Journey' concert at the Festival Hall, I hocked everything I had. I was broke when I went in there and it was pretty much the same for the American tour and for Wembley. It came to a point where I had no money left. I'd made a lot of money, and I hadn't frittered it away on daft things, and I suddenly found I had no money left, I was absolutely broke. I had to sit down and I'd decided I can't do the big thing any more. I'm going out now with a small band — we've had a few changes already in the band — and we'll play really well and it will all be very good and it will all be very economic, but it's not what I want to do.

What I want to do... I've found a niche in a strange way. A lot of people have said 'Your music always sounds like film music', so having done this film (Russell's *Liszt*), I've suddenly realised that writing not only for visuals but for things that actually exist could be the niche for me.

The thing I want to do is to gradually phase across — do a cross fade — and get the English Rock Ensemble to a stage where they can carry on, on their own... I enjoy the rock'n'roll thing, I really love it, I'll always want to play on stage and I'll always want to record, but I want to cut it down, because there's so many outside people who are absolute bloody sharks.

Are you saying that you've suffered at the hands of these people? If I remember rightly, your early days in the music business were unusually free from rip off artists.

WAKEMAN



I never actually got ripped off, or when I did it's been my own fault. I was the only guy going around using orchestras that get good money, all this sort of thing. While you've got money in your pocket to pay for it, nobody ever says anything. When it runs out, people rush up and say 'Oh look, I'm sure we can sort something out here', and I sense some sort of financial thing coming up, like 40 per cent loans, which I don't want to know about. I like having fun when I go out with my small band, I enjoy it just as much.

Are you saying you're worse off now than you were a couple of years ago?

Well, asset wise, I'm all right, but in terms of cash flow it's diabolical.

You're an exacting technician in your music, you must have found it very hard to get the right band.

Yes, I'm just having a change round now actually. It's not a question of the people in the band not being able to play, it's just that it always takes a little while to see how people fit together and what they really want to play.

When I started the band, I went to a lot of faces first of all, really well known names, and they just couldn't play. I went round pubs and local clubs and that's where I got the band from. The standard of playing of rock'n'roll stars is appallingly low, fucking dreadful. I'm sure the really talented musicians are stuck away in little pubs or playing in Palais bands, and that's where I found my guys.

Because you're going out with a small

band for the first time, are you going to have to write a completely new set of material?

I'm going to alter the whole set round, there's lots of stuff that we're going to have to lose, which is a shame, but there you go, and I'm writing some stuff to fill in.

How does that writing task appeal to you?

It doesn't appeal to me too greatly, actually, but I did miss that while I was writing for orchestras. The beauty of the situation is that as I'm going to be writing some film scores, I can get my orchestra frustrations out in that way and I can also lose the small group frustrations with the band.

Before you joined the Strawbs, you were earning your living from session work. It almost sounds like the wheel has turned full circle.

It has, but the advantage this time is that I've proved myself. I've learned two things. I like working with people, but I like having my own way, I do like having that. I like having not only the last word but all the words that go before it as well. But I've also learned, through playing with the Strawbs, Yes, and the English Rock Ensemble, that in theory you can't always have all the say, but you can if you get to know the other people's frustrations and find an outlet for them to get their ideas over. For example, in the English Rock Ensemble, they've got their own deal. They're writing their own stuff – and it's bloody good as well – they're doing their own album, they've got all the facilities of the factory to get their thing together and all of my organisation is behind them. When I ask them to do something, they'll do it, and sometimes they get little ideas and offer them and they're not frustrated because they can do whatever they want. That works really well.

I suppose I am virtually returning to session work, but this time I'm a chief and not an Indian.

You're obviously working very hard now. Do you envisage a time soon when you'll not be working quite as hard?

I said I was going to slow up about two years ago, but I didn't. Music is a really strange thing, it must be the same with a paper.

Yes, but without the emotional strain of stepping in front of 12,000 people after all the hassles.

No, stepping out there isn't emotional strain, that is lovely. People can like our

music or hate our music — it's usually one or the other — but people generally seem to like us as individuals. That helps us when we go on stage. Lots of people don't like my music, but I still seem to get on OK with those people and that makes things a lot easier. I think we've got one thing over everybody else. When you come to our concerts, whether or not you enjoy the music, there's a warmth of feeling of everybody being involved and no feeling of 'Hey man we're one better than you'.

That's something that applies to all the band. Before they came to me, the biggest audience they'd played to was 50 people in a pub. The first gig we did was the Festival Hall, the next Crystal Palace — 15,000 people. It didn't worry them in the least, because they treated it exactly like a pub gig.

When it comes to a reception, we don't have it in a Park Lane Hotel, we have it in a pub round the corner. It's not deliberate, it's the way we are. On the other hand, I'd hate it if we couldn't have a reception in Park Lane. Unfortunately, the one sad disaster in the music industry at the moment is that success is gauged on chart success and financial reward. If you don't reach the charts and you don't make any money, then you know that your album hasn't been a success and that's the only gauge there is. I don't know any other way to go about it. I mean, I like all the frills, all the money, all the houses, and so on, bloody great. The thing that pisses me off is that I've earned a tremendous amount of money and I've pushed a hell of a lot of it out to support something I think is really great, music that I feel should be presented to people, and it's fallen flat on its arse.

My real big beef is that this music — the music of the sixties and seventies — should be remembered in 40, 50 or 100 years time and I'm not sure it will be. It should be remembered the same way that Beethoven and Mozart, the big composers of their day, are remembered.

People remember musicians' images today, rather than their music, and that's very sad. In 50 or 100 years time, I would like to think that my music will still be played. There's a lot of good music come out of the sixties and seventies, and I wonder in 100 years time which will be more important — the artist or the music.

The final decision hangs on the quality of the music, so shouldn't that be the

way to judge it in the first place? Why is it that every band writes their own music? You couldn't find one concert in the world tonight which is a concert of Moody Blues music, unless it's being played by the Moody Blues. This is sad, and bad. It worries me, because bands have been conned into the idea that they have to write for themselves. Music isn't being given to other people to play and interpret, and, for that reason, it is never improved or broadened. It's almost impossible today to write music for other people and that's very sad. In this music for the Liszt film, for example, there's a song that Andy Williams could do, Jack Jones could do and a pub band could do, and film music seems to be one of the few areas which throws up tunes and songs that other people aren't afraid to perform. But in general, people are ashamed to perform other people's music, and that's criminal.

When a manager or a record company calls a band in, one of their first questions is 'Is all your stuff original?' It drives me mad, that's the part of the business that makes me really sick. Take writers like Pete Sully and Colin Graves, they write nice songs, but what chance have they got?. If they were great performers, they'd get monster hits, but you try and place their work elsewhere and you've got no chance, and it really pisses me off. I've now got a chance of doing some songs I really like on my own album, but it does seem to be a disgrace to do other people songs. I think that's why there's been a kind of reversal, and you have a lot of highly talented musicians in pubs and clubs because they aren't necessarily good writers, and mediocre musicians make it because they can write. *You mentioned earlier about allowing the English Rock Ensemble to use your factory. I believe you're involved in a new business venture.*

Yes, I've started a new company called Complex Seven. Really, it's seven companies rolled into one which is where we get the name. It came about really because I couldn't get the service I needed. Even if I went to three or four different places, I still couldn't get all the services I needed, so I decided to start my own organisation. Originally, it started off when I thought I'd buy myself a small factory where I could store my equipment and save some money. Then I realised that I was paying out £300 a week for rehearsal facilities, so I decided to find a place, a slightly bigger place,

with room for rehearsal as well. Then I realised that my road crew needed a workshop to work on the electronics, so I decided to get a place just a little bit bigger and then because I was a bit disillusioned with a particular keyboard instrument, and I had met this guy in America who had designed an incredible keyboard machine, I decided to put the whole lot together and get into a company that offers all the services I mentioned and is also manufacturing a new keyboard instrument.

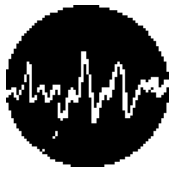
The instrument is called The Birotron, after the guy who designed it. I'm always meeting inventors who have built an organ or a synthesiser and want me to hear it and so on, but when I met this guy it was a bit different. I was playing in New York State and this guy walked into the dressing room and said 'I've built this machine'. I said 'Great.' He said I've got it with me, I've driven 400 miles to show you it. He dragged it in and although there were lots of faults with it, I just knew he had a good idea.

The machine is basically a keyboard that offers the player sounds from pre-recorded tapes so that by selection, you can be playing violins, or trumpets or what have you. That's not new. What *is* new is that you can hold a particular note indefinitely, unlike other instruments which use recorded tapes, and you can play as fast as you like.

The action of the keyboard is not mechanical but electronic, so we've essentially got a piano feel to the keyboard. The pre-recorded sounds are stored on endless loop cartridges, so that a particular sound will go on for as long as you want it and there's no delay before you can repeat a note. This is coupled with some other incredible advances in design on this sort of keyboard and for that reason, I was sufficiently impressed to want to be involved in producing them. It was at the time I was getting all the factory ideas together, so it seemed logical to use the facilities in this way.

I persuaded the guy to come to England and we started ironing out all the little faults. I put my electronic staff at his disposal and very quickly the problems disappeared.

Today I think the Birotron's an amazing instrument. The sound quality is superb and because we're using a cartridge system for the tapes, you can virtually have as many sounds as you like available. You just change the cartridges.



Test Report on: *Soundcraft Sixteen into Two Mixer*
 Date: *July 1975* *£1000 Ex VAT*

The "Sixteen into Two" is a large "stage" mixer designed for balancing the sound of live music. Though less expensive than a professional studio mixer, it has most of the same facilities and almost studio performance. The unit is specifically designed to withstand a life "on the road" with a group and, for ruggedness, is constructed in what is called an "aluminium flight case". This is an extremely sturdy aluminium covered, plywood case with strong catches and handles and reinforced corners.

The facilities provided on each input channel are:

- (i) 200 ohm balanced line microphone input via an XLR connector
- (ii) input sensitivity control
- (iii) 4 channel equalisation
- (iv) foldback and echo (or reverb) rotary faders
- (v) slider main fader and rotary left/right balance control.
- (vi) monitor selection and channel off/on switch.

One echo output is provided for driving an external effects units but two echo return inputs, each with its own level control, are fitted. This permits two external effects to be used simultaneously. The echo channel has a full set of four tone controls and foldback and master echo controls.

Each of the two main output channels and the foldback channel has a master fader and bass and treble controls. A headphone monitor channel can listen in on any mixed output or any individual input channel. Two large V.U. meters can be switched to measure the signals on the main outputs or to measure the foldback channel output on one meter and the source selected by the headphone monitor on the other.

All the inputs and outputs, apart from going to XLR connectors, also go to a single multi-spin socket so that a multi-core cable can be used to connect the mixer to a stage box. This permits the mixer and its operator to be placed out in the auditorium. A suitable multi-core cable on a dispenser, and the stage box can be provided as an extra.

Construction

Inside the sturdy outer case is a single large front panel on which all the working parts are mounted. Each of the 16 input channels has its own printed circuit board; three identical mixing boards are used for the left, right and foldback channels and two further boards carry monitor and reverb channel components; total of 21 printed circuit boards. On current units these are made of phenol bonded paper but glass fibre boards are being fitted to all new units.

Components with any significant weight are not mounted on the printed circuit boards but are directly bolted to the main panel. These include the 16 mu-metal shielded input transformers, the toroidal mains transformers, which is also in a screening case, and the smoothing electrolytics.

A lot of thought has obviously gone into the choice of components and method of construction. The slider pots have the track offset to the slot so that any dust which gets in does not settle on the resistive element and so make the pot noisy. An R.F. filter has been fitted in the mains circuit so that mains-borne interference is rejected. The mains adjuster is next to the mains input socket so it is less likely that one would forget to set it correctly. There are also numerous other small features which indicate attention to detail in the design.

Conclusion

This is a well considered piece of engineering which will satisfactorily do the job for which it was designed. The quality of components and of construction is good and the facilities and performance well justify the price tag. In use, one may expect to require inputs from music sources other than microphones. The manufacturers can provide special inputs on request.

Parameter	RESULTS	TEST CONDITION	COMMENTS
Maximum gain	66.8dB	Sensitivity & fader at max balance central.	-62.8dB m input for +4dBm output
Input Saturation	-39dBm	@ max ip gain	Turning input control down will allow higher input levels
Max. output	+19dBm		Onset of output clipping this is equivalent to 7 V RMS
Input tone controls	+16dB	Treble @ 15KHz	Input tone controls very good.
	-16.8dB		
	+13.8	Presence @ 3KHz	
	-13.1		
	+12.2	Middle @ 300Hz	
-12.5			
+17.2	Bass @ 60Hz		
-15.5			
Output tone controls	+12.8dB	Treble @ 10KHz	good
	-11.8dB		
	+13.0dB	Bass @ 60Hz	
-11dB			
Input Noise	-126dBm	200 ohm sources, gain at max. calculated valve averaged from 7 ip chans	Very good.
Residual Noise (ie mixer stage)	-76dBm	- all input & main faders at zero	With input sensitivity control central the value is a little higher than this.
	-66dbm	- input faders at zero main faders at max.	Quite good but could be better. Residual signal to Noise Ratio 70dB to 80dB. Noise measurements were taken broad band but better figures would result if measurement were restricted to audio bandwidth.
Distortion	0.065%	through whole system with output level of +4dBm	Very good
Meters	OVU = +4dBm		This is the American standard. The mixer will also work successfully into 0dBm levels

by Bruce Gibbs

the biotron

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Test Report on: *Davoli Tempest 50T*

Date: *July 1975* *£145 EX VAT*

The Davoli Tempest 50T is a combination amplifier of a low priced, unsophisticated type suitable for amateur and semi-pro bands or groups. The facilities provided are two inputs, one normal and one with treble boost input sensitivity, bass, middle, treble, volume, super treble boost, tremelo depth and tremelo speed. The hybrid amplifier circuit uses five transistors and four valves, which in turn drives an internal 12 inch speaker. Two extra jack sockets are provided on the back for driving external speakers. An on/off switch is provided on the rear panel.

Construction

The construction is in a vinyl covered wooden chipboard case 32 inches high, 20½ inches wide and 12 inches deep. Three quarters of this volume forms a sealed, infinite baffle speaker enclosure and the remaining quarter houses the amplifier. A handle is fitted on the side of the case and the case corners are protected with metal caps. The electronics are in two separate parts which are interconnected by plugs and sockets. The control panel unit houses the pre-amplifier and tremelo oscillator on two small PCBs. These circuits are fully solid-state, using a total of five transistors. The second electronic stage is a valve power amplifier using four valves and silicone rectifiers. Access is reasonably easy for servicing, components are of good quality, soldered joints are good and the wiring reasonably tidy. A wired-in mains lead can be stored on clips provided on the recessed rear panel.

Parameter	RESULT	TEST CONDITION	COMMENTS
Power Output	47.5 WRMS 36.1 WRMS	8 ohm load @ 10% distortion at onset of clipping	
Distortion	5.3%	@ 25 watts	high at 25 watts but
Total harmonic	0.4%	@ 1 watt @ 1 KHz	similar to other valve amplifier power stages.
Output protection	OK	2 min. short circuit with full drive	good; worked instantly S.C. removed
Capacitive load test	OK	load 2uf and 8 ohms	
Tone control range	15.6dB 9.0dB 17dB	@ 10KHz treble @ 100Hz mid. @ 50Hz bass	The mid range control works over the whole spectrum?
Sensitivity	3.3 mV at I.P.1 2.4 mV at I.P.2	tone controls max. gains at max OP=25 WRMS @ 1 KHz	very sensitive
Tremelo range	3.5Hz to 14Hz		good
Tremelo depth	0 to 90%		
Signal to Noise ratio	68dB	sensitivity set so that 50 mV in gives 36 watts out @ 1 KHz tone controls @ max	good

Conclusion

The unit is robustly made and the electronics are of a commercial standard. The measured power output is not high, although a sound test proved that the thicker valve sound at something near to 50 watts gives a high level of sound. The inherent distortion coupled with treble boost could be a popular sound with some guitarists. At £145 plus V.A.T. the Tempest 50T is fair value.



Test Report on: *Bose 1800 Dual Slave Amp*

Date: *Aug. 1975*

£550 ex VAT.

The Bose 1800 is a very high power dual channel slave amplifier capable of giving an output of 400 watts RMS per channel into four ohms or 250 watts per channel into eight ohms. The basic unit is 19 inch rack mounting but the manufacturers can provide, as an optional extra, a transit case with removable front and back, in which the amplifier may be transported and operated. When mounted in this case, the amplifier is suitable for use on stage. As with most slave amplifiers, the only controls provided are a gain control for each channel and an on/off switch. A pilot light is fitted and a high temperature indicator illuminates that if the thermal cut out operates due to the amplifier overheating.

A novel feature is an output peak level indicator which consists of a set of light emitting diodes for each channel. These successively light as the power level is increased, so at very low power they are all out and as the power is increased more of them light until they are all on. Two lights at the top of each column indicate when the amplifier is being overdriven.

Input jack sockets and output terminals, which will also take 4mm plugs, are on the back panel.

Construction

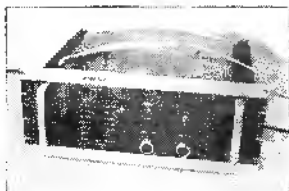
The construction is very solid, making the total weight approx. 80lbs. Both the sides of the case and a large proportion of the back panel are finned heat sinks for efficient cooling. An enormous mains transformer and two very large electrolytics fill the centre of the case and there are printed circuit boards on each side of the electrolytic. The construction of each amplifier board is quite complicated because all the amplifier components, including the output transistors, are mounted on the board. An intermediate heat sink transfers the heat from the output transistor to the main heat sink and all the electrical connections go to the boards via plugs and sockets. The result is that a complete amplifier can be removed and replaced in less than five minutes. The quality of components and workmanship is good and the wiring tidy and well secured. The mains cable is of the retained type and has the wrong colour coding for use in Europe. It also has a moulded-on American mains plug which is also unsuitable for use in this country. The amplifier comes complete with input leads, L.S. connectors and an instruction book.

Parameter	Results	Test conditions	Comments
Power O.P. (one chan only)	595 W.r.M.S. 365 W.r.M.S.	Into 4 ohms at onset of clipping into 8 ohms @ 1KHz	Very good - spec. 400w into 4 ohms and 250w into 8 ohms
Distortion (total harmonic)	0.07% 0.635% 0.06%	@ 400w into 4 ohms @ 1KHz @ 100w " " " " @ 4w " " " "	Very good
Output Short circuit test	OK	2 minutes short circuit Thermal cut out operated after 1 min. 40 sec.	
Open circuit output test	OK		
Capacitive load test	10% overshoot of square wave	4 ohms and 2uF load	OK
Sensitivity	1.49 V.r.M.S. 1.33 V.r.M.S.	for 250 watts into 8 ohms " 400 watts into 4 ohms	Not sensitive enough for some European pre amps. This level is +4dBm
Output level indication		Worked at correct levels	Very good, imaginative and useful.
Frequency response	-1dB -3dB	at 16KHz at 32KHz	Good - No detectable bass roll off at 10Hz
Noise	-98dB	Below clipping (400w into 4 ohms) broad band measurement	Very good
Thermal cut out	OK		Good - Self-resetting

Conclusion

A very good quality product with an excellent performance that well exceeds the manufacturers claims. With a total power output capability of 800 watts with both channels operating, a price of £550 excluding V.A.T. is not expensive, viewed on the old pound per watt basis.

We contacted the manufacturers about the American colour coded mains lead supplied (common to most imported American equipment) and we were advised that this is going to be changed to the European standard in the future.





GUITAR CHECK

by Stephen Deftt

Gretsch 7670 Country Gentleman Retail Price £401.45

(The price includes a case, strap, and lead.)

When I was asked to review a Gretsch guitar, I was surprised to realise that in eight years as a maker and repairer in London, I had not seen a *recently-made* model. This suggests to me that: a) They are fitted with particularly tough frets; b) Nothing much goes wrong with them; c) The Country music business has its own circle of makers and repairers; d) The old ones were so well made that they refuse to die.

I am pleased to say that the first new Gretsch I have inspected closely is very nearly as fine as the old ones, and even appears to be made in the same way and from the same materials. Unfortunately, the fact that it is the *same* guitar, made in the *same* way, illustrates only too clearly the real increase in prices recently: if you don't trim the craftsmanship, you can't trim the price either!

The neck is strong, slim and feels almost as though it isn't there, but the claim to be *three-ply* maple is a little tenuous; in fact, I generally find two-piece necks, such as this, more satisfactory. The ebony used for the fingerboard is really not of adequate quality for this guitar, and will tear badly during refretting. However, the "wild" grain of this type of ebony is clearly visible to the eye, and therefore can easily be avoided. I think this must be one that crept through, as it is not typical of Gretsch quality. The truss-rod is operated by a gear box inside the heel, (did Jim Burns have something to do with this?) and it is easier than most to adjust accurately. Apart from the addition of the gear-box, this neck and truss-rod design appears to be the original one, and time has proved it to be a stable and reliable system (Most old Gretsch necks are still straight, and that is the real test.)

The instrument has a 24½ inch scale (622 mm.), which is relatively short and characteristic of all the Chet Atkins models. The string spacing is 35 mm (at the 42 mm wide nut,) and 51 mm at the bridge.

The catalogue claims black and white binding. The head facing is black vulcanised fibre (much preferable to plastic or black paint) but I would not describe it as ebonised. It doesn't need ebonising— it is black anyway. I don't know what "Neo-classic fingerboard inlays" means, but I have always liked position markers near the edge of the fingerboard, (see photograph).

The bridge is strong, graceful and easy to adjust without hurting your fingers, but the review sample was not properly brazed before plating, and has cracked at one end. (This is also unlike a Gretsch.) The grooves in the adjustable string saddles are clumsy and cause the first and second strings to buzz, and I would like to see these saddles gold plated to match the rest of the bridge.

The pick-ups seem to be substantially the same as those on my old Gretsch, but there appears to be some confusion about the metal pick-up covers—I would prefer to see the type of cover which overlaps the top of the pick-up, between the rows of screws. This is shown in the catalogue, but wasn't fitted to the review sample.

I must unfortunately state that the guitar was delivered to me with neck and pick-ups entirely unadjusted. The truss-rod gearbox makes adjustment of this so easy that it would present little problem to the owner (but the appropriate instruction leaflet was not supplied), although the bridge pick-up was stuck so high that it touched the strings when the action was set up *correctly*, and I had to take it to pieces to free the vertical adjustment screw. There had been no attempt to adjust the pick-up pole-screws to suit the set of strings fitted. This is not in the makers' interests, as the guitar sounds much better with the pick-ups adjusted.



The lowest action under our standard review conditions (See the August issue) was 1.1 mm for the top, and 1.6 for the bottom string. The limiting factor was a slight, spiral warp of the neck and fingerboard. The figures are still very good for such a slim neck.

The control knobs appear to be either brass or anodised aluminium (if they are gold plate, then it has a very dull finish). They would look better if given a suitable chemical dip to stabilise the colour and match it to the rest of the gold plate. It is interesting to note that the gold plating on parts actually made by (or for) Gretsch, such as pick-ups, surrounds and bridges, is of a very high standard and similar to work done for me by a jewellery re-plater, whereas the plating on the switches and jack socket is perilously thin.

It is possible to make the tone control system more flexible by reducing the value (relatively simple) and/or converting the master volume control to a variable tone control, on one or both pick-ups (this involves complicated re-wiring). One could also squeeze additional value out of the stand-by switch by arranging it to give a lower output in one "on" position, for rhythm work.

Another interesting point is the nut, which uses a separate "Zero-fret". This ought to give trouble, but in practice it never seems to! I suspect this is due to very tough fretwire and a well chosen string angle at the nut. The machine heads are gold plated Grovers and all six work smoothly. The buttons are larger than usual, which you may prefer, but I don't find they make any difference in tuning.

The sound of this guitar on chord or solo work is magnificent. The chords sounded so rich that I went to turn the reverb off and found that it was already off! On single-note work, I found the treble-cut settings of limited use, until I roped in a couple of passing friends for back-up. Then I discovered that even on minimum treble, the guitar would still cut through two loud acoustics and sounded a little like a pedal steel. These pick-ups have the interesting property of retaining their punch, even with the treble off.

In spite of this, the tone was not quite as good when either volume control was turned down a little. (This is very common in electric guitars, see July and August "Improving Guitar" articles). The internal bracing and soundposts between the front and back of the body are massive, well fitted

and appear to be made of hard maple. This may explain why this guitar has an excellent sustain for a "semi" and suffers much less than some other makes from acoustic feedback and microphony.

Summary:

- 1.) The controls are practical, but one could do more with so many knobs.
- 2.) The fingerboard is really not up to standard on this sample.
- 3.) Great to listen to.
- 4.) Great to play (after it had been set up properly)
- 5.) The components made by Gretsch are better finished than those which were "brought in".
- 6.) The published price of the guitar also includes a fine contoured case, a good quality leather strap, and a lead. The case was found to fit the 7670 guitar rather too tightly, owing to the tremelo arm fitting. Without a Bigsby, the fit would be perfect.

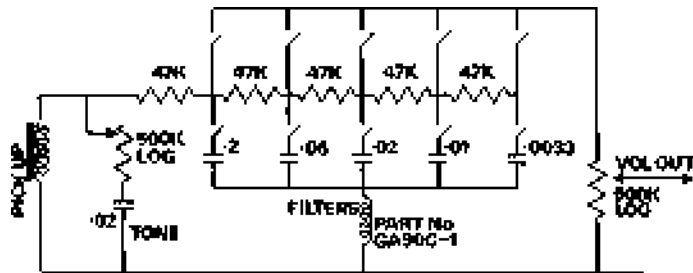
Epiphone Emperor

Retail Price £500 S/H

In last month's issue, I was unimpressed by the Switchmaster last month: *this is more like it!* I am afraid I generally only admire old instruments which were more or less hand made. I also tend to consider machine assisted guitars, which happen to be rare, as just that. While I will happily agree that such guitars may be wonderful musical instruments. (I am in the process of spending a lot of money restoring a similar Gretsch), I would hesitate to call them works of art in the same way as a Martin/Ditson '45.

In contrast, the Emperor is probably the top model of a range of very wide-bodied amplified acoustics made by Epiphone. The electronics are complex to the point of absurdity, and the pearl inlay work, while not very special by pre-war banjo standards, is unusually pretty and well cut for an electric guitar. This instrument definitely has its own style, and pleases me as a guitar-maker. It seems I have expensive tastes, because the price is around £500, excluding V.A.T.

Apart from the pearl and the sheer size of the beast, probably the most obvious feature is the row of push-buttons near the tailpiece. These are not labelled, but appear to control pick-up selection and tone effects. I have unearthed the



following circuit from a similar Epiphone switch unit and it may help to explain what is going on. The switches are ganged in pairs and pressing any button cancels the last setting, so only one pair of switches can be on at any time.

The whole system is similar to the Gibson rotary tone selector, fitted to some semi-acoustics. In the diagram, I have omitted resistors (10 meg) across the lower one of each switch pair for the sake of clarity. Obviously, the Emperor would also have pick-up selection switches.

I would have liked more time to play with this tone system, but my first impression was that the response of the pick-ups was fairly limited by modern standards, and such drastic filtering of the signal is probably necessary to make any significant tone changes. However, I must reserve judgement on the pick-ups as I have not had the opportunity of playing the Emperor with other guitars, or on stage, and this often drastically changes one's ideas about an instrument's tone quality. The pick-ups are very shallow and appear to be non-humbucking types, but well screened, with the adjustment screws at the edge of the coil and the magnet in the middle.

Most of the instrument appears to be constructed from "flamed" maple. The neck is straight, and frets and fingerboard are in good condition considering the age of the instrument. Unfortunately, I

examined this guitar some weeks ago, before our use of standardised action measurements, and I can not supply exact figures. I certainly noticed no difficulty in playing, despite the relatively heavy strings.

The nut is interesting and appears to be original. It is divided into two strips by a horizontal groove. The strip nearest the machine heads is slotted in the normal way to locate the strings, but the other part, next to the fingerboard, is lower and quite flat, and the strings finally rest on this before leaving the nut. A guitar nut normally has two jobs: to separate the strings and to set their height above the frets. In this example, the two functions have been separated, making adjustment more laborious but also more stable and more tolerant of change in the string gauges.

Although the body is in good condition, the lacquer on the head is cracking seriously and needs professional amalgamation before it is too late. The tone switches could also need a lot of attention. Apart from this, the Emperor seems to be in reasonable playing condition and, with the possible exception of the switches, could be restored to practically mint condition if that is what you want.

It is not my place to comment on the price, but although I consider it a better instrument than last month's Switchmaster, it is not so obviously a good medium term investment, and could take longer to re-sell.

B&M Country Classic

Retail Price £23.71

This is one of a large range of guitars manufactured in Spain for Barnes and Mullins. Most of the models compare and compete favourably with Japanese guitars in the same price range.

Over the last few years I have watched the standard range of instruments improve, until they have a glossy finish rivaling any Japanese guitar. While I am sure this will benefit High Street shops, I feel that it is possible to take this process too far, and any further im-

provements to the finish should be directed inside the body. (In the review sample one of the back struts entirely misses its locating pocket in the back lining; fortunately, the non-cracking properties of the glue used makes this less serious).

The machine heads are probably Dutch and work well enough, although the holes in the head for the string rollers are erratic and too large. In theory, this imposes more strain on the machines and their mounting screws, but there is often enough slack in the bearings to allow the rollers to align themselves sensibly.

The nut is moulded plastic and has been designed to cause as little trouble as possible: it would obviously benefit from minor adjustment to the string slots before sale, but what medium-priced guitar wouldn't! The standard of fret positioning (accuracy of intonation) and fret fitting is particularly good, and exceptional for a guitar in this price range. The action as supplied is 3.1 mm top string and 3.6 bass string: these are good general-purpose figures for a nylon string guitar.

The body construction is a mixture of traditional and modern. It is very light and responsive, and the neck has the long internal "toes" which help tone quality in a lightly built instrument. Front, back and sides are of laminated construction, and the internal strutting appears to be some form of pine or spruce (little thought has been given to grain direction). The strutting around the bridge is simple, unorthodox and effective. Not surprisingly, it works like a cross between a Hauser and a Ramirez. The resulting tone and sensitivity brings me to the most important part of the review.

There seem to be two sorts of 'Spanish-style' classical guitars. The cheaper ones are like the guitars Spain has always exported in large quantities. At roughly the standard of a Student Ramirez, you get instruments designed for higher tension strings, and with the greater presence and dynamic range needed for the modern Classical guitar repertoire. (The cheaper ranges of guitars are not just inferior, they are generally a totally different animal. The B.M. Concert is obviously inferior to a Student Ramirez, but it is roughly the same sort of guitar and some teachers may wish to recommend it as a first guitar. It is also loud and penetrating enough to be audible in a school assembly, when fitted with half-dead strings, and played by damp and trembling fingers.

Test Report on:

Galanti 'Instastring'

Date:

August 1975

£319.44 EX VAT

This impressive machine is designed to be used in a band or group environment and is eminently suitable for combo or organ/doubling applications.

Having tried all the string synthesizers on the market at the present time, I found that they all have good and bad points. If you compare them with a large synthesizer like a Modular Moog, they are very basic, but the large machines are not suitable for stage use because they need complicated setting-up before each part is played. This leaves a wide area where a smaller machine costing as little as possible can fill a useful role.

The Galanti "Instastring" is extremely good value for money and is very nearly as good as some machines costing twice as much.

Voices	<i>Quite a good synthesiser of a real solo-violinist and the top register gives a nice string ensemble effect.</i>
Violin	<i>The best of the voices, the Cello is very realistic indeed.</i>
Cello	<i>Not at all like a live trumpet player, but has a very nice "Trumpet" voice similar to that emanating from a large pipe-organ, but with a most unusual "phasing" effect which many people could find very useful.</i>
Trumpet	<i>This voice did not impress me at all, but it does give an extra tonal effect which could be useful to have. The tone is rather stringy and has the timbre of a harpsichord played softly.</i>
Tuba	<i>Some very pleasant sounds are created by using the Violin and Cello together, and by combining the Cello and Trumpet.</i>
Voice combinations	<i>The Tuba sounded very happy when used in conjunction with the Cello.</i>
Vibrato	<i>Any of the four voices can be combined to give a lot of different tones, all of which sound bright and clean. No vibrato control is supplied because the "ensemble" effect is caused by, if my ear tells me correctly, a phase-shift type phasing effect operating at a set speed.</i>
Attack and Decay enveloping	<i>This is possibly why the trumpet has such an unusual sound, but it is a good way of getting an out-of-phase sound from one set of generators without undertaking techniques which are prohibitively expensive.</i>
	<i>The attack control does exactly what its name implies. You can set it to give a very slow, non-percussive, turn-on of a note or chord and at the extreme setting quite a noticeable delay between the note being depressed and any appreciable amplitude being attained occurs.</i>
	<i>At the other extreme, the attack is still quite slow, and a minor criticism would be that you are not able to get enough attack to play very fast passages and no pizzicato effect is available.</i>
	<i>The Decay cycle is controlled by another slide-potentiometer which gives, in organ parlance, a "sustain". The control available is wide and comes into effect only after a note or chord is released.</i>
Volume Control	<i>A slide potentiometer is fitted on the control panel which can be used to set the volume of signal available on the two output sockets which are labelled Hi, and Lo. outputs.</i>
	<i>In addition, the Instastring comes with an expression pedal which plugs into the jack socket marked Exp. on the back of the instrument.</i>
	<i>Neither of these controls seemed to affect the tone of the instrument at all and are therefore purely volume controls.</i>
Tuning	<i>An exceptionally wide tuning facility is provided on the pitch control, which is conveniently situated on the control panel. Starting from an 'A=440 Hz.' setting, I managed to drop the overall pitch by an augmented fifth interval and, from the same starting point, raised it by a major 3rd interval, giving a total adjustment of 14 semitones.</i>
	<i>Some very interesting effects become possible through this pitch variety and I'm sure that, with a little experimenting, the musician could learn to use this "Glissando" effect as a sound effect.</i>
Manual Power Supply	<i>A single 49 note keyboard.</i>
	<i>220v. 50/60 Herz.</i>
	<i>The mains cable was wired directly into the instrument and a 250 m.A. Slo-Blo type cartridge fuse was fitted to the back panel. A very useful cable pocket into which you can place the cable during the dreaded "humping" which most group and band equipment undergoes is also fitted.</i>
	<i>The Mains switch is fitted to the little panel on the right hand end of the keyboard and sports a nice bright indicator light built into the switch itself.</i>
Output Sockets Mounting	<i>As previously mentioned, normal jack sockets fitted on a panel at the other end of the instrument to the mains lead, thus minimising the possibility of mains pick-up on the screened leads going to the power amplifier.</i>
	<i>No legs are fitted to the Instastring but two plastic blocks underneath have serrated bottoms which appear to be designed to sit on a table or another instrument and have quite a good grip. This should stop it sliding off at an inopportune moment.</i>
Construction	<i>The main chassis is mounted on a chipboard base and two veneered end cheeks, which I suspect are also made of chipboard, give it a nice stylish appearance.</i>
	<i>The top panel looks as though it is made of anodised aluminium and has an attractive pattern in old gold on it.</i>
	<i>The mains-lead and jack-socket panels have a sensible black plastic surround which should ensure that the all important connecting facilities do not suffer accidental damage easily.</i>
Conclusion	<i>Well worth the price and certainly likely to cause the other string-synthesizer people to look at their prices again.</i>
	<i>The lack of attack means it is not really suitable as a lead-instrument.</i>
	<i>One of the particularly nice things about this instrument is the very low level of extraneous noise, which make it suitable for use with high power amplifiers.</i>
	<i>I found no "faults" on the machine I tested, which was chosen from the stock of an unsuspecting retailer.</i>



Test Report on: *Pearl Rock Kit¹*

Date: *August 1975* *£333.33 ex VAT*

My introduction to Pearl Drums came many moons ago when someone began to bring a very cheap, and ostensibly inferior kit into this country. However, just recently on trips to the States I was interested to see that an awful lot of, normally patriotic, American drummers were switching from their home grown sets to the Japanese built versions. I had heard these people, like Ed Shaughnessy, and Frank Zappa's drummer, Ralph Humphrey, playing their Pearl kits but I had not had an opportunity to investigate them. So, it was with mixed feelings that I approached my first drum check for International Musician.

Materials

The fibre glass drums had the brightest sound and would definitely be the loudest. Next came the wood and fibre which were, in turn, brighter than the wood. Their "woodfibre" shells are five-ply with an approximately two-ply coating of fibre glass inside. The wood shells are seven-ply with what looks like a white polyurethane finish inside. The re-cycled paper which looks to me like bakelite, again produced a bright sound but, each alternative had its own unique timber. So, it's very much a matter of personal preference. You pays your money and you takes your choice. I must say it makes a refreshing change for the drummer to have the opportunity to be discerning in his choice of shell-material. Especially since it's just one manufacturer offering these options.

Bass Drums

The 24" bass drum is fitted with twenty business-like nut boxes and very solid looking tym-p-tuners. The spurs are really unusual, certainly unlike anything available in Europe before. Attached to the drum by a knurled thumb-screw, they are easily adjustable on a screw-thread and secured in position by a locking nut. They do not need to be removed for dis-assembly, merely revolved backwards on the knurled screw. Metal counter hoops, in-laid with plastic, are fitted as standard on all the bass drums. Pearl supply two strip-type felt dampers which, in my sample, weren't quite long enough to stretch down the centre of the drum. However, even with the felt strip in an off-centre position on the batter head the drum had a really creditable solid thump.

Tom-Toms

The small tom-toms of the "Rock-Kit" are one size larger than normal and possess a very bright musical sound. All the drums have a batter-head damper, solid sounding counter hoops and American-style square-headed tension screws. I am not too sure about the mating-fit of these screws to the nut-box inserts.

The floor tom-tom is, like the other drums, larger than normal. It's 18" x 16" with a correspondingly deep satisfying tone. It's unusual in that it is fitted with three legs instead of the normal four. However, it didn't seem at all unstable and, I understand, just one extra leg would put £3.00 on the retail price.

Snares

Pearl's snare-drum has its own unique sound and my example needed very little work short of putting a couple of turns on each of the 20 tension screws and slight adjustment of the seemingly fool-proof and un-fussy snare release. A 20-strand snare is attached to this strainer American-style by a thin plastic strap. I would attribute the drum's clear, bright sound to its light gauge shell, which I am pretty sure is the only brass production model being manufactured today. The new deeper snare-drums with their 6½" shells have become very popular over the past couple of years; mainly because they retain the crispness of the slightly thinner drum but also add a lot of depth. This results in a more modern sound, perfect for latter-day rock. Pearl are to be congratulated on producing this drum at such a reasonable price. However, allow me one slight criticism: Since the shell is uniquely made of brass it would be nice if it were more obviously so. Why not lacquer the brass instead of chroming it? After all . . . "If you got it, flaunt it." So much for the drums themselves, now let's move on to their accessories.

Accessories

The double tom-tom holder is extremely heavy-duty with lots of adjustments, certainly more lateral adjustment than on any other available model. A large-section hexagon rod fits into a six-sided slotted holder which clamps very securely with an extra large wing-bolt. The fitting has the well known ball and socket type angle adjustment, which gives complete control of tom-tom placement with four substantial locking screws to irradicate any playing movement.

The Company make a strong looking, cast-footplate, centre-pull, high-hat stand with an adjustable expansion spring. It comes with sensible big wing-bolts for height and leg adjustment and features an adjustable spur, a thick metal strap and a cup-tilter for the bottom cymbal. This robust stand is topped off with an adjustable heavy-duty clutch.

The bass drum pedal, naturally enough, matches the high-hat stand and looks a splendidly efficient affair, basically the same idea as its West Coast American competitor. It has quickly adjustable stroke and spring tension, a unique screw attachment to the metal counter hoop, built in spur, moveable toe-stop and thick webbing strap. I consider this a good feature since it gives the pedal a built-in weakness. If anything is going to break it will be the easily replaceable strap rather than something more serious.

The "basket-type" snare-drum stand has Pearl's usual giant wing-bolts for leg, height and angle control. The legs can, in addition, be set up for either a flush-based or tripod configuration. Replaceable nylon bushes at the top of each section are a sensible feature of the snare-drum, high-hat and cymbal stands.

The "high-rise" cymbal stand is a most professional and solid stand, a real bargain at £10.00. Each "Rock-Kit" comes complete with two of these monsters with extra wide spread legs for stability and a strong, unique tilter which adjusts from vertical to horizontal on a knurled drum. However, the tilter would greatly benefit from a much larger wing-nut with a large washer underneath it to enable the cymbal to be damped more efficiently when necessary. As a matter of fact, all of the wing-nuts on the kit could be twice the size. It's strange that they fit such silly little nuts, especially since all the other adjustment screws are so sensibly hefty.

No stool is included with the "Rock-Kit" but I understand the Company manufacture an excellent heavy-duty model at their usual reasonable price.

The appearance of the set is very good and, in my opinion, is only marred by the damper control which is very tinny, and the rectangular, plastic name-plate which is really cheap looking. Pearl would do well to change this to match their material designation-plate, which is a whole lot more professional looking.

A pair of sticks, a pair of brushes and several spare bits and pieces completes the kit. They also supply two keys which are, unfortunately, very painful to use because of the raised Pearl logo stamped onto them. My fingers really smarted when I tightened the locking screws on the tom-tom holder. However, the key does have a hole in it so you could wear it round your neck if you really didn't want to lose it. The sticks, whilst they were very lightweight, had a really good feel to them.

Conclusion

To sum up, the "Pearl Rock-Kit" is a very impressive drum-set indeed. I felt comfortable as soon as I sat down and everything was accessible to me without undue effort. The sound of the drums was very good and could only be bettered, for my money, by fitting Remo's C.S. Heads instead of their perfectly acceptable Ambassador Heads. The price, too, turned out to be something of a revelation. The five drum Pearl set, as described, with its modern large sizes, sells for £360.00 at its dearest. Whereas the Chicago-built competition, with only four drums in the smaller sizes sells for about a hundred pounds more.

by Bob Henrit

Bose Speakers

Retail Price £390

These very practical small sound cabinets are particularly suitable for the travelling cabaret act or gigging band who are seeking a clean and natural sound. Designed by Dr. Amar G. Bose's team of engineers, these 8" x 4½" "full range" loudspeakers, each with an enormous 10oz ceramic magnet, use a very original design to give very high sensitivity (combined with strong treble and bass, and an impedance figure of 8 ohms).

The system is basically designed to use four 4½" drivers so that each driver is a midrange units. The set of four, closely coupled acoustically, act in unison to form a "single large cone" area to generate a very strong bass. The high-treble is good, clean and undistorted.

By duplicating the arrangement in each cabinet (measuring 19-3/8" x 15" x 13" and weighing 43lbs), Dr. Bose has also achieved a wide area of horizontal distribution, much better than the usual spread from a single loudspeaker cabinet.

On a subjective test, we found that these units had a much more even frequency response than when used in conjunction with the equalization unit provided. They successfully handled deep bass and high-sibilant treble without boomy bass or peaky treble.

Electrical contact is made via a jack socket, on the back of the cabinet, fitted with a cover which seals the socket when not in use. The strength of the mechanical construction is just about the best

we have ever seen but most unorthodox. The cabinets are made of heavy duty plywood covered with vinyl and all the external corners are covered with strong vulcanized fibre edging and riveted on metal corner and angle fittings. A carrying handle is fitted on the top which gives the unit the appearance of being a trunk when the lid is in place and latched on with the four strong metal retaining clips.

The metal-boxed equalizer unit is carried in the lid of one of the speaker units in the special compartment provided.

The equalizer gives about 12-15dB main in the bass and treble whilst maintaining the middle @ 0dB. It operates from the mains A.C. power and corrects the tone of the ingoing signal (between sound-source and the power amp) to correct for the predominantly "middle" sound when all the tone controls are @ 0dB.

One of the good features, we found, was that due to the unusually even frequency response, no single note or group of notes will accidentally "peak" in sympathy to certain notes causing feedback.

This means that one can achieve a very much higher level of volume without risk of feedback.

The makers claim the following figures: maximum amplifier power, 270w. (Rms.); maximum music signal, 125w.; maximum continuous signal, 90w. —with no bass.

One can either use the lids of the cabinets as pedestals for the Bose 800 speakers or mount them on the metal atlas SS-2 stand.

Both the hardware and the sound quality of this system are superb. The evenness of the audio frequency spectrum helps avoid spurious feedback up to the point where feedback over the whole audio-spectrum occurs.

Novanex Auto 6

Retail Price £33

The literature supplied with this amp, describes it as "Professional". I generally take that word fairly seriously, and although this is a brief review, I have drawn attention to certain points which I might have overlooked in an amp intended only for amateur and less demanding use. The deficiencies can easily be put right by the manufacturer; It is basically well designed, reliable, and with the recommended modifications, entirely suitable as a small and portable mains-operated amp for professional musicians.

I also consider it unnecessary to check the maximum output, as it sounds objectively considerably louder than a six watt combo has any right to. This appears to be a direct result of a high-efficiency speaker and a "compressor" in the pre-amp stages which keeps the maximum output below the point of serious distortion.

This compressor is fitted to most Novanex amps. Its advantage is that one can use the output stages to near-full capacity all the time, without the sound "cracking" on chords or the occasional loud note. Most small transistor amps exhibit a sudden change from low distortion to very high distortion at a certain level and to avoid sudden and unpleasant changes in tone, one must play either well below this level, or well above it.

Playing below the level means you are not using all the watts you have paid for, and playing above it (which can be very successful with amps such as the "Pignose", "Axamp", and similar types) limits you to a sort

of fuzz tone all the time. The Novanex system appears to compress the loudness range so that the amp consistently runs just below the break point during loud passages. The loss of dynamic range seems to be quite acceptable. The disadvantage of this system is that there is no way you can get a normal "clipped" tone by pushing the amp hard.

A more significant effect of the compressor is that because the output fed to the speaker can never be much more than the nominal output, you can feed bass guitar into a combo the size of a shoe-box without blowing up the speaker! Someone has at last made the bass guitarist's practice amp!

The Novanex Automatic 6 measures just 25 x 40 x 20 and that's centimetres, not inches. You can lift it with one finger through the handle, and if only it had two clips for the mains cable, it would be as easy to carry as an airline bag. The internal construction and wiring seem sensible, with the serious exception that I consider the mains cable to be inadequately secured, and routed round the wrong side of the mains transformer.

The amp would take bass very much better if the back of the control panel were stiffened with an internal lip and fastened more securely to the cabinet to prevent air leaks and rattles (one screw by each end of the handle).

Finally, I noticed a slight increase in background hum when playing high single notes on the review model; this might be due to insufficient regulation of the power supply, but it was only audible in a quiet room. The Automatic 6 is also available as a 3-watt and a 10-watt with tremelo. Personally, I think the 6-watt, as reviewed, represents the best value for money.

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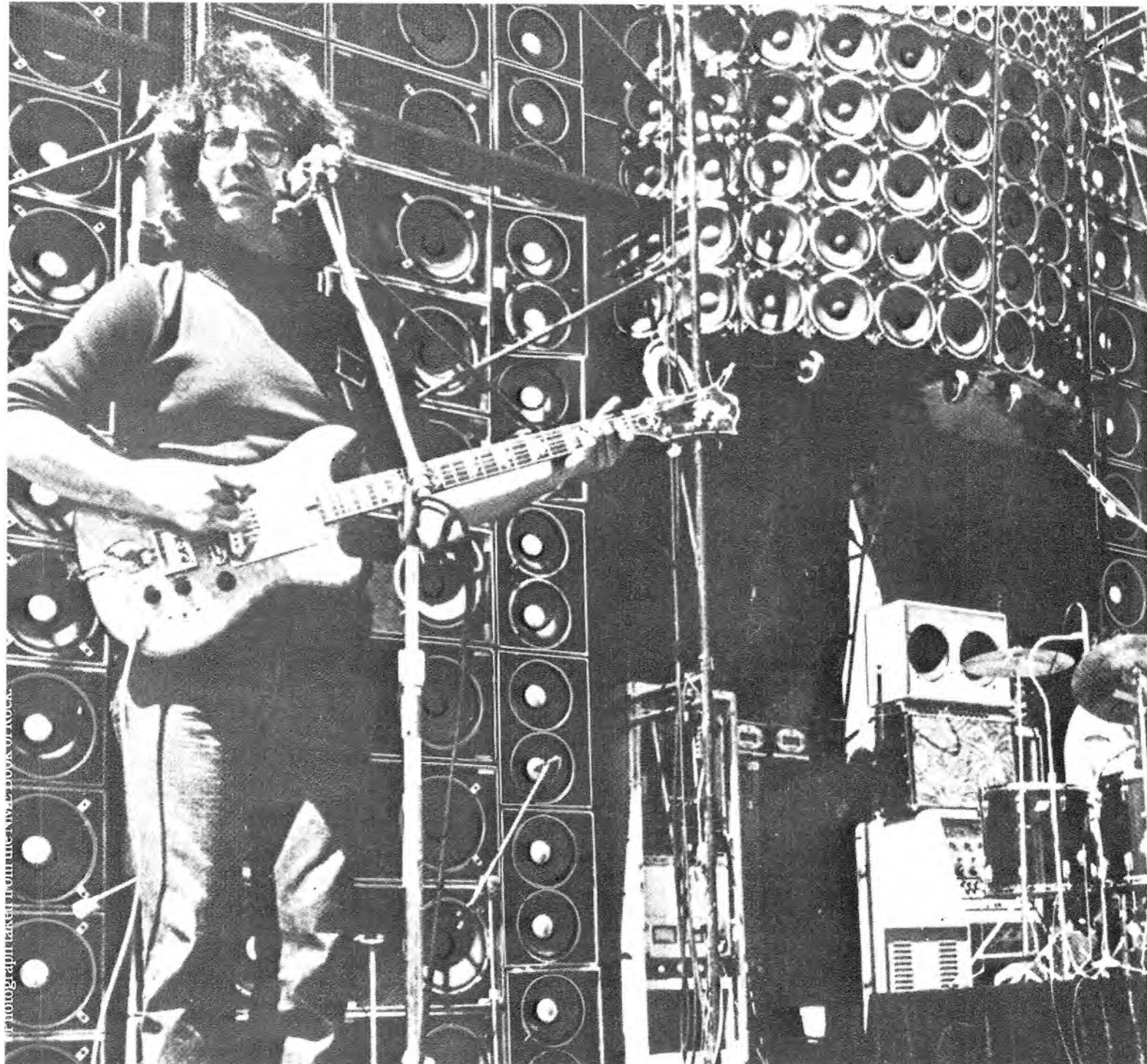


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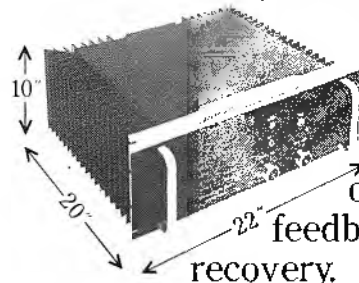
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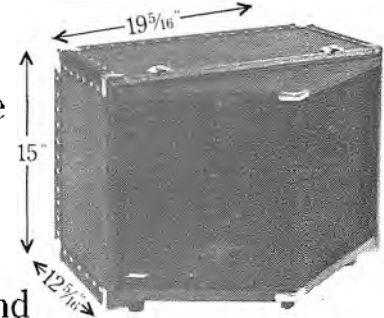
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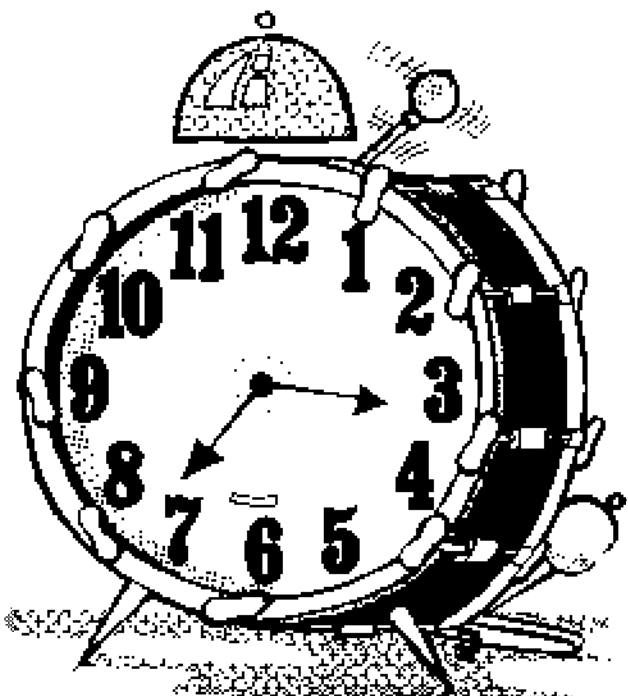
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Bob Seger: Beautiful Loser E-ST-1-1378 Capitol EMI Records

Seger's voice combines many qualities. The gravel of Lee Marvin, the emotion, the depth of Cocker or Fame or Clapton, all of whom can produce sound that registers in the stomach as much as the ears. This album holds lyrically too but unfortunately the majority of the orchestration/instrumentation is trite and either overbearing or insubstantial. Two of the tracks are very speedy, "Katmandu" on side one and a similar "Nutbush City Limits" on side two. Both sound dated. The guitar riffs sound ten years old; and despite drums and keyboards noises (with a nice bit of sax on the second track) both of these tracks seem to be a product of the sixties. The rest of the tracks are slower, more downbeat, gentle Seger's voice is worth listening to on all of them, despite indifferent and consequently incongruous backing on all but a few. Two tracks, "Jody Girl" and "Sailing Nights" are fairly emotional songs. The vocals dominate both which is just as well because the instruments don't seem to be in harmony with the general atmosphere that Seger's voice produces. On the last track "Fine Memory" Seger sings and plays acoustic guitar with help from the Muscle Shoals Rhythm Section. This track seems the most harmonious on the album, musical lyrics and lyrical music combine successfully. It's an okay album, but not great. Seger's voice and the instruments he wants to play with him will have to be more in tune with each other before he can produce his best.

Produced by Bob Seger and M.S.R.S. and Punch Andrews engineered by Tony Masters and Steve Melton and Jim Bruzesse and Greg Smith recorded at Muscle Shoals Sound Studios Elaine Cooper

Druid: Toward The Sun. EMI EMC 3081.

Druid are a young band from Hertfordshire who won last year's National Rock/Folk Contest, and this is their debut album, unfortunately lacking in originality. On listening to it, one has to ask oneself if we really need another Yes? Five years ago, it was common for many up-and-coming bands to blatantly copy Messrs. Anderson, Squire, Howe and the rest, but this is 1975, forchrissakes. It's all there though, from the trebly Rickenbacker bass playing harmony lines to the obligatory array of keyboards, most of them in use at the same time. With titles like "Voices", "Remembering", "Dawn Of Evening", "Red Carpet For An Autumn" and "Shangri-La", it's obvious the kind of direction in which they're heading - a market which I would have thought was already well catered for. Cedric Sharpley is a fine drummer, showing good technique and imagination, but I can't help but feel he's wasted with this type of material. Guitarist Dane Stevens plays all the right notes at the right times, but seems to lack the slightest iota of feel - one of the basic requirements of a guitarist. Dane is also the lead vocalist, but, here again, his style owes too much to Jon Anderson to ring true,

and this brings us to their harmonies. There's nothing better than a good, solid three-part harmony in a band but, in the case of Druid, there's nothing worse than a shaky, half-hearted attempt. On the title track there's a point where they harmonise on the word "sunlight", and it seems as though the whole thing is about to collapse, their voices sounding very uncomfortable in the higher range. Another thing that disturbs me is the ridiculous number of tempo and time changes on any one song. On each of the seven tracks (yes you've guessed, there's only seven on the whole album), they change time signatures as though they were negotiating a kind of musical obstacle course. O.K. so it's their first attempt, but many a band have come up with a good debut album so that excuse doesn't hold much water. Without wishing to rub salt in the wound, it's not exactly an outstanding production either, technically sounding almost like a demo.

Produced by Bob Harris and engineered by George Nicholson, recorded at Morgan Studios.

Eamonn Percival

Andy Fairweather Low: La Booga Rooga. A & M 68328

Andy has come a long way since his mid-sixties, teen-idol days with Amen Corner. The accent is now on good-time, country-flavoured songs typified by Clarence Williams' "My Bucket's Got A Hole In It" which starts off the first side. This, in fact, is the only non-original song on the album, AFL having penned the rest. There's a guest list that reads like a Who's Who of contemporary music, including Georgie Fame, Kenny Jones, Jimmy Jewel, B.J. Cole, Bruce Rowland, Benny Gallagher, Graham Lyle, Joe Egan, Gerry Rafferty and Dave Mattacks. Producer Glyn Johns makes a rare appearance playing cabassa on "Wide Eyed And Legless", one of the prettiest songs on the album. On "Jump Up And Turn Around", Dave Mattacks demonstrates that "funky" drumming is not so much what you play as much as what you don't play. B.F. Cole's unorthodox approach to pedal steel is much in evidence throughout, and proves why he is one of the busiest session players. Very reminiscent of "Buddy, Can You Spare A Dime" is a track called "Champagne Melody", with Andy returning to his best Gin House Blues-voice. Andy plays guitar on every cut, and has developed a refreshingly simple but effective style, sounding more like a clavinet than a Strat in some places. Together with his last album "Spider Jiving", this should go a long way to establishing Andy's credibility.

Produced and engineered by Glyn Johns, Recorded at Rampart Studios. James Andrew

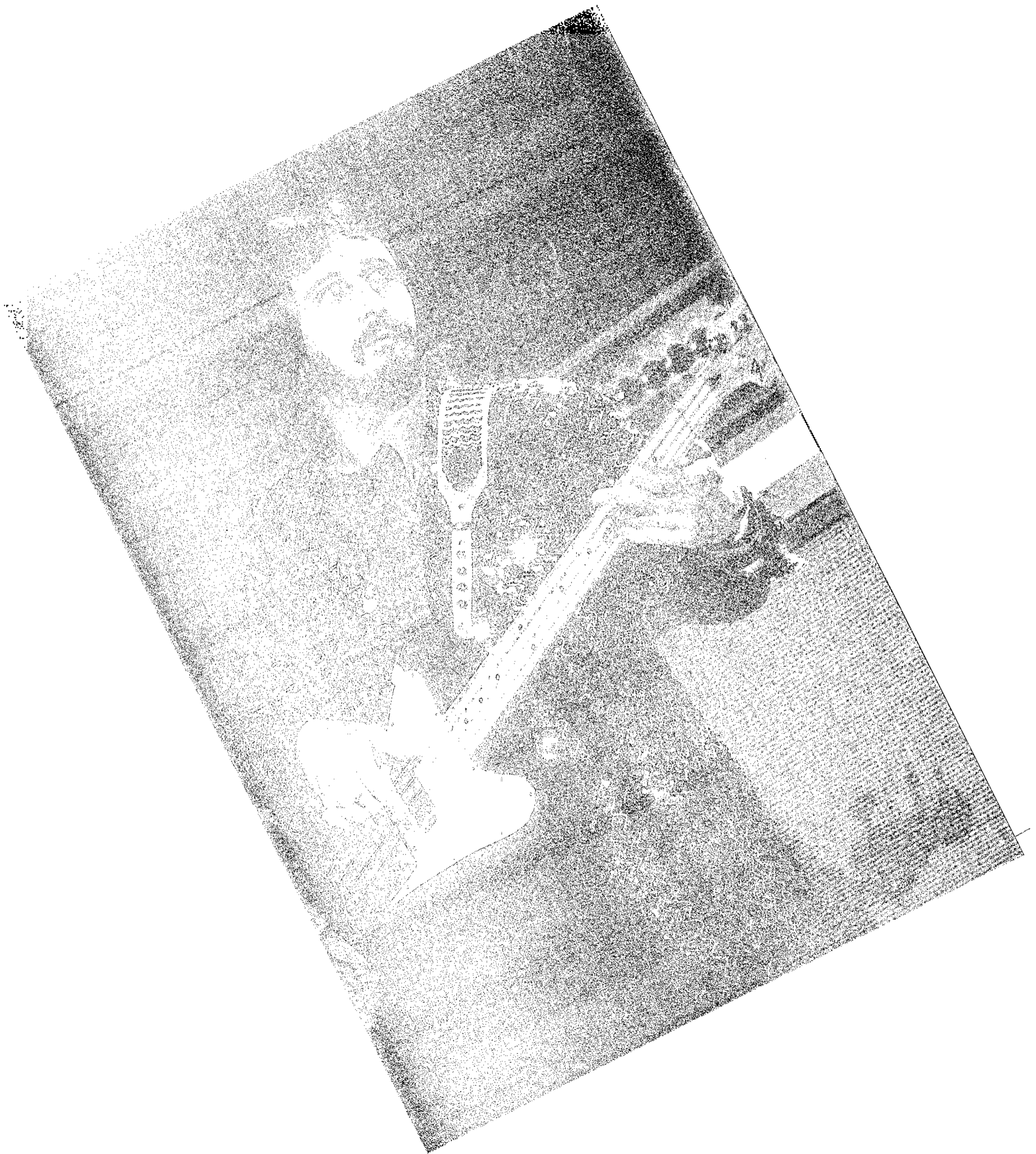
Billy Preston: It's My Pleasure. A & M AMLH 64532

Since the release of Stevie Wonder's "Music Of My Mind" album, it's astonishing how many black artists who were originally no more or no less just good soul acts, have become influenced by that album to the extent that their whole style and direction have changed. It started with the Isley Brothers using clavinet and Stevie's individual phrasing, and then a lot of others jumped on the bandwagon, most of them either falling by the wayside or absorbing the influence and going on to progress in their own way. Listening to this album, one becomes aware of just how much of Billy Preston's current popularity is due to the aforementioned Mr. Wonder. Preston is a talented organist/keyboardsman and a gifted writer but, somewhere along the way, he's lost his own identity and, apparently assumed Stevie's. Surprisingly, Stevie and his ex-wife Syreeta both appear on this album on various tracks, so maybe it's just a case of Preston being overawed by Wonder's presence. I doubt it, somehow. It seems he's purposely worked his way towards it. That's NOT the way God planned it, Billy. To his credit, he's used the superlative rhythm section of Ollie Brown and Reggie McBride, so the funk factor is well to the fore. On "That's Life", the guitar is credited to Hari Georgeson, which is no surprise, but for some reason the guitar is mixed down almost to the point of deletion. Shuggie Otis contributes some nice picking on "Found The Love", "Do It While You Can" and "Song Of Joy", while Preston gives forth on a battery of keyboards throughout, ranging from clavinet (natch) to grand piano. Not a bad album, just an anonymous one.

Produced by Malcolm Cecil, Robert Margouleff and Billy Preston, engineered by Malcolm Cecil and Robert Margouleff. Recorded at Kendun Recorders and Centaur Electronic Music Centre.

Eamonn Percival





JOHN ENTWISTLE

How recently have you noticed an improvement in yourself as a bass player?

Up until the album Who's Next, I'd been using a Precision and valve amps, so I got a very twangy sound, and I got into a rut for the first time, and realised I wasn't improving, or learning any new riffs. We'd just done Live At Leeds before that, and I listened to that a lot, it's one of my favourite albums. I liked my performance on it, it was just before I got into this rut.

I changed my bass and my amp, and started playing with my fingers a lot more, and I got out of the rut. I changed to Gibson Thunderbirds and Sunn amps and I found I couldn't play the way I'd been playing, it was impossible to get the same sound and the same feel. I just taught myself to play with the new equipment, and between Who's Next and Quadrophenia, my style had completely changed.

I could still fall back on the old style if I'd wanted to, by using fuzz boxes and treble boosters and stuff like that. I found the new style much easier to play, and I could play faster.

Did you find the rest of the band turning around to you and saying 'That's not the way you used to sound, we'll have to change to...'

Oh, yeah, I think that's when they first noticed that I was starting to improve. Since then, if ever I find myself stuck in a rut, I sit down and try to play in a different way.

Since then, I've been playing with so many different musicians, my style changes, and I haven't been stuck.

What other instruments do you play?

I started off on the French Horn and trumpet, and I played piano before that.

Did you have a good ear?

Yeah, I used to get my mother to play the piece first and then I copied that.

Were you one of these people who someone could come up to and whistle something, and you could find it quite quickly?

No, not on piano. I can pick up stuff on bass quite rapidly. Once I've played a song twice, I know it. That's a bit of a drag, because I find that other people take a little bit longer to learn it, and by the time they've caught up with you, you're starting to make mistakes.

So you started on piano...

Yeah, when I was about seven, and then I went on to trumpet and French Horn about ten. I was in a semi-professional dance band by the time I was 12, in an oversized dress suit playing 'Carolina Moon'. These days, what do you play?

What do you pick up when you go home?

I hardly ever play the trumpet, I used to pick that up at recording sessions, play brass with the Who, when Tommy came out. I don't sort of overstep myself, I know what I'm capable of. If I'm asked to play a solo, I have to work it out first, but as far as my arrangements are concerned, I think I've got a bit of a knack for knowing what the Who need. They don't need complicated brass arrangements, they need block chords, and that's the way I play.

Do you have to keep your lip in?

No, I don't. I suppose I've surprised a few brass players by picking it up and playing straight away. I suppose it's determination with me, I just pick the instrument up and play it. In fact, I leave my brasses for about six months and whenever I have to play them, I get them out a day before and oil them up, because they've seized up.

If we went into a studio and for some strange reason, you had to play some brass parts for an hour, would it exhaust you physically?

No. When I did the finale for Tommy, it took me two days to do a 32-piece brass section, trombones, mellaphonias, trumpets, bass trombones — I played the trombones first with a big mouth piece, and then switched to trumpet. With the trombone, you tend to wear out the outside muscles, where with the trumpet you wear out the middle, and then you have a half-hour break and you go back and do it again.

I need ten minute breaks because my lip doesn't last that long. If I'm doing a trumpet part, I can only do it about five times before my lip goes. But it doesn't particularly worry me, in recording.

I don't have any breath problems unless I'm playing euphonium or tuba. On tuba I play a two-second note and that's my lot!

What about ordinary six-string guitar, or keyboards, do you play them?

I have a collection of about 40, but I can't really play them that well. I can pick out single notes and tunes, but as far as chords are concerned, only the basic chords.

What started you collecting guitars?

I was always a window shopper with guitars, I used to walk around with my nose pressed to the windows, praying I'd be able to afford one. Once I could afford a guitar, I bought another one, and started collecting them because I liked the look of them and I liked the sound and I just wanted to possess them. I've got about 20 really old ones, going back to 1954 — Gibson Violins and Les Paul Juniors, an Explorer, a Les Paul Junior Custom. I keep them in pretty good condition, I have them replated and re-finished.

Who does all your guitar work for you?

Peter Cook. He used to make the Ned Callan guitars and then he started making custom guitars, and he made some of my custom basses for stage. He's really good.

When you're in the States, do you still pick up instruments?

Oh yeah. I'm still waiting for a couple of guitars to come over, another Explorer, and there's another one I'm after, called a Gibson Moderne.

Do you get as much pleasure from playing bass as you do from playing ordinary guitar or brass?

Yeah, I enjoy playing bass because I know I'm good at it. A lot of people have told me I'm good, and the more people who tell me I'm good, the better I get. The only trouble with me is that I find it very easy to play bass. Therefore, on stage, it looks as if I'm not doing anything, I'm not wiggling my eyebrows and straining — I don't need to strain to play figures.

A lot of people said that when I played with Ox — they couldn't believe it until they heard me playing with another band — they realised how much I contributed to the Who. If you looked at the Who on stage, you'd think I wasn't doing a thing.

What steps have you taken to get around the limits that come after playing for so long, limits both within yourself and in the style of music?

Well, I've had some special guitars made, because with the Who, there's a lot of high, melodic bass work to do, and my main bugbear with basses at the moment is that they go from low E to E flat, which is completely useless.

The only high key you can really play in is either C or D, or you could go right up. What I'm doing now is having basses made with four extra frets, so I can get two octaves on each string, and go right up to high G.

I've also had a six-string bass made with a wide neck.

How did you get used to these extra two strings?

It was pretty difficult, actually. It's easier if you take up a lead figure solo, and you know you can work an octave higher, but I tune the top two strings to C and F — B and E are no use to me at all, they're for chords and shapes.

The main trouble is when you're in the key of A or D and you find yourself going to the wrong string.

A lot of bass players are saying that today they get a great deal more penetration than they used to, that they're actually throwing a hell of a lot of sound out, and hearing very little on stage. Is this a problem that you've found — that although your monitoring is good, you're also quite loud?

No, with the Sunn set-up I use on stage, I have normal pressurised cabinets so I can hear it on stage. I've got long throw bins as well, I double up on everything. I want a good sound on stage, and I want to sort of push it out. The problem is that I have to use four amps to do that. I'm starting to use Olympic pre-amps. I was thinking about using Crown amps with the Sunns, because there's slightly more treble on them, and they're just easier to use, you can use slave amps. They're stereo, all you have to use is two of those and two stereo amps instead of messing around with four different sets of stacks.

Was it difficult when you went on your own to fulfil a different sort of function, to be a different sort of bass player?

I didn't really change my bass playing at all. I split my equipment in half, I had to simplify it a bit because I was singing as well. But I found myself without the other members of the Who. The drummer I had was really brilliant, Graham Deakin, and I know the organist was good, because people told me, but I never heard him! I felt the guitarist we had was the wrong kind

of guitarist, I wanted a lot of sustain. I found myself taking over all the solos. I broke the band up when I got back from the States. I was hitting head on with the lead guitarist, and it didn't work.

Would you like to put another little group together?

Yeah, but I think there would be a few changes. I'd have to use people who went with me. In the last band, if I did anything different, they would be dumbfounded. If I turned my volume up, they would all look around and wonder 'Why did he do that, instead of turning their volume up.'

I found that very difficult, because in the Who we do that automatically.

Do you find that you've been working with them for so long that you tend to know what's going to happen before someone actually does it?

Yeah, but I wouldn't say it was telepathy. To a certain extent, it all revolves around the bass player and the drummer, and that part of Ox was really working out. The relationship between the drummer and bass player is obviously among the most important in a group. Is it something you've always had with Keith Moon, or did you have to work at it?

Well, I had to work very hard. Moon must be the hardest drummer in the world to work with. You haven't just got a normal bass drum beat. When he plays the drums, he plays them all at once. You've got such a wide choice of riffs to play. Once he gets going and goes into a break, you've got to go with him, otherwise, you disappear. I suppose that forced me to work on my speed. I ended up using four fingers on my right hand instead of just one.

Was that the only way you could get the speed to stay with him?

Yeah, well, with a plectrum — I think that's what first put me in a rut. There's a lot of picking you can do, but it doesn't necessarily have any bass foundation. I started using my fingers again. I'd used my fingers right at the beginning, and we'd been doing a lot of numbers like 'Happy Jack'. Once we got out of the Tommy thing, I found I could use my fingers and play a lot faster, as well as playing rhythmic figures by sort of slapping and plucking and playing double notes, varying my technique.

Do you ever get into a sort of 'duel' with Moon, where you're playing

a part that you both know and you're playing away, and all of a sudden he does something and you say 'He shouldn't have done that, sod him'?

Moon's got this double bass drum, snare drum, tom-tom roll sort of thing that he keeps on going into that — it's like you don't know what's hit you.

Do you ever throw something in that will muck him up?

I've done a few things that make him laugh, a few sort of funky chicken things.

With that much flexibility, it must be a very strong relationship.

Yeah, but sometimes if the sound isn't exactly happening on stage, if you've got something peculiar like a big, hollow stage or a high ceiling, I find myself drifting back to the cabinet, just watching his bass drum, because I have no idea where he is. Sometimes I just have to stop playing and wait until I can pick it up. Sometimes we all have to stop playing.

When you're playing live, do you follow him or do you hold it down yourself?

Once I get an idea of the beat he's playing — I play along. I've started using one of Keith's cabinets on my side, and that really helps a lot, but sometimes it's so deafening, I have to turn the cabinet away.

The worst thing that can happen is when I have to stop playing, but that only usually happens when we do free form stuff, which is adaptable. If I stop playing, Keith knows that the riff is lost, and he'll start another one.

Do you have any disagreements about getting parts together?

No, not at all. We all more or less get a free hand unless it interferes with the feel.

How readily do you and Pete understand each other in musical terms?

I don't know, I don't think we particularly need to. I know what he needs for the song, and I play it, I seldom make a mistake in interpretation on bass, but if I do, he tells me, and if he makes a mistake in interpreting one of my songs, I tell him. It happens very rarely.

Do you play an instrument every day of your life?

Not every day. There are some days when I don't want to see one, when I'm not interested. I find that whenever I go into my studio now, I play a bit of bass, just to keep my hand in. I spend most of the time doing solo projects and things like that.

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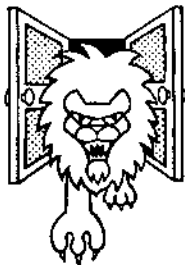
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STUDIO DIARY

ADVISION STUDIOS . . . Baker Gurvitz Army were in recording an album for Mountain . . . Shirley Bassey was in cutting an L.P. for United Artists, with Peter Davis producing and Martin Rushent engineering . . . Cat Stevens was in recording an album, Paul Hardiman engineering . . . Steve Howe's solo album was cut at Advision . . . Mike Hugg was in with his group cutting an album for Polydor with Ken Burgess producing . . .

AIR STUDIOS . . . Alan Hull was in recording an album with Pete Sweatnam producing, Bill Price engineering . . . Steeleye Span were in with Geoff Emerick engineering . . . Charlie Drake came in with producer Peter Gabriel and engineer Steve Nye . . . Nektar were in recording an album with Peter Hauke producing, Geoff Emerick engineering . . . Alvin Stardust was in with Mike Stavros engineering . . . The Drifters were in doing some overdubs, as was Bill Fredericks, an ex-Drifter, who recorded with producer Roger Greenaway and engineer Bill Price . . . Roxy came in to begin their new album with producer Chris Thomas, Steve Nye engineering . . . Leo Kottke was in recording, Bill Price engineering . . . Mister Big came in with John Punter producing and engineering . . .

CBS STUDIOS . . . Johnny Nash was in putting the finishing touches on his album, with engineer Bernie O'Gorman . . . Martin-Coulter productions were recording Kenny, with John Hudson and Simon Humphreys engineering . . . John Williams was in recording an album with producer Paul Myers and engineer Mike Ross . . . Jonathan King was in producing and recording, with Mike Ross engineering . . . Gene Chandler was in for Joda Enterprises, Bernie O'Gorman engineering . . . Duane Eddy came in to cut a single with producer Tony Macaulay and engineer Doug Bogie . . . Marja Muldaur was in recording a backing track for Granada, with David Wason and Muriel Young producing, Dick Palmer engineering . . . Mott came in to do some sequencing and cross mixing, Dick Palmer engineering . . . Duster Bennett was in doing some re-mixing for Phillip Roberge, with Dick Palmer engineering . . .

CENTRAL SOUND . . . Marianne Faithful was in finishing up some recording with producer Derek Wadsworth and engineer Simaen Skofield . . . Sandie Shaw was in producing a band . . . Kris Ite came in and recorded an album . . . Leapy Lee was in, Keith Potger producing . . .

EDEN STUDIOS . . . Tony Hiller was in, producing the Brotherhood of Man . . . Movies came in to record . . . Pierre Tubbs was in producing Heroes . . . Roger Holtman was in producing Kirk Thorne for the Winchester Group . . . The Steve Francis Band was in cutting an album . . .

IBC STUDIOS . . . Chris Neal has been finishing up an album, with Hugh Jones engineering, for Trinifold . . . Su Shiirin was in with producer Bruce Welch, Mike Claydon engineering . . . Leslie Duncan came in with producer Jimmy Horowitz, Hugh Jones engineering . . . Tomahawk were in recording an album with producer and engineer Mike Claydon . . .

THE MANOR . . . Following substantial alterations which were completed at the end of last month, The Manor is again open . . . The Mobiles were busy, recording Slaphappy and artist Anthony Moore (previously and incorrectly reported, on this page, as an engineer), The Massed Military Bands, which were recorded at Wembley; A Ruan O'Luckland single, recorded at the Farmyard; the recent performance by Chris Farlowe and Friends at the Marquee . . .

MARQUEE STUDIOS . . . Solution, a Dutch band, were in the studio recording with Gus Dudgeon and engineers Phil Dunne and Steve Holyroyd . . . Dudgeon was also in working on the Maldwyn Pope album . . . Max Merrit and the Meteors were in with producer Del Newman . . . Dana came in with producer Geoff Stephens and engineer Geoff Calver . . . Stephanie De Sykes finished an album with producer Barry Leng . . .

THE MASTER ROOM . . . Polydor have been keeping the Master Room busy, with a re-issue of some old Phil Spector material, principally The Ronettes, Bob B. Sox and Blue Jeans and the Crystals . . . The new Procol Harum single was cut . . . Budgie's album was cut . . . both the new Eric Clapton album and a single, "Knocking On Heaven's Door", were cut . . . The Strawbs L.P. was cut . . . Dion (ex-Belmonts) had a single cut recently . . .

MUSIC CENTRE . . . Roy Wood was in, both on his own and working with Wizzard, with Dick Plant engineering . . . Labi Siffre was in, producing himself with Dick Plant engineering . . . Renaissance were in with Dick Plant engineering . . . Showaddywaddy came in to record with producer Mike Hurst, Dave Hunt engineering . . . Ed Welch was in with Richard Goldblatt and Stewart Taylor

ORANGE STUDIOS . . . Orange closed down for about a month and recently completed a thorough overhaul of the studio, redecorating as well as installing a customised 24 in, 16 out desk . . . A new Amity Shroeder 16 track machine was also installed . . .

PYE STUDIOS . . . Claire Hammil was in with Phil McAffrey producing and engineering . . . Joanne Williams was in recording for Alaska Records with Peter Morris producing and Larry Bartlett engineering . . . Other people in the studios over the past month include Mike Reed, Madame, Helen Day and Wee Jimmy . . .

ROCKFIELD STUDIOS . . . Dave Edmunds was in, producing and engineering himself . . . Paradise were in, with Roger Baines producing Dave Charles engineering . . . Mister Big came in to be produced and engineered by John Punter . . . Phil Ryan came in, with Dave Charles producing and engineering . . . Tuesday were in with producer Peter Gage . . . Queen came in with Roy Baker producing . . . Pat Moran engineering . . . Ace were recording with John Anthony producing and Pat Moran engineering . . .

SARM STUDIOS . . . The new Fox album was recorded with Kenny Young producing, Gary Lyons engineering . . . Dan Loggins and Roy Baker were in producing Starry Eyed and Laughing . . . Marty Wilde was in, with Barry Ainsworth engineering . . . Jackson Brown came in to record with engineer Geoff Earley . . . Barry Blue was working on a single . . . John and Susie were in recording with Ben Finden producing, Barry Ainsworth engineering . . . Queen came in to do some mixing, Gary Lyons engineering . . . Hustler were in recording . . . John Howard and Mike Lowry were in with a single, "Come The Storm", for Panache music, with Gary Lyons engineering . . . John Sinclair produced a song from the Rocky Horror Story, recorded in Japanese by Andrew O'Bonzo and Belinda Sinclair . . .

SCORPIO STUDIOS . . . Cockney Rebel were in with Steve Harley producing, Ray Hendriksen engineering . . . The Jack Bruce Band were in with Dennis Weinreich engineering . . . Chris De Burgh was in for a mix with engineer Robin Cable . . .

STRAWBERRY STUDIOS . . . 10cc have been working on a new album with Eric Stewart engineering . . . Dana has been laying some tracks for her album with Geoff Stevens producing and Peter Tattersall engineering . . . Lots of work being done for the Granada T.V. programmes, 45 and Shang-A-Lang, with bands like the Bay City Rollers and Geordie . . . A 19 piece band, Millionaire, were in, Geoff Gill and Peter Tattersall producing and Peter Tattersall engineering . . . Death School cut four tracks for Warner Brothers with Peter Sweetnam producing . . .

TRIDENT STUDIOS . . . Eddie Howell was in with Rob Lumley producing, Dennis Mackay engineering . . . A rock version of Peter And The Wolf was recorded at Trident, with Rob Lumley and Dennis Mackay engineering . . . Jerome Rimson was in, producing himself with Jerry Smith engineering . . . Cockney Rebel came in with Steve Harley engineering, Peter Kelsey engineering . . . Nino Ferrer was in with producer Peter Buckmaster and engineer Jerry Smith . . . Trax were in, produced by a couple of members of Queen, with Mike Stone engineering . . . □

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TRACKER

Tracker, actually based in Salisbury, have been cooking in the Bournemouth region for about eight months now, and at the time of writing, they are about to do their first major London gig, at the Global Village beneath London's Charing Cross Station. Although they are a relatively new band, three of the four members, Dozy, Beaky and Tich—well, suffice it to say that they've been in the business awhile.

Tich told *I.M.* that "Beaky and I had been in a band together, and the drummer and bass player left. Beaky switched from rhythm guitar to drums, and we got hold of Dozy, who had had a pub for awhile, and started to play local pub gigs, just for the fun of it."

The fourth member Luke, joined when they cut a record for Dave Dee of Atlantic Records—originally, as he says, because "Tich couldn't play steel and rhythm at the same time"—and it worked. Since then, there's been no looking back: they are looking for a keyboard player, but all in good time.

Tracker are aiming for a recording contract, and despite their considerable combined experience, they are well aware that things have changed. "It's not as open as it was. There was

a time when you could go to a record company with an idea on tape, and they'd listen and even sign bands on the strength of that alone. Now they want the whole thing laid out on a plate before they'll listen."

The breakthrough, they reckon, will come with a buzzing single first, followed up by an assault on the London venues—colleges, pubs and clubs, anywhere that people can see them. A possibility is a rearrangement of Cat Stephens' "Matthew And Son", with one of their own numbers on the 'B' side. "We're heavy, but commercial as well," Luke added. "In our stage act, we do some Beatle numbers, but they're rearranged, and the bulk of the stuff is our own."

"The idea is to do what Ace did— get a single into the charts which is still honest and representative of what you are." The band's eyes are firmly fixed on London, but only after the buzz is on. "There is no real 'scene' in the South of England, there never really has been," Tich said. "There have been a lot of musicians from the area, the Troggs, and Uriah Heep, for instance, are both from this area. But there never has been the venues for a real scene to develop."

Tracker are philosophical

about their future. As Tich put it. "You need the big one, the break, to really make it, and even that is largely luck. Ten years ago, you could get plays on Radio Caroline, the BBC, Radio Luxembourg— there was a lot more opportunity to make

"Now, it's just down to Radio One. Capital Rado, and Picadilly are alternatives, but they aren't really much compared to Radio One. There are only about five completely new records a week which get on the BBC playlist."

"All you can really do is what you enjoy, and just keep going. If you fall down, you just have to pick yourself up again and start over."

Tich plays a Les Paul Custom, with Colorsound wah-wah and phaser, through a Fender Twin Reverb; Luke plays a Les Paul Custom, with a "dilapidated" Vox wah-wah pedal, through a Fender Reverb; Dozy plays a Fender ¾ scale Jazz Bass through a Hi-Watt amp; Beaky plays a Rogers kit with Paiste and Zildjian cymbals.



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ALBATROSS

Building a career isn't an easy task in any profession, much less in music. For the past 18 months, Albatross have been having a go at it, with increasing success. Originally a country band under the name Wild Country, they eventually became "Cheesed off with Johnny Cash numbers", and, with the addition of drummer Malcolm Player, turned to heavy rock about a year and a half ago. Now they manage to work three or four nights a week in the South coast area, and have also had not immoderate success, both in Manchester, where they broke into the local top twenty, and in Switzerland, where their single, on the ill-fated Mooncrest label, reached the top five.

National success is next on the agenda—along with Tracker, they rule in the area around Bournemouth, and they released a single, "Tobacco Road", on the Gull label, on the 22nd of August. The success of this single is of course important to the band, but they aren't betting everything on it. "We'll be putting one of our own songs, 'Let It Roll', on the 'B' side, but we're not really a singles band", John Jones told *I.M.* "Fortunately, I think Gull understand that as well. About 99.9% of what we do on stage is

our own material, and while we've got enough material for perhaps two or three albums, we don't have quite the right stuff to make the first big impression yet."

While not particularly bitter about it, John does concede that the London bands do have a distinct advantage over bands outside the Capital. "Playing in London gives the A & R guys a chance to see you live, which is half the battle." With things going moderately well at the moment—despite an acknowledged lack of heavy venues in the area—Albatross are looking ahead. "Colleges are out at the moment, but once they open again, we should be doing more gigs in London," Malcolm Player said. Like Tracker, they feel the need for a respectable single before they can afford to go to tour the rest of the country.

One of the bright spots for the band is their relationship with Blue Eyes Productions, which guarantees them unlimited studio time—an advantage most bands would dearly love. "It gives us a chance to go in and get settled down, without worrying about the clock," John added.

Albatross don't have a manager as such. After a bad experience, they prefer to



look after themselves. "We had a guy for awhile, but he wasn't doing anything. He still has a hold on us legally, but it isn't worth the trouble to make him work."

Things are fairly bright for Albatross, but there are still times when John Jones has to put down his axe during the day and go out to work on a building site to make ends meet. It's much the same for the rest of the band as well—they can't afford a keyboard yet, so what they use on a given night depends on who isn't working that same night.

"It's hard to keep your incentive," John added, but they don't really show any sign of giving up. "You live and learn."

The idea is to hit the charts, hard, with something new and the conviction that it's possible for Albatross, just

as it was for Queen and Sparks, is one they fully believe in. I asked John Jones what would happen if it ever became clear that the band had no real future. "I don't know, we might go into another band, even into a Mecca band. I just can't see any of us doing anything else."

Terry Keyworth, lead guitar, plays a Les Paul Custom through a Fender Twin Reverb and uses a Jimz custom built fuzz box; John Jones plays a Fender Esquire through a Jennings J 40 Lamp and a WEM 100 watt slave, as well as a variety of borrowed keyboards; Danny Balkwill plays a "home-made" bass, which he built with the help of Jim Parkins, through a 200 watt Hi-Watt; Malcolm Player plays a Hayman kit with a Ludwig snare and Paiste and Zildjian cymbals. □

NEWMAN ORGAN STUDIOS

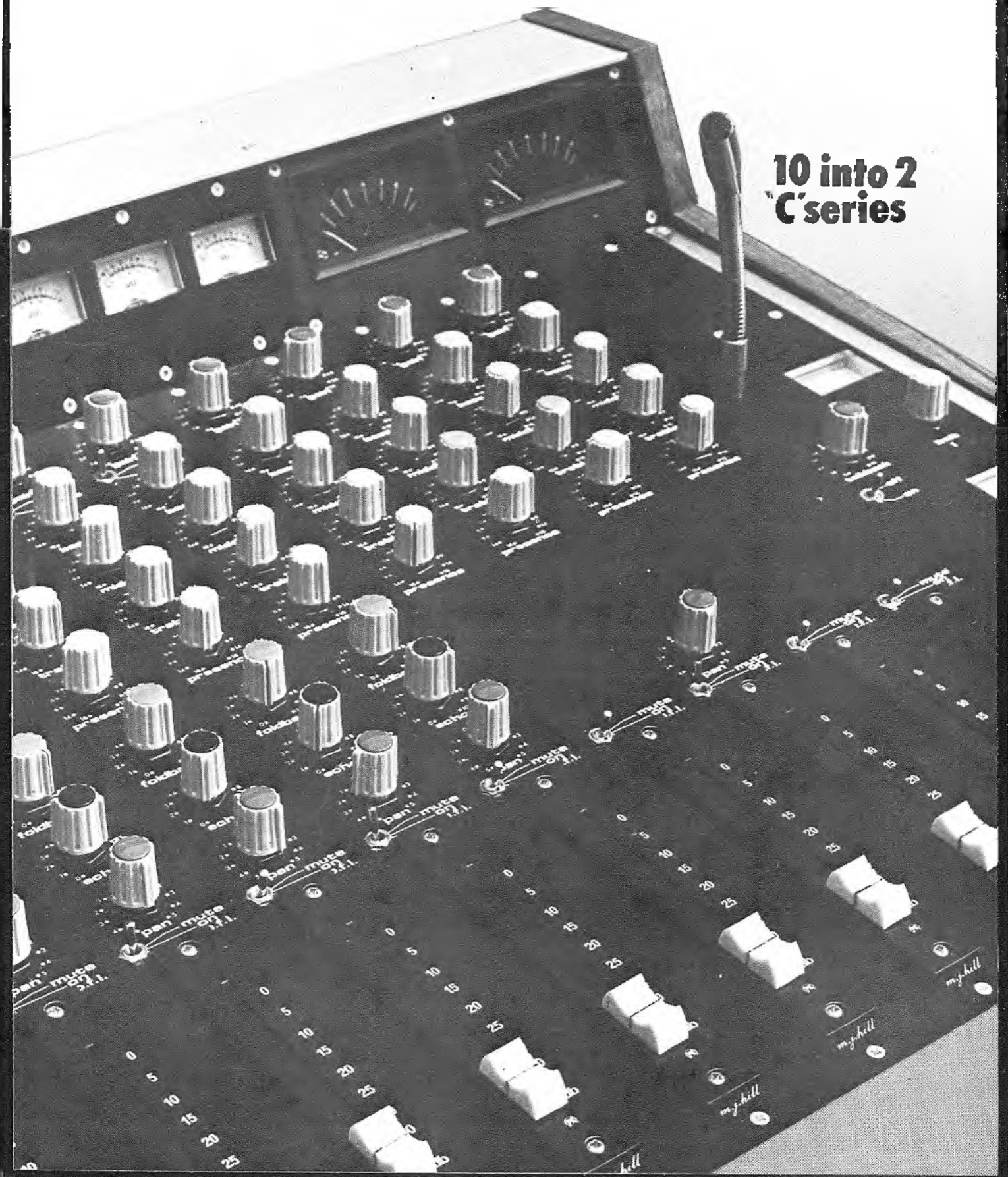
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Dave Gilmour

Do you still use a Strat as your principal instrument?

Yes.

Have you ever deviated from that?

Yes, sometimes I try different guitars, but as my principal guitar, the Fender Stratocaster is the one for me.

Is it an old one?

No.

Are you a guitar freak, someone who says 'Oh, it's old, it has to be better'?

No. I am a guitar freak, I do like lots of guitars, I've got quite a lot of guitars. I do like them, but I don't strictly go along with the idea that old is better.

Tell me about the guitars that you do have. Do you have a lot?

I've got about a dozen. Two or three Stratocasters, two or three Telecasters, a couple of Gibsons, a few acoustics, a pedal steel, a couple of basses.

What is it about the Stratocaster that suits you onstage. What does a Fender have that you can't get, for instance, from a Les Paul?

I think it's all down to what you start with, and what you grow up with, and what you get used to, generally, when you're younger. A Telecaster was the first Fender I had, and before that I had a Hofner Club 60, and a Fender is much closer to that than a Gibson is.

Do you still have that guitar?

No, I haven't. I gave it to someone who I owed some money to, and he sold it for £7.10 and I was hung up.

Presumably you got your Telecaster before you actually became quite so successful. How did you manage to get that together?

My parents gave it to me for my 21st birthday present.

Did they encourage you?

They'd given up trying to persuade me to do a decent job, going out and earning an honest living.

What sort of music were you creating at that time?

Not a lot. I was just having a good time, you know. Anything and everything.

Were you gigging?

Yes, I did have a rock and roll group, and we went around to various places, playing and earning £20 a night, that sort of thing.

Would you say that your sound amplification system, the method of reproducing your sounds, has taken on far more importance for you in the past five years than it did earlier, or have you always been very, very concerned about your amplified sound?

I think everyone's always fairly concerned, and I don't think anyone ever gets quite what they want.

Is that because that's unobtainable?

Probably, because whatever you get, you want something that's slightly better.

As a guitarist, have you had to forget any of your formal licks, progressions, chord patterns, this sort of thing, as the Floyd have developed into something that is far more than just musical and more sound? How have you adapted to it?

I don't know, I don't know whether I have adapted to it, or whether I've adapted it to me more.

Are you suggesting the music has gone more your way than any other?

I'm suggesting that I think that probably nowadays I'm playing as much what I want to play as I ever have.

How do you keep fit?

I play football, I play cricket, I play squash, I play some tennis, I swim...

On a regular basis?

Yes. And I screw.

Does that keep you fit?

Absolutely. Well, I don't know if you want to call it fit, I think I'm probably just above average in fitness.

Do you have to be fit to play in a band like the Floyd?

No, absolutely not.

Do you find yourself exhausted from a marathon stage set?

No — well yes, slightly exhausted every time, but it doesn't take anything out of you that a good night's sleep can't replace.

Is it mental or physical exhaustion?

Mentally, probably, more than physically.

Do you have any other form of relaxation?

Well, getting drunk, falling about and being a bastard, yeah, all that stuff.

Is there anything that you would specifically like to improve your technique on?

Yes — guitar.

Other than guitar?

I sit at home and I play the drums, I play trumpet, I play the bass guitar, I play the piano and things like that, and I dearly wish that my technique was vastly improved on all of them.

Did you find it particularly hard to get into percussion?

No, it didn't present any problems, it's just that I'm not particularly good at it. I think probably my brain is better at it than my body is.

You mean your co-ordination and timing?

Yes, I think probably my brain is better at all the instruments I play than my body is. Yes, definitely, it's better at drums, it's better at bass, it's better at keyboards, it's better at guitar...

Have you worked with other musicians a lot in recent years?

Some, yeah.

In very different musical forms?

Yeah.

How has that experience affected your guitar playing?

I don't know that it does affect my guitar playing — well obviously it does, just as every piece of music you hear probably affects you, if you dig it. I haven't played a lot with other people.

Do you have feelings of insecurity about your own playing?

Yeah, of course.

Is this something that appears fairly regularly?

Yeah, it's a fairly regular, rational sort of thing. My guitar playing isn't anywhere near what I want it to be, but my brain can see it. I think one can always see things better than one can actually do them.

On these 'Doodles' that you do, are you specifically trying to improve your technique?

No. Well, sometimes I'll go and sit and specifically practise and try to improve things that are bad, but not very often. Often I just pick up a guitar and, like I say, just 'Doodle'. There's no brain in it at all, just strumming.

What would you say was your weakest area?

All of them.

You said 'specific things', areas

that you thought needed specific practice.

Well, the whole thing needs improving.

Then there isn't any one area that you feel needs improvement — your right hand, your left, something like that?

No. There's probably a day when I think this needs improving or that needs improving and maybe I sit down and do it but there's no one thing that I really constantly think is worse than anything else.

Do you record yourself at home? Sometimes, yeah.

Have you found that having recording facilities has given you anything as an instrumentalist?

I don't think it makes any difference quite honestly. It probably helps you as a songwriter, it might increase your publishing earnings slightly because you put things down that otherwise you might have forgotten, but I don't think it actually helps an instrumentalist.

Do you have to force yourself into a situation where you have to do something?

I should do, yeah, but mostly I just don't, and wait. Every once in a while something comes up. The thing is that when I sit and work at them, they don't come out as good as when I just let them happen.

Do you feel yourself not to be prolific?

Well, it's all relative to other people, I couldn't really say. I feel that I might actually put myself down with more application to finish a few things that have just come up.

What is your percentage of wastage, of material which you find that you never use?

Most of it. But that doesn't mean to say that I'm not ever going to use it, or that it's inferior, or that something's wrong with it.

Have you ever gone back and picked something up?

Oh yeah, all sorts of things. I just sit and muck about with things, I do a little bit and put it on tape if I ever get it together or remember, and then about a year later I might find it on a piece of tape and play it and think 'That's O.K.'.

To what extent is your material modified when you finally bring it to the rehearsal stage — it obviously must be considerable judging by the format the group works in?

Absolutely. I don't usually bring in completed pieces to the group.

What stage is it in when it comes in?

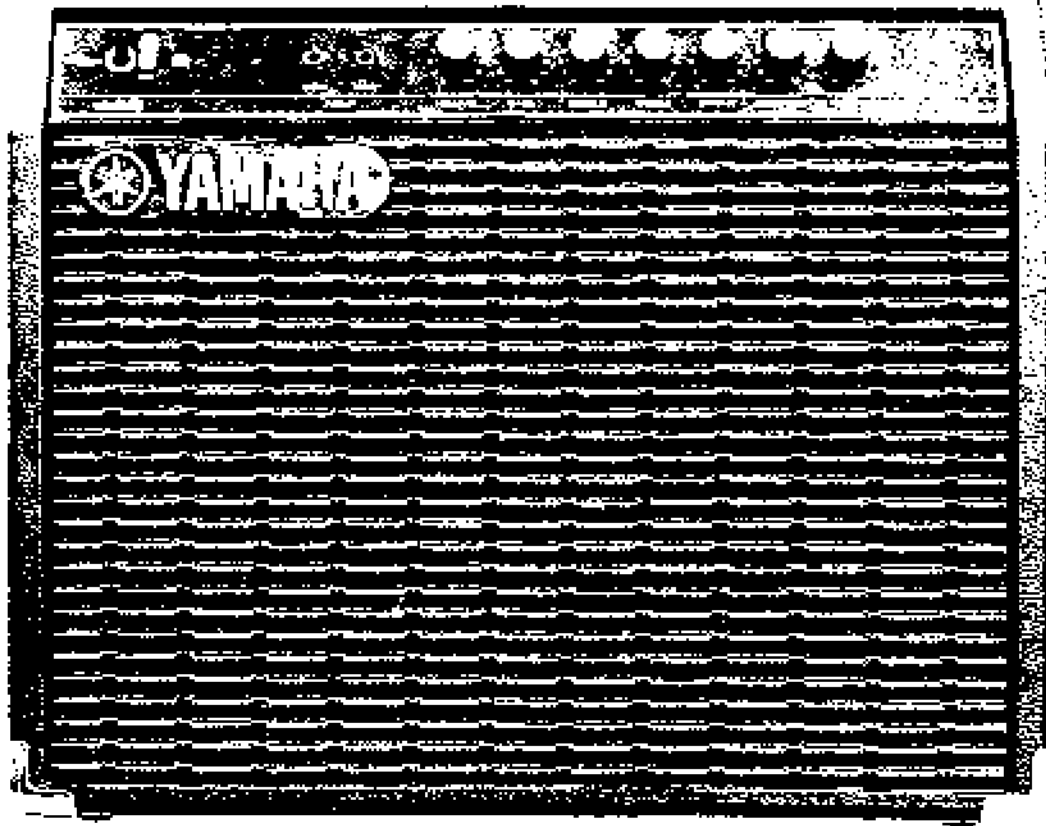
Hard to say. It either happens there and then — when we're sitting there rehearsing, I might come up with a specific idea — or we might come in with something and just start playing it and let everyone muck in.

How serious are you about rehearsals?

It varies quite a lot. The idea is to rehearse seriously and we do go in with that in mind, but these things vary. We play them by ear. □

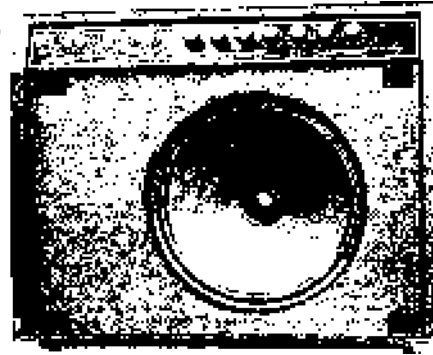
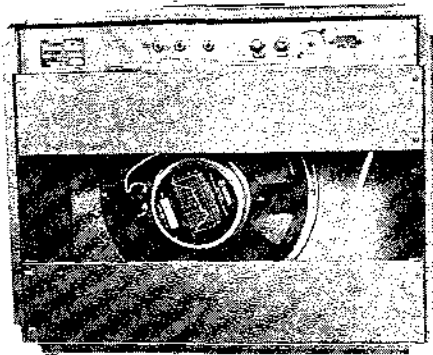


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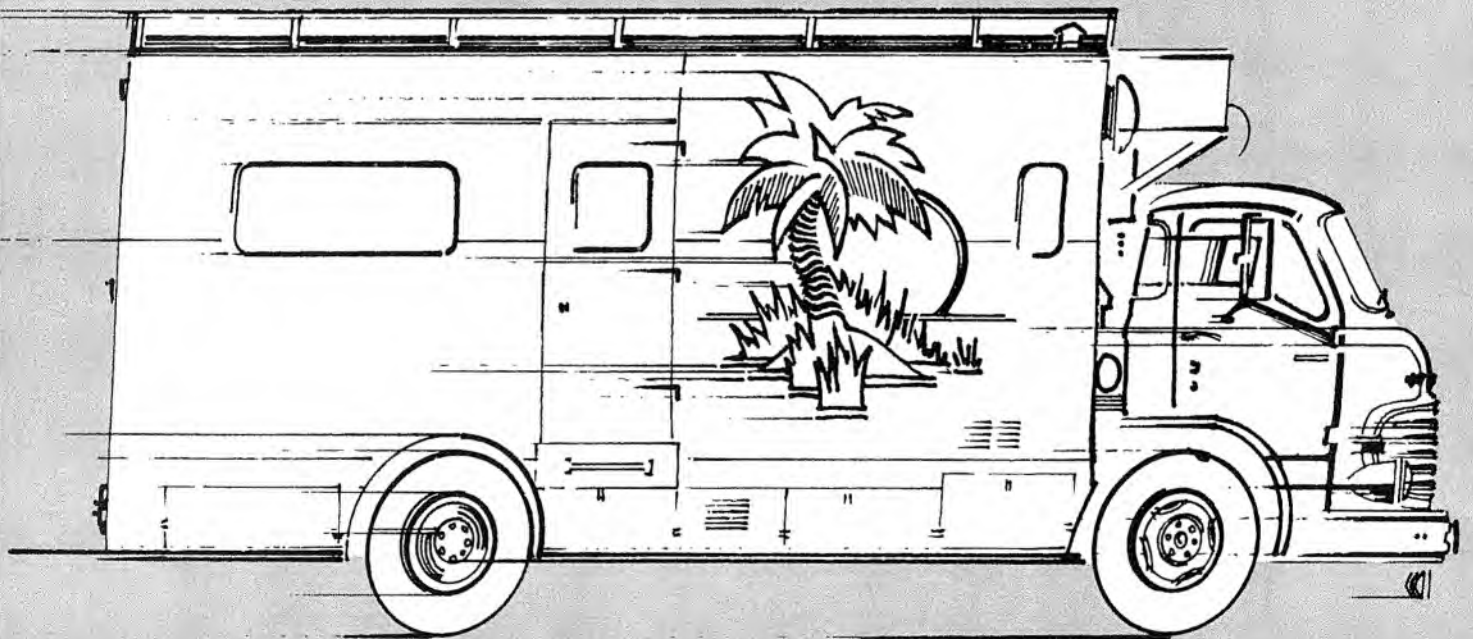


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Muff Winwood

It's not much to look at from the outside. If you approach from the south, the whole place looks a bit vulgar — like a giant lump of black cake, attached to a church, of all things. But this complex, situated on Basing Street in the heart of London's cosmopolitan Ladbroke Grove area, houses one of Britain's leading recording studios — Basing Street Studios.

Originally known as Island Studios, the present complex ceased to house the head offices of Island Records two years ago, when the record company moved to Hammersmith. Although the current set-up remains a subsidiary of Island, since May it has officially been known as Basing Street Studios.

Managing Director Muff Winwood has been involved with the Island concept since its inception in 1967. He began working with Island Artists, after leaving the Spencer Davis Group, and moved progressively into management, promotions, and head of A&R, where he signed such Island stalwarts as Kevin Ayers, Sutherland Brothers and Quiver, and Sparks.

In his present capacity, Muff divides his time between producing a variety of artists, both Island and independent, signing new acts and administering the studio and its staff of 19. "It's funny," he grinned, "last year I must have spent almost 12 months of the year in the studio. This year, a lot more of my time has gone into seeing to the running of the studios, and also into getting the mobile studio into its present condition. I think it's the best mobile in Britain now."

The 24-track Island mobile unit came into being in 1972, a brainchild of Island's Managing Director, Chris Blackwell, but it wasn't until the last 18 months or so that things really began to work out. "At first," Muff told *IM*, "we thought we might take it to the U.S., but too many of the specifications would have had to be changed to satisfy the American regulations — minor things like the size of the wheel base and so forth."

So there was a massive re-think, spearheaded by Muff Winwood. The right crew was recruited, the old monitors were replaced with JBLs, two echos were put in, phasers and digital delays, graphic

continued on page 40



BASING STREET STUDIOS

Basing Street



equalisation was added — in short, a complete overhaul of both technical and personnel was carried out.

The result? "We've had tremendous success with the mobile," Muff added. "It has literally been working every day of the week for the last six months. It was used down at Shepperton recording the soundtrack for Ken Russell's film on Liszt, and now the Who are using it. Bad Company are scheduled to use it, and then Rick Wakeman will be recording with it, the Yes gig at Queen's

Park Rangers was recorded with it. The Elton John and Beach Boys concert at Wembley, the Osmonds, the Kinks — they've all used it."

Ironically enough, the high standard of this mobile studio is perhaps a reflection of Muff Winwood's own grave reservations about using a mobile studio. He told *IM* quite candidly that "As a producer, I would never use a mobile studio if I could use a studio — it's too much of a gamble. You gamble with the rooms you're recording in, the atmosphere, everything.

"Not long ago, a group booked our mobile unit and took it out to Essex, to a beautiful place. They set up, and there was a terrible buzz coming off the amps.



"The mobile is self-contained and runs off a generator, so we knew that wasn't the problem. We took all the gear out and drove into the town and set up again in a pub, just to see if the same thing would happen, and it did — again, this terrible buzz.

"It turned out that about three miles away, there was a top-secret American satellite tracking station which was creating the buzz.

"That is admittedly a rare occurrence, but when you reckon it all up, the group had lost five days, plus the cost of the mobile. Groups can't afford that."

Especially not in the current economic climate. But Basing Street Studios are in a better situation vis-a-vis the recession than many studios. "There are too many studios in this country now, and only two kinds are going to survive: the best and the cheapest, and I think we're one of the best."

With record companies reducing the number of signings and in many cases cutting back on their total number of artists, the recording studios are beginning to feel the pinch. "On the average, it takes one artist ten hours a day for three weeks to record an album. If a record company reduces the number of its artists by three, that means that, well, it could mean that a studio will have as much as three months to fill."

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SONG AND DANCE MAN

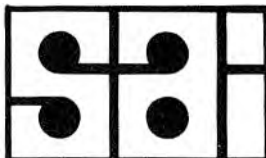
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Basing Street

As a result of this, Basing Street Studios have seen an increase in the number of outside artists using their facilities. "That's really why we became Basing Street Studios," Muff added. "When the Island Offices were here, I think a lot of people who wanted to use the studios were a bit reluctant to record here when the heads of a rival record company were sitting only a hundred feet away."

So Basing Street Studios is just a studio now — albeit one of the best in Britain. Muff Winwood has worked in a handful of other studios, but he is more than pleased with his current set-up. "It takes two things to really make a great studio: the best engineers and the best equipment. I don't think that any one studio has 100% of both, but that is the aim, and we're close in both categories."

"Frank Owen, who also works on the mobile, started

at Olympia and has been here from the beginning. He has a lot of experience, as do our other engineers — Phil Brown, John Burns, Rhett Davis, Howard Kilgour and Phil Alt."

The studio's technical specifications are also impeccable. Both studio One and Two boast new Helios 32 input, 24 output consoles, 3M 24, 16 and 8 track recorders, 24M series Dolbys, UREI graphic equalisers, UREI limiters and filters, two Pultecs, six Keepex expanders, EMT digital delays, and a choice of Tannoy, Altec or JBL speakers.

Studio One is 60' x 40' x 25' and can hold 80 musicians, while studio Two is more intimate, measuring 20' x 30' x 10' and holding 20 musicians.

The construction and design of the studio attracted a good bit of attention when it was completed in 1969,

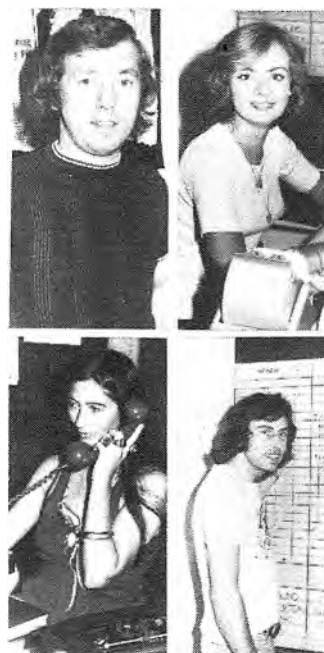
receiving write-ups in both the music press and semi-learned journals such as *The Architects Journal*.

A sandwich of rubber and steel was inserted between the studio and supports holding up the exterior walls of the church, and tons of concrete and lead were used to ensure the proper acoustic properties.

An added novelty is that the control room is in no way structurally connected to studio One — there is a buffer zone of air and double glazing between the two.

All this, of course, meant that the church — which fortunately had been deconsecrated awhile ago — was essentially gutted and an entirely new interior put in its stead (the bit of "Black Cake" mentioned before houses the offices).

All in all, it worked, and Island seem better prepared than many studios to face the challenges of the next half of the decade. □



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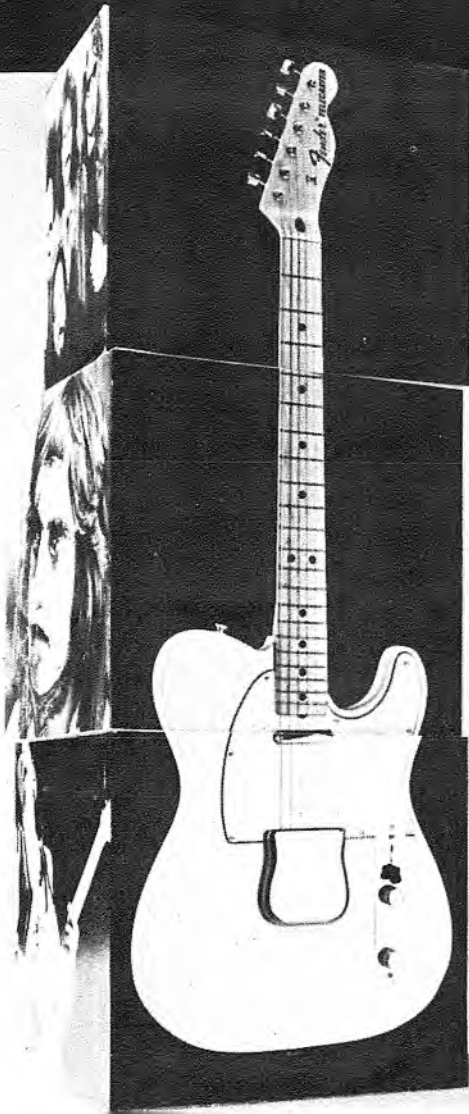
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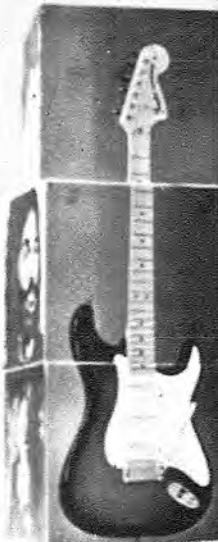
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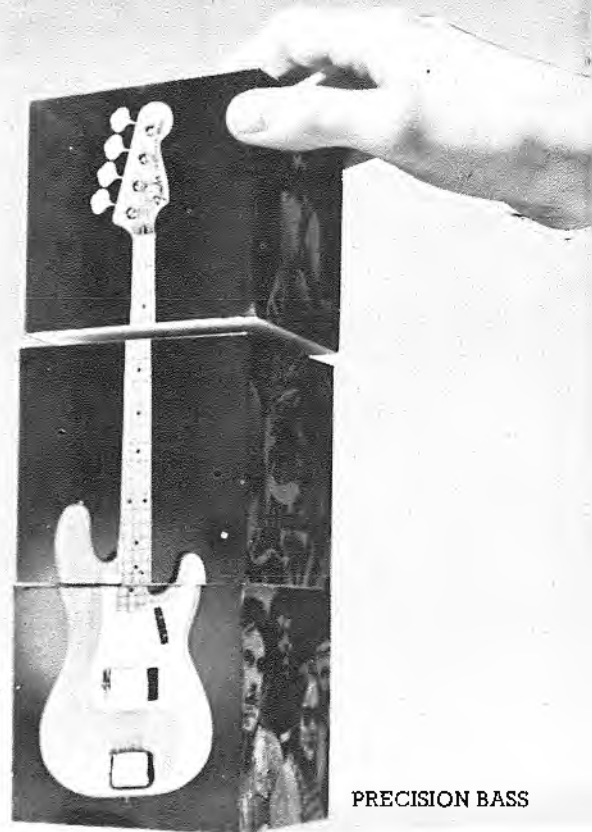
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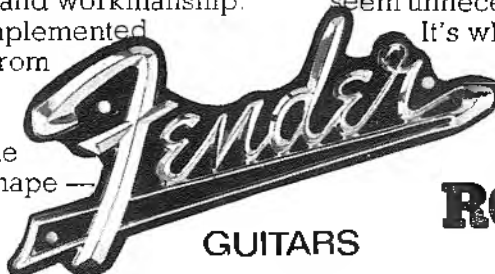
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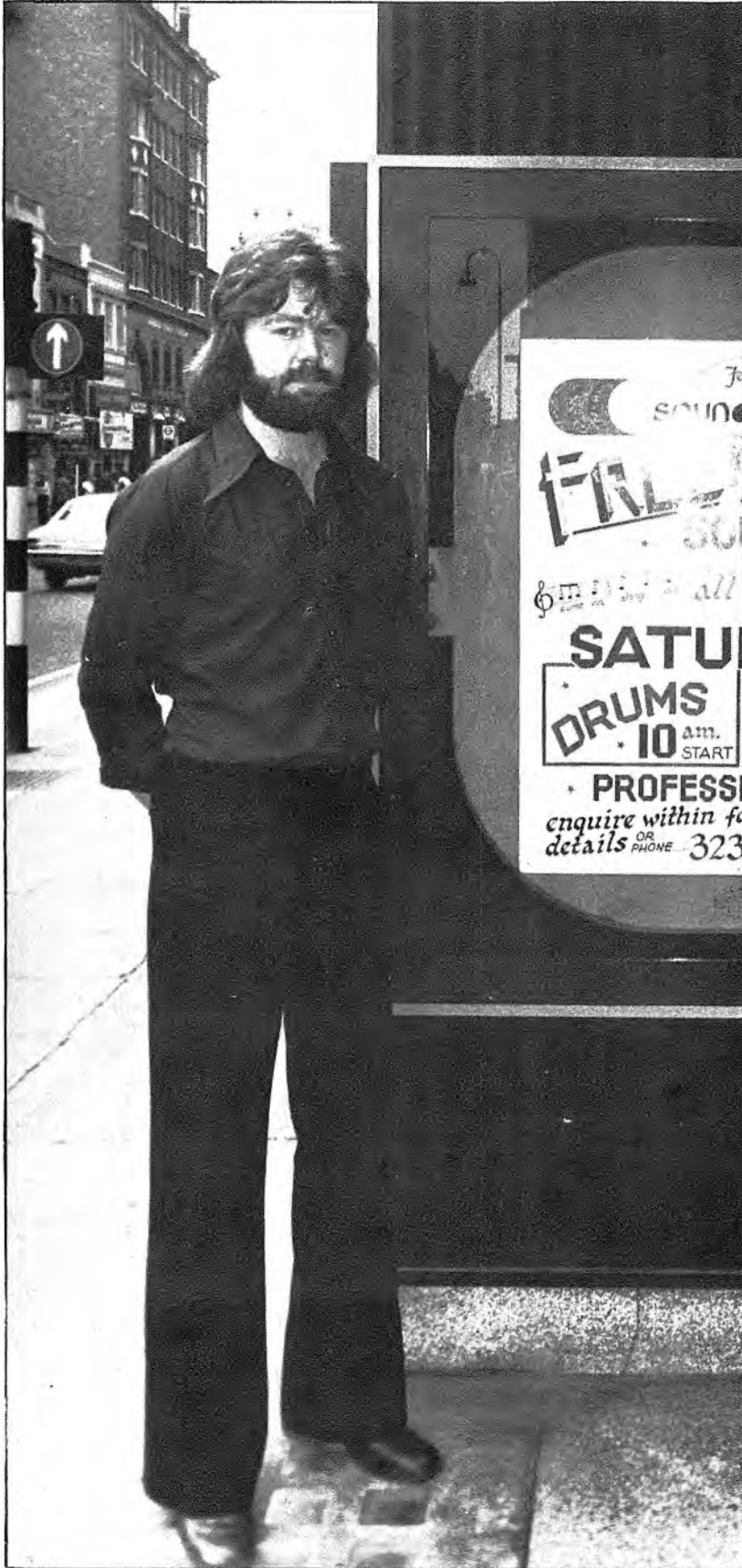


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Rod Alexander (Fender Soundhouse)

Perhaps once in a generation, an idea comes along which changes an entire industry, touching every aspect of it, from root to leaf. In the music business, the Fender Soundhouse is just such a concept.

Placed in London's busy Tottenham Court Road, the Fender Soundhouse opened on September 27th, 1973, and the repercussions were immediate. Rod Alexander, the present shop manager, joined the following April, but he was immediately aware of the shop and its impact on the music scene.

"I had worked at Sound City for four years, and although I knew and was impressed with Ivor Arbiter, I eventually became fed up with that scene. It was a four-man shop, and there was no future." As a lead guitarist who still plays sessions, Rod's alternative was obvious. "I joined Blackwater Junction, and I was back on the road again. After about three weeks, I began to hear rumours about the Soundhouse. When I got back to London, I came to Tottenham Court Road and had a look around the shop.

"I also had a chat with Reg Clark and Andrew Wallace, and it was so obvious that for the first time, this was a retail operation that was looking forward, not backward. Taking on the management of the shop was a tremendous challenge. There's a staff of 20 to take care of, and we also have what I consider to be the three best agencies going — Fender, Rhodes and Rogers. With top quality equipment like that, it's a tremendous incentive to do your best."

Rod's own experience, both in retailing and music, have proved an added bonus for the Fender Soundhouse.

continued on page 45

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Fender Soundhouse

He began playing in bands ten years ago in his native Cumberland, and in his day he has played with Carl Douglas, Joe Brown and Blackwater Junction. He still plays some sessions when he can fit it around his duties at the Soundhouse, and his collection of instruments includes a Fender Stratocaster, a Gibson Stereo, a Martin D 18, an original Les Paul Junior and a Coral sitar. Most of his musical time now is spent in writing.

"I'd played in bands for years, and I knew loads of musicians who all had similar complaints about music shops. We would go in and try to get service, and you could tell by looking at the guy as he talked to you that he was handing you a line. Especially in after sales service, which I feel is so important for musicians."

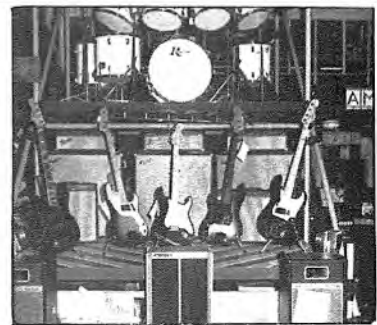
The corner stone of Rod's shop is a nucleus of staff who have all been professional musicians or roadies themselves, and who know how to advise customers what to buy. Chris O'Kelly, who used to work with Steve Harley of Cockney Rebel, and Colin Pincott — "He can outplay 98% of the guitarists in Britain" is Rod's claim — are characteristic of the shop's staff. As Rod added, "They didn't know the retailing and paperwork side of it, but I've taught them. The music side of it, and the friendly, youthful and helpful side of it is more important."

The aim of the Soundhouse is not to succeed by a series of one-off rip-offs, but to build up a relationship with customers that will last. "We have 12 year old kids coming in who will buy an Arbiter guitar for £20, and we want to make sure that it suits them. In five years he may be the new guitar hero. We want to build up trust,




and a continuing relationship."

This philosophy is epitomised by another facet of the Soundhouse motif — the free guitar and drum lessons. "Every Saturday we have free drum and guitar clinics for learners. They range in age from small kids to 25 year olds. We also give good dis-




continued on page 47



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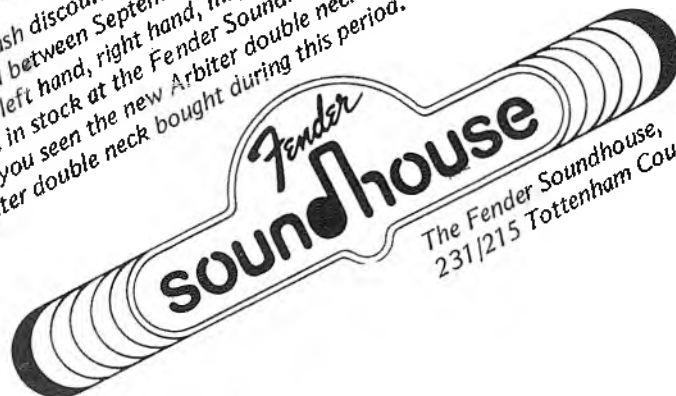
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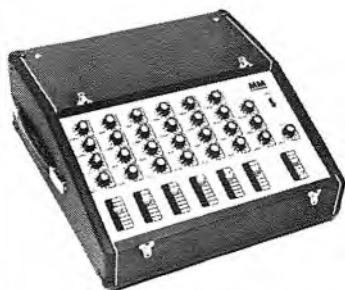
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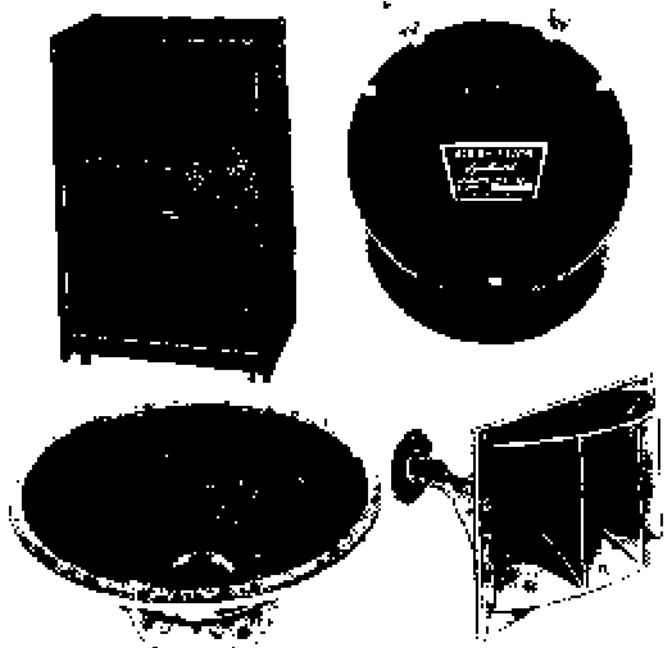
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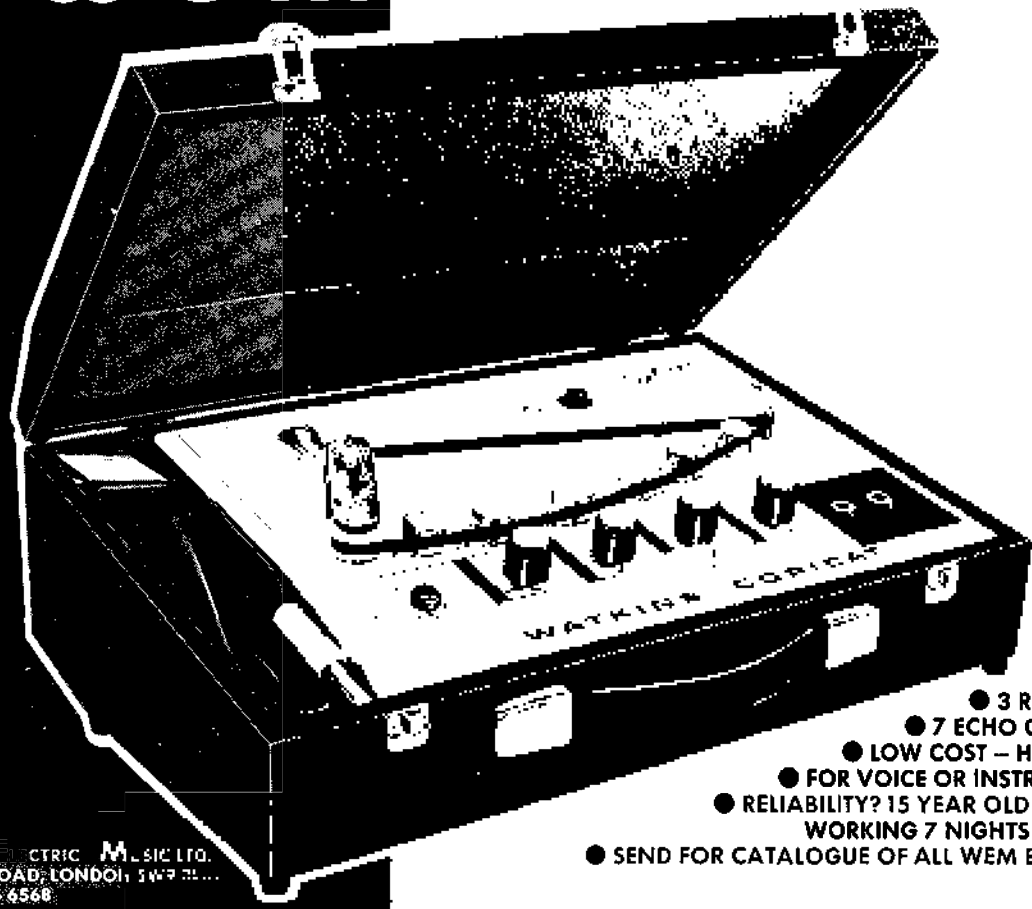
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The Fender Soundhouse is a happy shop, and Rod Alexander is a happy man. He has nothing but the highest praise for Managing Director, Ivor Arbiter, who he believes is the most progressive and forward looking individual in the business, and he has also managed to gather a like-minded staff of underlings who know their business and really care, both about the customer and the product. This is reflected in every area. From accessories to repairs, the emphasis is on quality and personal service. □



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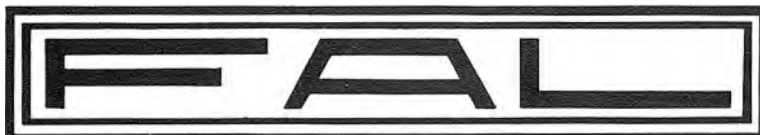
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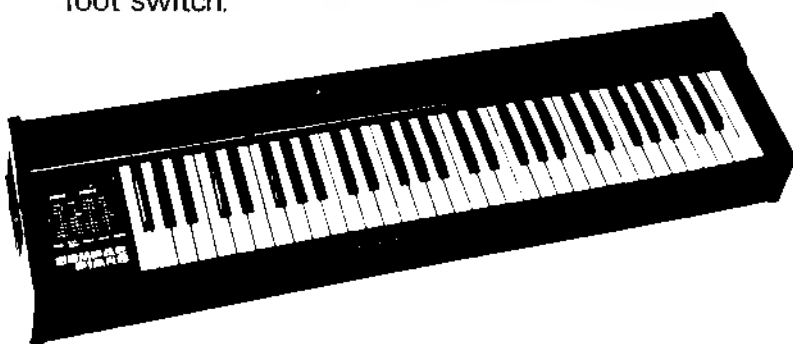


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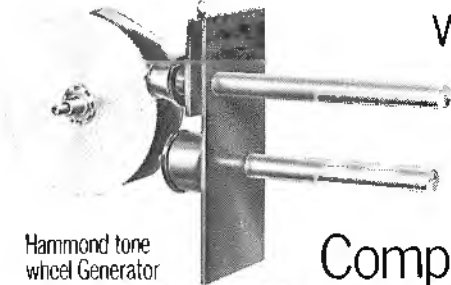
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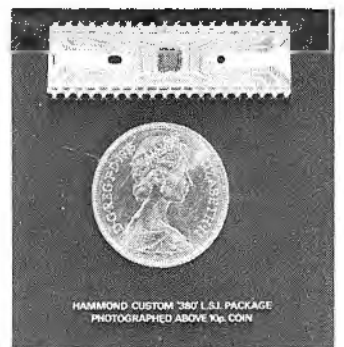
Forty years ago the first electronic organ was built by Laurens Hammond, using the simple electro-mechanical tone wheel generator.



Hammond tone wheel Generator

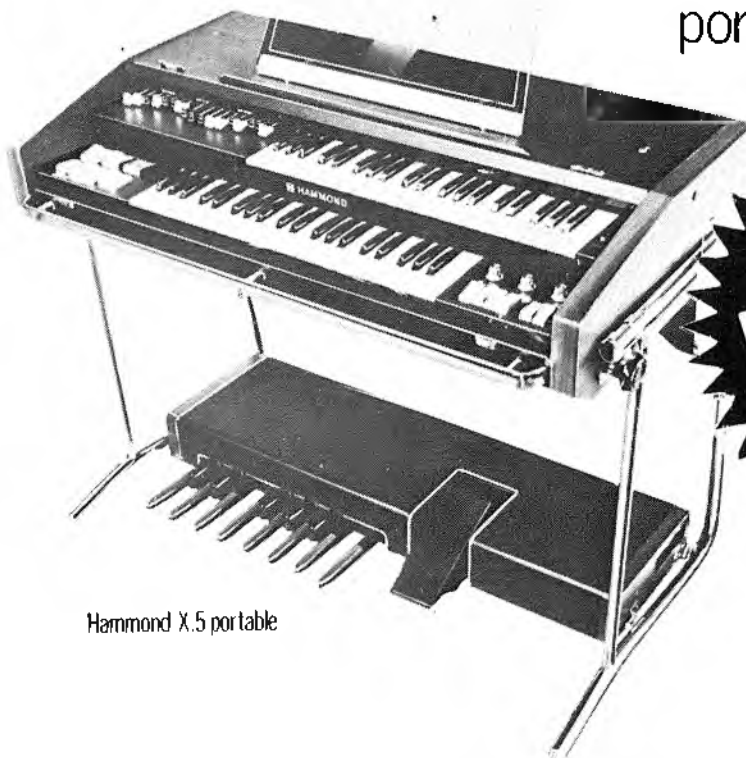
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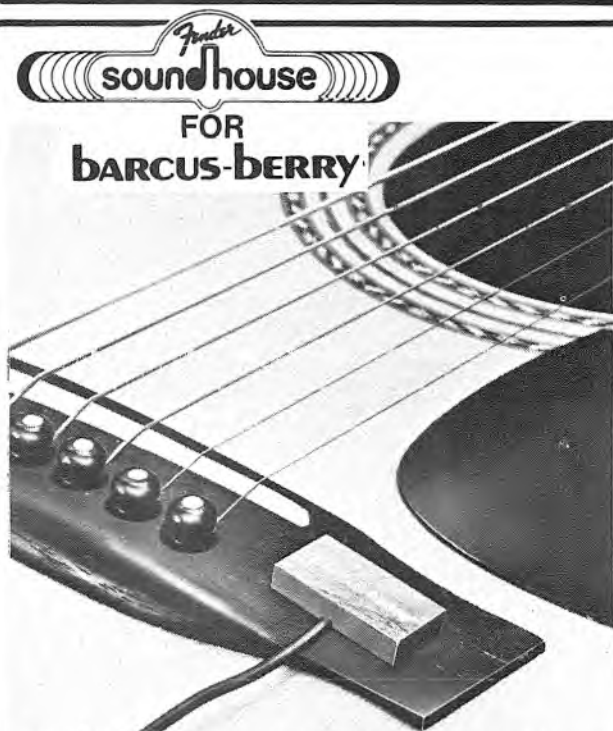
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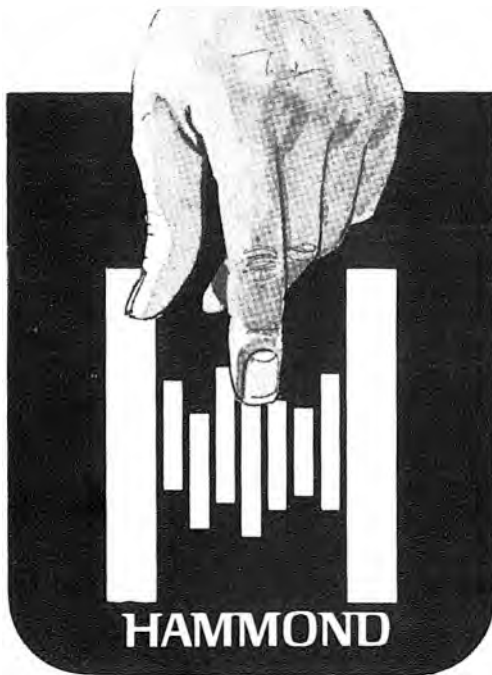


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THE HAMMOND STORY



Two hundred years after Bach established the bass patterns that were to dominate all popular music, Gary Brooker and Procol Harum proved that organ music and Bach are still the single most pleasing sound to the human ear. "Whiter Shade Of Pale" dominated the charts in 1967 and finally proved to be the biggest hit of a decade that included the Beatles. The tune was a re-working of the classic Bach descending bass line established in "Air On A G String" and the instrument Gary used was a Hammond organ, an instrument a fraction of the size of the organs Bach knew in Hamburg, Leipzig and St. Petersburg but with facilities and tone variation many times greater than those old wind blown instruments.

After the discovery of electricity and its laws, man attempted to re-create the magnificence of these mighty instruments in a compact package, but it wasn't until Laurens Hammond patented the tone-wheel generation system in the 1930s that the electric organ industry was created.

The raw energy of the guitar groups that were thrown up when war-babies reached adolescence sought new forms of musical expression and by the middle sixties the "group" was giving way to the "band" and for the first time young musicians approached the Hammond organ to see what they could get out of it.

For decades, established jazz players like Jimmy Smith had been digging into the range of tones offered by Hammond organs, but players like Georgie Fame, Zoot Money and John Mayall took the instrument back to its roots and started using it more percussively than ever before. It's ironic, however, that the biggest selling organ record used the classic choral organ sound that is a perfect electronic reproduction of the magnificent "choral" sound of the giant pipe-organs. Part of the "Hammond" sound must, of course, be attributed to the Leslie rotary speaker cabinets which have been used with the organs for many years. The sound produced by the organ is treated electro/acoustically to exactly resemble the reverberation of phasing sequences that the huge pipe organs used to produce.

The acoustic pipe organ reached its zenith between 1904 and 1932. In the latter year an organ was installed in Convention Hall, Atlantic City which had seven manuals, 1,233 stops and 32,882 pipes. Imagine trying to get that on stage at the Hope and Anchor? Obviously there had to be an alternative.

Laurens Hammond was born during an age of inventors. Just as poets were the superstars of the romantic age, and rock 'n' roll players today's superstars, the inventors dominated the last 30 years of the last century and the first 30 years of this.

Born in 1895, Hammond was educated in Europe. Fortunate to have a privileged background, he chose to pursue scientific studies and at the age of 14 had designed an automatic gearbox to eliminate gear changing for the newly-invented horseless carriages.

At 16 he had obtained his first patent — for an improved barometer — and he went on to design and improve the gadgetry that the electric and electro-mechanical age was making possible.

Returning home to the United States he took a job working for the McCord Radiator Company and only left at the outbreak of World War 1.

After serving in France he set himself up in business as an inventor, his first marketed product being a tickless clock. He had placed the usual clockwork mechanism inside a soundproof box.

Despite many other inventions in the 20's — some zany, like a 3D film projection system: — it was clocks that were to dominate his commercial life.

The depression in 1931 affected even the Hammond company and it was during the dark years of the early thirties that Laurens Hammond created an industry. In 1618 an Englishman, Robert Hooke, had demonstrated that musical tones could be created from a cog wheel and a sliver of card. The toothed wheel fastened to a revolving shaft gave a distinct pitch when a card was held against it.

Since that time inventors had sought to use the system of tone generation as a basis for music re-production. All had failed until Laurens Hammond took up the challenge. The basis of his work was the same electric motor that powered his clocks. It was constant and reliable — a fact that was to make a major contribution to Hammond Organs. Because he was seeking new ways to use this motor he started to work on tone production from a turning wheel. He had great success and he adapted Hooke's original idea to make a small wheel with a patterned edge which revolved in front of an electro-magnet rather than against a card. By winding a wire round this magnet he invented a pick-up capable of producing a tone that could be amplified and tuned.

Laurens Hammond at the Model "A" Hammond Organ, c. 1935



Continued on page 56



Playing around with the keyboard part of an old piano, Hammond realised that if the player could select multiples of the tone-wheels to be connected to a single key, the tone-variation possibilities would be endless. This was the basis of the draw-bar system of tone selection that is still used on some Hammond organs today and this — combined with the tone wheel discovery — put the Hammond company years ahead of any rivals.

The patent for the organ was rushed through in record time and news had leaked long before any production models were available. Henry Ford and George Gershwin each took delivery of an organ from the first batch and by 1935 orders were rapidly building up for Hammond Organs.

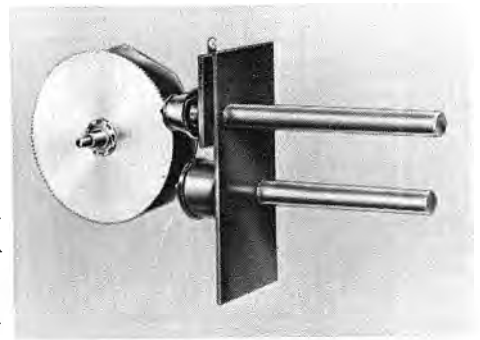
After Pearl Harbour, Hammond Instruments turned their attention to war work but they still produced organs. A GI model was introduced and this followed troops all over the world, providing entertainment.

After the war, the organ began to take on the shape that is recognisable today. Most important, the vibrato effect was added as opposed to the pre-war "tremolo". This period was also a turning point for the American organ market. Although the instruments had mainly sold to musicians and institutions, many were finding their way into homes and it was realised that there was a vast market for a compact organ suitable for home entertainment. The design team at Hammond built a small organ and called it the Hammond "Spinnet" Organ. It was a revolution. For years and years the piano had been the instrument to have in your home. It was a status symbol that represented wealth and it provided real entertainment in the days when everybody was making their own music. The organ was a natural successor. The rich American public latched on to the idea and in six years more spinets had been sold than all other organs previously produced.

With its instinctive flair for selling, the American music trade rapidly organised Hammond Societies where players could meet and discuss their mutual interest and as well as promoting music, they also promoted sales.

The next big step was the "easy-play" Hammond organ. The professional musicians were not neglected, but while their instruments were becoming highly sophisticated, the domestic market was responsible for producing an organ "any-one could play". It was the Hammond Chord Organ, an instrument that offered beginners the facility of holding a chord whilst playing a melody. Special diagrammatic music was developed and a potential buyer walking into a music store could believe that he could play.

Taking the marketing of early sewing machines as an example, dealers offered a limited number of free lessons to buyers and an explosion took place.



The Hammond tone wheel generator

continued on page 59

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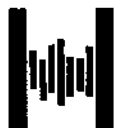
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The fifties was period of consolidation for Hammond. The company name had become synonymous with electric organs. Like Hoover, Hammond was to be found in the dictionaries and despite many competitors anxious to jump on the bandwagon, the program of research and development undertaken by the (now) rich company kept them well ahead.

Their products had traditionally been the sombre looking things all organs were, but the home market demanded more. More exotic woods were demanded for cabinetry and dashes of colour began to appear on the manuals. If organs were to be in the home, housewives wanted them to look like items of furniture.

By the early 1960s the moderately priced L and M series of organs had been introduced. These formed the basis of the British beat boom's organ market and Wardour Street in Soho was filled with the throb of the Hammond and the Leslie cabinet during 1963 and 1964.

Meanwhile steps were being taken to ensure Hammond a larger share of the U.K. market. Back in 1935 Boosey and Hawkes Ltd., of London had been Hammond's first export customer so it seemed natural in 1958, when dealer restrictions eased, that B & H should carry on importing the organs.

The market grew and by 1964 it was obvious that Hammond deserved a full-scale operation if the U.K. and Hammond (U.K.) was born, a joint venture between the Hammond Corp. and Boosey and Hawkes. For the first time retailers U.K. were able to get an unrestricted supply of Hammond organs.

In the heady days of the boom there just wasn't any other organ to have in your band. Players advertised themselves as "Hammond-organists" and immediately found as much work as they could handle and despite a few portable electric organs produced, every band – almost without exception – wanted a Hammond organ in the line up.

Major recording studios bought a Hammond as standard equipment – that still applies today – and if you wanted an organ on your record, then it would be a Hammond.

By 1966 the Hammond electric organ had become electronic. The X-66 console organ was launched with the ultimate technical specifications. It was incredibly expensive at over £5,000 and it used transistor technology to the ultimate. There is an X-66 currently being repaired in Hammond workshops in London and the number of discrete transistor circuits incorporated in the instrument has to be seen to be believed!

Then came Gary Brooker crashing through the charts with "A Whiter Shade Of Pale". No one suggested that it was a significant organ record – it was far more than that. But it is true that the most important single item on the recording was the organ sound – and that was the Hammond sound.

Despite the boom of the transistor, the late sixties revealed the short comings on conventional wire and solder circuits. Although cumbersome valves had gone and reliability and miniaturisation was improved, the transistor pushed electronic technology forward so fast that it virtually spelt its own doom by illustrating other possibilities. Oddly enough the answer came from the Moon.

Critics of the U.S.A.'s frantic attempt

A Hammond X-5 Portable undergoing final landed quality test



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continued on page 61

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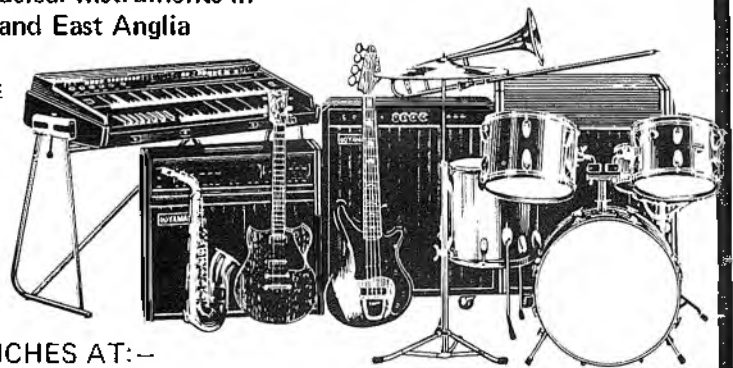
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to prove a dead President right, might say that the NASA expenditure on manned space flight is aptly described as lunacy. But it is now certain that the spin-off benefits from that period of artificially-forced scientific development will have repercussions that will go on reverberating down the decades. The particular development that pushed music truthfully into the space-age is the Large Scale Integrated Circuit.

Man had proved himself capable of designing circuits he could not build because of the physical limitations of his component.

The basic problem was of connecting transistor to transistor. It was proved that the transistor itself could be produced only 1/64th in size but if wires had to be attached to it then it had to be considerably larger. Just as printed circuits have eliminated component wiring in standard assemblies, it was considered that a photographic etching process might be able to reproduce a printed circuit of a comparable size to the transistor itself. By photographic reduction it was discovered possible that highly controlled sterile conditions could produce circuits infinitely small and infinitely reliable. The integrated circuit was born— all connections were integrated.

The L.S.I. is far more than just a stepped-up version of this idea. L.S.I. places transistors side by side on a wafer-thin disc and it was made possible by the development of a transistor 50 times smaller than previously thought possible.

Hammond latched on to L.S.I. and, using the knowledge developed by NASA who relied on L.S.I. to get their boys back from space, started work harnessing the incredible new power to the problems of electronic music.

The Hammond X-5



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Today the range of Hammond organs on sale in Britain offers a wider range of alternatives than ever before. The organs are manufactured both by Hammond in Chicago and Nihon Hammond in Japan and Hammond (U.K.) operate a strict franchise basis with their dealers.

Getting an agency to sell Hammond

organs is an extremely difficult thing. Dealers have to evince that they are fully able to service buyers before and after the sale and they have to demonstrate they are keen to take the organ out to the people as well as to welcome the people to the organ. It's also important that there aren't any dealers competing closely in the same area as cut-throat competing inevitably makes the customer suffer.

Today's range consists of the Dolphin, the Dolphin De Luxe, the Cougar, The Phoenix 1200 series, the T-500, the X-2 and X-5 new portables, the Monarch, the Grandee, The Regent and the Concorde.

The Concorde is the flagship of the Hammond fleet. It's an instrument which offers the ultimate in tone variation. Its features include original harmonic tone-bars, poly-synthesis percussion, acoustic tremelo, sustain, vibrato, reverb, cassette player/recorder, preset-voices, automatic rhythm and automatic accompaniment.

The reason for the continuance of Hammond's success story does not lie with the instruments alone. Managing Director Tony Kilbey and Sales Director Keith Beckingham are, to say the least, vigorous in their approach to marketing and there is a large team of demonstration organists which include such luminaries as Bryan Rodwell, Robin Richmond and Keith Beckingham himself.

The Hammond Concorde



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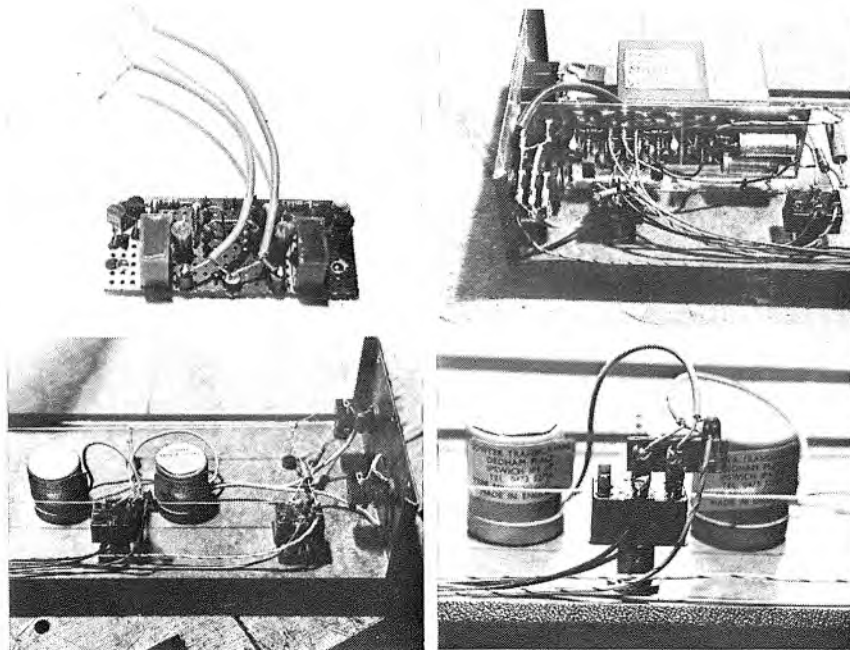
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DAISY:2



Some additions and improvements as promised last month. These improvements consist of a two-channel buffer amp which defines the input impedance at about 130k ohms and the output impedance at a little over 1k ohms. Also, a power supply filter which permits the buffer amp to run off the signal-light supply without picking up noticeable hum.

The relatively high input impedance makes the choice of guitar leads a little more critical, but may give your guitar a more impressive sound, depending on what sort of amplifier you use.

The low output impedance makes the operation of the "Link" switch more predictable and makes it easier to fit isolating output transformers, for additional safety and to prevent hum loops when driving two different amps.

I have gone to considerable trouble in the design of the buffer amps to minimise interference from mains, lighting cables, and unwanted radio transmissions. They provide less noise and hum than most guitar-amplifier combinations, and under most circumstances will handle a signal of three volts peak to peak. This is the highest level I have ever known to come from a guitar pick-up and at least 60 times the nominal input needs of most guitar amps.

Jermyn, Vestry Estate, Sevenoaks, Kent (Telephone 0732 50144) can supply all transistors (including BD518) and the mains voltage capacitor for £1.49 inc. tax, if you telephone your order and give your Barclaycard no. (or for £2.24 including tax if you send written order and postal order.) These components are marked with an asterisk on the list.

COMPONENTS:

Resistors: (R.S. Components or DORAM 1/8 watt High Stab - 10%)

- 4 off 270k
- 1 off 330k
- 1 off 27k
- 2 off 1.5k
- 2 off 1k
- 1 off 100 ohms.

Capacitors:

- 2 off 470/μF. 10 or 16 volt Siemens B41283 Electrovalve
- 2 off 4.7/μF. 16 volt Tantalum Bead R.S./DORAM, or Siemens B45134 Electrovalve
- 2 off 0.047/μF. anything 50 volts or over such as Siemens MKH or R.S./Doram 400 volt polyester.
- 2 off 100 pF. Polystyrene
- 2 off 470 pF. Polystyrene.
- 1 off 0.22/μF. Axial lead polyester - anything over 50 volt

Ferrite Beads:

- 2 off R.S. Components or similar.

Terminal Pins:

- size 0.040 about 12 off.

Veroboard 0.1 matrix see text

Transistors:

- * 2 off 2N 5087 Motorola Jermyn Industries
- * 2 off 2N 5210 Motorola do
- * 1 off 2N 3906 Motorola do
- * 1 off 8D 516,518* or 520 Motorola Jermyn.

Fittings:

- 4 off 1/2 inch bushes (Pillars)

6 B.A. Electrovalve

- 4 off 1/4 inch screw 6 B.A.

Cheese Head Electrovalve.

Special Capacitor.

- * 1 off 0.02/μf. 275 volt A.C. Suitable for continuous Mains operation, such as Electrovalve 1,000 volt range. or preferably a specialised RIFA type from Jermyn.
- * RIFA type PME 271 0.022 for 0.01)

Construction of circuit boards and new wiring.

Remove the mains lead. All wires should be insulated unless otherwise stated. Remove base, and place lid with circuits face down on the bench

1. Remove the chassis lead from the lighting circuit, cover with an additional piece of heavy insulating sleeve and connect to the "sleeve" tag on the nearest guitar input socket. ("Sleeve" tags are nearest to the end panel, then "ring" tag if fitted, then "tip" tag at the back of each socket). This lead connects to the guitar strings and therefore to you! The extra sleeving is to counter the remote possibility of the earth lead fouling the mains socket and damaging its insulation.
2. Unscrew the power supply, remove its lid, and connect a wire to the metal clip which holds the mains transformer together, either by soldering top centre, or by a tag under the mounting screw at the opposite end to the wiring. In either case, scrape off all varnish around the contact area. Take the lead out alongside the six volt output wires, cut it, leaving about two inches, and fit a 4BA tag. Remove the screw, holding earth tags to the chassis, add the third tag and replace screw and nut tightly.

If you are uncertain of mains wiring techniques, omit this stage and do not modify the power supply. The equipment will work just as well, but may be slightly more sensitive to mains-carried interference.

3. Build the hum filter board. Don't be surprised if your components are smaller than mine; I deliberately used the largest you are likely to find. Perhaps I should begin with some notes on soldering veroboard.
- continued on page 64*



DYNAMIC MICROPHONES ARE BEST



KTM-1 £7-75

Low cost, non-directional type microphone picks up sounds from all directions. Great for group or interview uses. Use where feedback and audience noise are not a factor. Sphere shaped head for natural voice sounds. Built-in wind and "pop" screen.

SPECIFICATIONS

Impedance: 50K ohms
Sensitivity: -58db/1,000 cps.
Frequency Response: 100-10,000 cps.
Dimensions: 43 dia. x 163 (mm)
1.7 dia. x 6.4 (inches)
Weight: 395 grams/14 ounces.



KTM-3 £9-95

A small style microphone built especially for the vocal performer. Parabolic-shaped head gives a close intimate sound. Its cardioid directional pattern pick-up eliminates background and audience noise up to 80%. A favourite style for TV performers due to the low profile flat-top wind screen. Brushed aluminium finish will not reflect stage lighting. Ideal for multi-mike set-ups.

SPECIFICATIONS

Impedance: 50K ohms
Sensitivity: -57db/1,000 cps.
Frequency Response: 100-10,000 cps.
Dimensions: 41 dia. x 170 (mm)
1.6 dia. x 6.7 (inches)
Weight: 370 grams/13 oz.



KTM-2 £10-95

Directional cardioid pattern pick-up. This type of pattern is especially useful when the performer must stand directly in front of speaker system as it will eliminate up to 80% of the background noise while accepting all frontal sounds. The directional characteristics make it easy to aim the KTM-2. This feature is extremely helpful in multi-mike installations and also to avoid pick-up of unwanted outside noise. Dual impedance allows use with a wide variety of sound amplifiers or with extra long cords. Sphere-shaped head for natural voice sound. Built-in wind and 'pop' screen.

SPECIFICATIONS

Impedance: High 50K ohms/Low 600 ohms
Sensitivity: -57db/1,000 cps.
Frequency Response: 100-10,000 cps.
Dimensions: 52 dia. x 230 (mm)
2 dia. x 9 (inches)
Weight: 510 grams/1 lb. 2 oz.



KTM-4 £12-95

Uni-directional, cardioid-shaped pattern. Reduces feed-back problems. A high quality, professional microphone suitable for studio, stage, TV and radio applications. Dual impedance for use with all types of tape recorders or with extra long connecting cords. Directional qualities make the KTM-4 ideal for multi-mike set-ups. Built-in wind screen, rich sound to all voices. The KTM-4 is especially suited for male vocal and 'heavy' sound groups.

SPECIFICATIONS

Impedance: High 50K ohms/Low 600 ohms
Sensitivity: -57db/1,000 cps.
Dimensions: 44 dia. x 200 (mm)
1.7 dia. x 7.8 (inches)
Weight: 510 grams/1 lb. 2 oz.

Complete with 20-foot fully shielded connecting cord which ensures clean, crisp sound by eliminating all unwanted signals from lighting fixtures, outside transmitters, etc. Also includes a quick-release holder for use with any standard microphone stand.

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Kay microphones are guaranteed against manufacturing defects for one year from date of purchase.

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DAISY:2

Both boards use a standard size of 0.1 pitch vero, as supplied to radio-parts shops by Norman Rose Ltd. If you cut your boards from a larger piece, use a junior hacksaw with a new blade, and cut along the holes, copper side up.

The outline of the filter board on the diagram shows the edge of the board; copper strips are indicated by numbers, and cross-rows of holes by letters. It is relatively easy to blob solder across two adjacent strips. To prevent this, I suggest you hold the board horizontal while soldering and use a miniature iron between 10 and 20 watts with a tip of 2mm or 1/16 inch wide, or less. Standard "Multicore Savbit" solder is useable but the finer gauges are more convenient. If you still have trouble, Desolder Braid will soak up any unwanted solder. The diagram shows the board with components facing you and copper behind. Significant parts of the copper strips are shown shaded, (as if the board was held up to a strong light). It is not necessary to remove unshaded parts. Begin by cutting through the copper strips at the points shown by an X. The easiest way of locating the correct hole on the back is to count from the front, push a pin through the hole and turn the board over.

Remove the pin slowly while putting the cutting tool in the same hole. Rotate the tool clockwise until it has cut the copper strip completely at both sides, but stop before it damages adjacent strips. The cutting tool can be purchased, or made from a new 1/8 inch drill in a small handle. There are breaks at: 4C, 6C, 5D, 4X, 6X, 5W and 2P. You will also need clearance holes for 6BA screws at 5B and 5Y. Check care-

fully around any cut edges or cut strips for copper shavings leaning towards adjacent strips. Cut these off neatly using a scalpel with a strong stubby blade, or a similar modelling knife. The next step is to insert (from the copper side,) single-ended, headed, terminal pins at 2F, 8F, 2Y, and 2Z. Insert small components, checking each one first if you have suitable equipment, and solder. Then add the two large capacitors, which may overlap the board if necessary, and solder these, and the terminal pins. (Yes, the two capacitors are pointing in opposite directions). The highest part of each transistor should be about 15mm from the board.

This hum filter is an ingenious circuit attributed to Clive Sinclair many years ago, and could be considered as a form of gyrator. That is to say the transistor pair converts one of the capacitors to act as an inductor. Its value is proportional to $R_1 R_2$ and at low currents, is very large indeed. Together with the second capacitor, it reduces the hum level carried to the output sockets, to considerably less than that coming from the guitar. When manufacturers start screening their guitars, I will sort out a better supply for you. Until then I think this hum filter and a cheap commercial power supply, represent the best value for time and money spent.

The filter has a "warm up time" of about one minute before supplying power to the rest of the circuit, and may need 1/2 to one minute after a temporary interruption of the mains supply, as may be caused by a dirty, or loose plug.

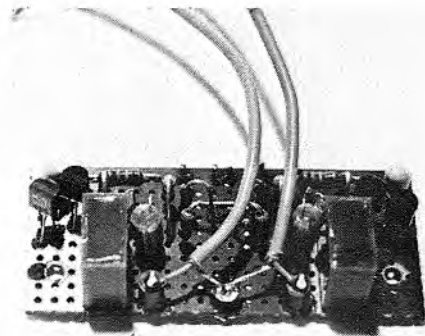
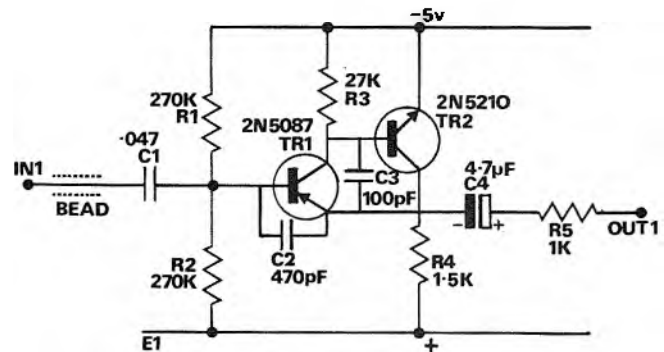
The transistors are cheap and convenient but could be substituted. The larger transistor should

have a gain of 50 to 100 at about 10 m.A. and the smaller driver transistor needs a similar gain at 20 to 50 microamps. Both are P.N.P. silicon types.

4. Build the buffer amp board. In this part of the circuit, transistor changes are entirely at your own risk. The recommended Motorola 2N 5087 and 2N5210 are sophisticated low noise transistors, which are necessary to give a reasonable performance with the wide range of source impedances likely to be connected to the inputs. If you wish to experiment, the nearest similar transistors are probably Texas BC 214 L.C. and B.C. 184 L, although the lead identification will be different.

Most of the components on this board are mounted, standing on end. This brings the solder joint very close to the component body and there should be a minimum of 2 mm. between component and board. Otherwise construction is similar to the filter board except that the largest capacitors should be fitted before the others. The cuts in the copper strips are easier to place, than on the filter board. The entire L and O rows are cut through, also the points 10 F and 10 U. You will need clearance holes for 6 B.A. screws at 3B and 3Y.

The terminal pins at inputs 1 and 2 have Ferrite beads glued over them and so must be longer



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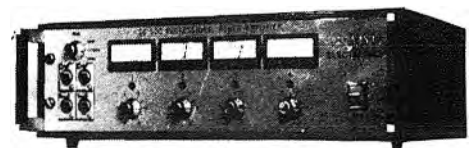
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SPECIFICATION:

Output Power : 150 W rms into 4 ohm, each channel
 100 W rms into 8 ohm.
 Power Bandwidth : -3dB @ 10Hz to 22KHz at all levels.
 T.H.D. : Typically 0.05%
 Hum and Noise : (20-20K) -90dB ref. full output.
 Input Sensitivity : 0.775V rms (0dBm) for full output.
 Input Impedance : nom. 40K ohm, Optional 10K ohm or 600 ohm when balanced inputs are specified.



Load Impedance : 4 ohm to infinity.
 Current limiting restricts output power to 150 W rms below 4 ohm.
 Protection : Fully protected by fuses and/or current limiting circuitry against short or open cct. and load mis-matching.
 Power Supply : Full thermal protection. 120 to 250 V.a.c., 50-60Hz.
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than the others (about 8 mm.) As the input wires connected to them are very light, these pins can be made from thick copper wire. If you get glue on the terminal pin, it can make soldering difficult. I suggest you solder the pins in place, then run a small ring of Clear Bostik or Clear Evostik around the BASE of the pin and

press the bead into place. It should hold firmly within half an hour. You will find if you use the recommended transistors, that the lead identification of each one is marked on the body or brass tab, which should avoid confusion. Other types which look very similar may have different lead arrangements. Also, the two output

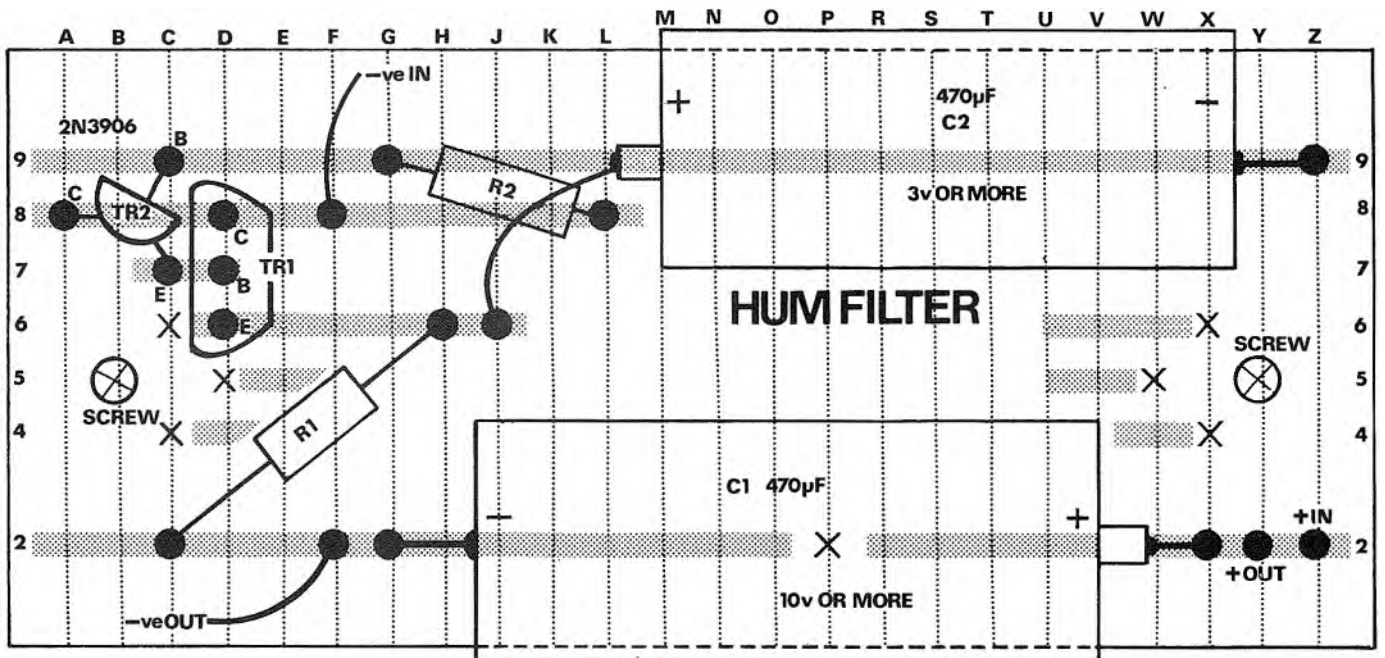
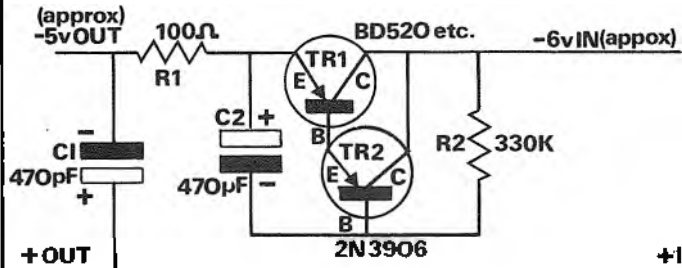
capacitors C4, marked 4.7/uf are Tantalum Bead types. These have - and + leads and must be connected as shown. The method of lead identification varies with different makes and you should be quite sure of which lead is which before buying. (The + lead is sometimes called "Anode").

by 6 B.A. screws from the back of the screen. Check that the bushes line up with the holes in the boards: if not, file out the holes in the screen— not the board.

6. Replace the screen and fit the filter board, also with 1/4 inch by 6 B.A. screws. Connect it to + and - lighting wires and link the connection points with a 0.2/uf plastic film or ceramic capacitor of 50 volts rating or over. Connect a 1k resistor across "- out" and "+ out" pins and attach a voltmeter across the resistor leads set to 10 volts full scale. Connect the mains lead, STAND WELL CLEAR AND PLUG IN. If the meter reads about 5 volts after about 1 minute, all is well; if not, check for errors. IN ANY CASE, DISCONNECT MAINS BEFORE TOUCHING ANY-

After all components and pins are connected, solder a tinned copper wire right across the board, joining all the M to N strips and the part-strips at top and bottom edges.

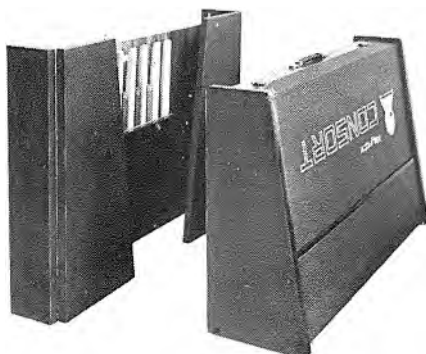
5. Hold the two completed boards up to the aluminium screen and mark suitable points on it, for attaching the boards. Remove the screen and fit 1/2 inch by 6 B.A. threaded bushes (like very long nuts) with 1/4 inch



continued on page 67

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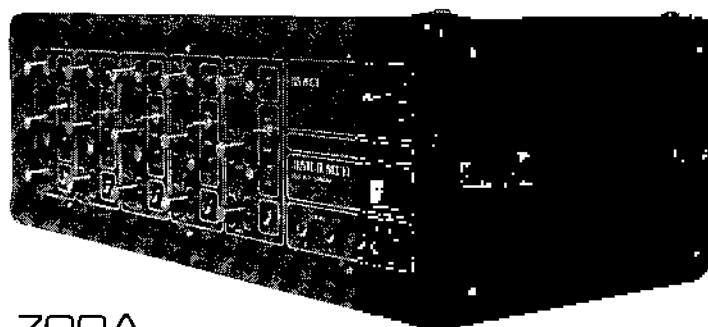
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DAISY:2

THING. Now remove the 1k resistor.

7. Solder two screened wires to the IN and E pins of channels 1 and 2. The braidings go to the pins marked 'E'. Screw the board in place and connect it to the "+ out" and "- out" pins on the hum filter board.

8. Remove the two insulated wires from the ring and tip contacts of the stereo socket and solder them to the Out 1 and Out 2 pins on the amp board.

9. Clean up the loose ends of the input leads to the amp board. Connect both screens to the sleeve contact on the stereo socket, and the inner wires to the tip and ring contacts. You can also replace the links between the sockets with screened wire, but there is little improvement.

10. Solder a capacitor of 0.01/uF across the live and neutral terminals of the mains socket. This capacitor *must* be rated at 275 volts A.C. and be suitable for con-

tinuous mains operation. A capacitor rated at 275 volts D.C. will probably work for some weeks and then blow itself, or the nearest fuse, or both, and may start a fire in the process.

11. Dress all the long leads between switches (and output leads from the amp board), close to the top panel, between the switches and the front edge. They should be as close together as possible to minimise induced hum from the magnetic field of the mains transformer.

12. Replace the cover, connect to the mains and wait one minute for the power supply. Connect the switch box to guitar and amplifier(s) and check for correct operation. The "link" switch will link the outputs and connect them to whatever input(s) are selected. If both channels are switched on, each is halved by the link circuit, which keeps the total output roughly constant. If you link in an input with nothing

plugged into it, you are mixing in a "nothing" signal and the output level will drop. So if you have a "mono" guitar, connect it to *both* mono input sockets with a 1 into 2 adaptor, perhaps via two different effects units.

Don't be surprised if your guitar seems to have a bit more punch when using a high quality, straight lead. The input impedance of the buffer amp is fairly tightly controlled at about 130k ohms for just this reason. Poor quality leads, particularly long "coiled" ones, may lose some treble and add some hum and crackles. A lower input impedance loses some of the hum and crackles of a poor lead; it also loses most of the guts from the guitar's sound. I would rather use a good lead, which in any case is likely to be more reliable.

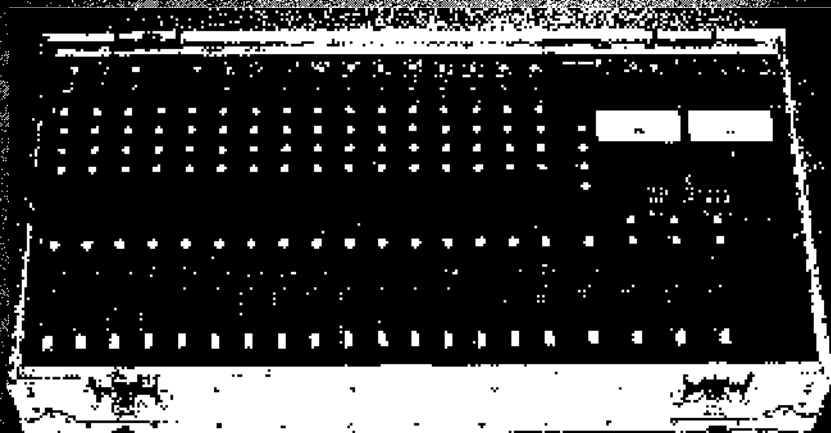
If the box does not work correctly (or at all), suspect wrongly placed components, solder joining

adjacent copper strips, wrongly placed transistor leads, overheated screened cables or small capacitors (in either case the result is a short - circuit), incorrect wiring runs, and in desperation, dud components.

This is fairly common, but by far the most difficult to trace. It is really worthwhile to check each component before fitting. If you still can't find the trouble, you will have to shout for help, and you will need a specialist audio engineer. You can't expect a general serviceman to want to rebuild a "one-off" piece of equipment.

Next month I will describe how to fit the output isolating transformers if they are required, and some reasons for the choice of resistors feeding the link switch.

The Soundcraft "Sixteen into Two"

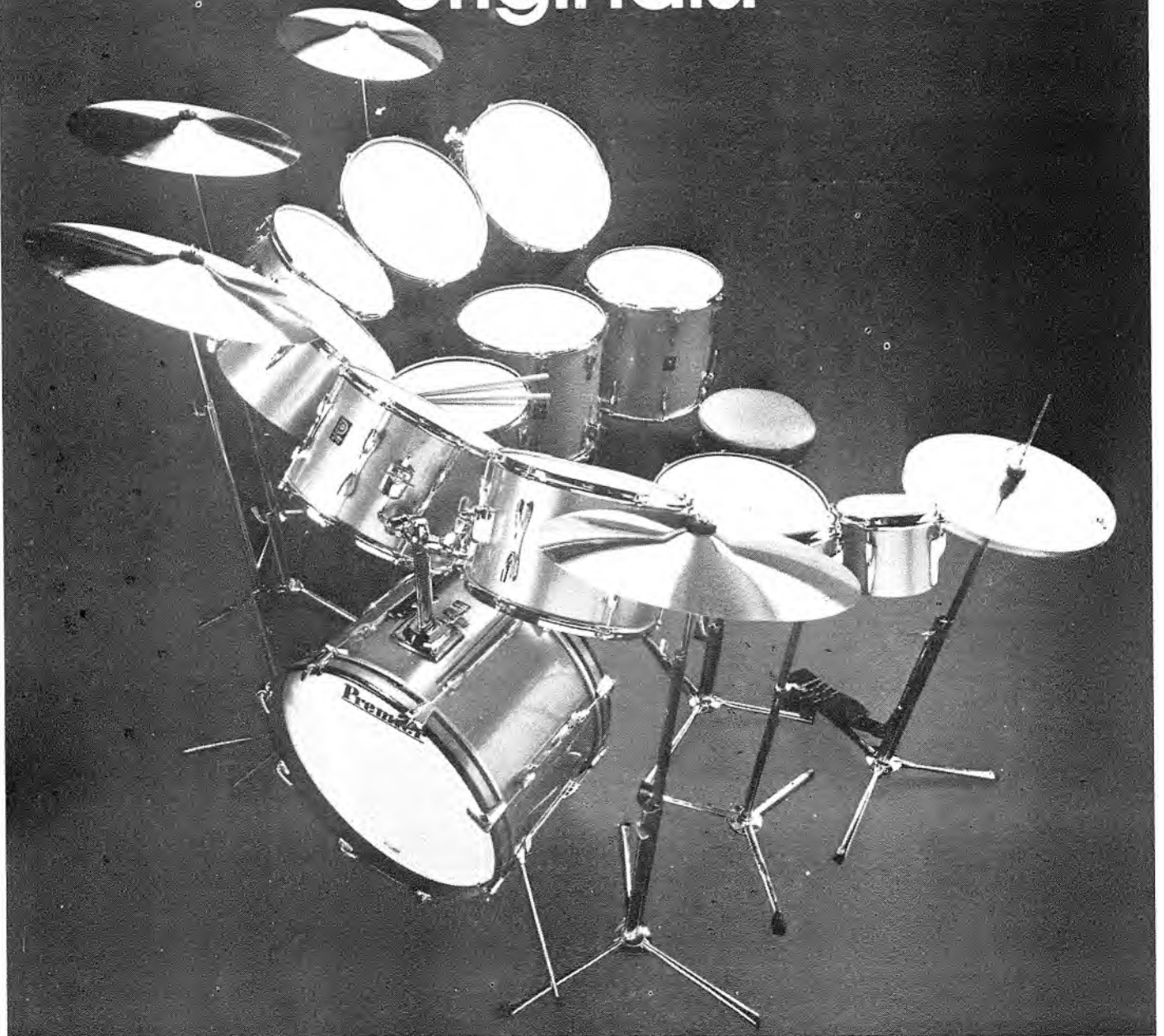


When we designed the "Sixteen into Two", the design parameters included the following specifications: the mixer had to be portable, rugged enough to withstand air-freight, have a noise and distortion spec. to meet recording standards, have equalisation covering the full audio frequency bandwidth, and have all the basic requirements for a road board such as individual channel metering, input automation, stereo panning on each channel, separate mono mix for stage monitors, (foldback), etc. A multicore system to plug directly on to the console had to be available.

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MONITORING DRUMS

Over the years, drumming has developed into a fine art. Technique, style and attitude vary from drummer to drummer, but problems with kits and spares form a common bond between them. The problems are manifold and success depends a lot on liaison between the drummers themselves and the various drum manufacturers. To this end International Musician arranged a discussion between Buffin (of Mott), Dave Mattacks (ex-Fairport Convention, now working freelance) Shadows drummer Brian Bennett and, representing the manufacturers, Rex Webb and Eddie Haynes from the Premier drum company. I.M.'s Eamonn Percival chaired the discussion.



IM. Brian, as a drummer who's been well-respected for years, you must have come up against a few problems. What do you find particularly troublesome?

BB. Well, I'll throw a problem at you to start with and that is from a session point of view. When you're in a studio and someone wants to make a record with a good feel to it and you've only got a certain amount of time, they just throw a pair of cans on you; You say to the engineer that you want a good balance and they tell you to hang on while they sort the notes out. So you sit there for half an hour, then they're ready for a take. Nobody realises that a drummer has to have a nice balance in the cans in order to do a take.

There seems to be a lack of understanding that you've got to hear everything perfectly. That applies to stage work as well.

DM; I've often come across the same problem. Half the time, it comes to a take and they haven't given you a drum sound. Sometimes all you'd get would be the lead vocal and they think that's all you need. I think a lot of that is down to the engineers. There's a lot of good engineers but there's also a lot of tea-boys who have been promoted.

BB. I think that's the reason for a lot of people saying 'We don't want him. He's a session breadhead. He can't play funky,' and all that nonsense. It's not that, it's just that lots of session men have gone in over the years and

wanted to do something and they've come up against this. In the end, they get battered down to the point where they just say 'You write it down and I'll play it.' That attitude comes out of that situation, because most musicians started out because they wanted to play music. You go into a session and you want to give everything - all the sounds and knowledge that you've got - but you come up against this and eventually end up being one of these guys.

IM. Apart from problems in the studio, which are probably mainly due to lack of liaison with engineers or producers, how about kits in general?

DM. The quality of drums is going down. I think, generally, fittings and stands are

continued on page 71

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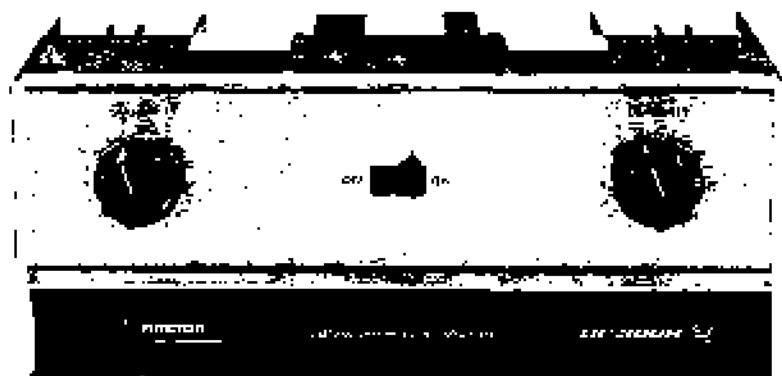
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The M600. While maintaining the exact performance standards of the DC300A produces 750 watts (monaural) into an 8 ohm load, and 1350 watts into a 4 ohm load. Built for durability and trouble-free operation, the M600 includes built-in cooling which permits continuous full power operation. R.M.S. Power Response ± 1 , -0dB DC - 20 KHz at 600 W into 8 Ω ± 1 , 0dB DC - 15KHz at 1 KW into 4 Ω . Hum and noise (20Hz to 20 KHz) 120 dB below 600 W into 8 Ω Typ.

The New DC300A will give up to 500 watts from one channel with distortion lower than 0.05%. Hum and noise is below 150dB below 150 watts, and the DC300A is now able to operate into loads as low as 1 ohm. Power Response ± 1 , 0dB DC - 20 KHz @ 150 watts into 8 Ω .

The new D150 offers up to 150 watts from each channel or 330 watts as a mono amplifier. Again very low distortion and rugged construction make the D150 ideal for smaller PA's and full back systems. The Power Response of the new D150 extends from DC to 20 KHz.

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:DRUMS

improving but the actual drums themselves and the wood is going down in quality. As far as stands and fittings go, I think they've improved a hell of a lot over the years. Manufacturers have realised people are using bigger kits and heavier cymbals and a quarter of an inch rod stuck up through a bass drum isn't going to hold a twenty inch cymbal, but shells and some of the metals they are using now are not as good as they were years ago. Probably to make a drum in 1975 as they were made fifteen years ago would cost a fortune, so I know it's a big problem as far as manufacturers are concerned.

IM. *Rex, as a manufacturer, how do you feel about that?*
 RW. Well, Dave's right in what he says about cost. If we were to produce a snare drum like they were years ago, instead of it costing about £75 it would cost more like £200, and who's going to pay prices like that? They

used to make them out of brass and brass will always give you a very bright, top-py sort of sound. Consequently

where do we, as a manufacturer, find a happy medium? We now basically look for an aluminium-based snare drum shell, rather than having a top, bright, brassy sort of sound. Some drummers will tension their drums very slack, whereas others will go the other way, so it's very dif-

ficult to please everybody. While we're trying to give you what you want, we're also trying to give thousands of other people what they want.

B. I think not only is the manufacturing of drums very important, but also the after sales service. That's the trouble with a lot of American kits. If you want to replace something, it can be very difficult. The ideal thing is to be on the road and

to know you can get any spare part within 24 hours. DM. Coupled with that, I think drummers should also take an interest in their kits. I don't mean polishing them all the time, but I mean, say, once every six months take them to bits and clean them and generally give them a good going over.

IM. *Are there any other particular grievances?*
 DM. I wish somebody would bring out a hi-hat pedal that had a strong adjustable spring that didn't break and also that didn't creep.

EH. Having said that, I'll go along with it all the way. I think it's something that ought to be incorporated. As regards the life of the spring though, the problem is that it's a moveable part and, like all movable parts, is prone to wear and tear. As a drummer myself, I would love to see a lot of things happen to our company and other companies as well. A situation where you could say,

'Right. I want this, this and this.' But we know, in practice, this hardly ever happens.

IM. *Is this because drum companies are over-cautious?*

EH. Not really, there's more to it than that. One drummer might like his tom-toms a

couple of inches higher than someone else. One drummer might like his bass drum pedal angled a couple of degrees more to the left than someone else, and these are personal things. Consequently, to do this on a commercial basis can be very difficult. You have to cater for the majority rather than the minority.

B. On the subject of improving drums, something always happens to me - and it's probably happened to you as well - is after you've tuned your kit and you're playing away, the tension screws start to come loose.

continued on page 73

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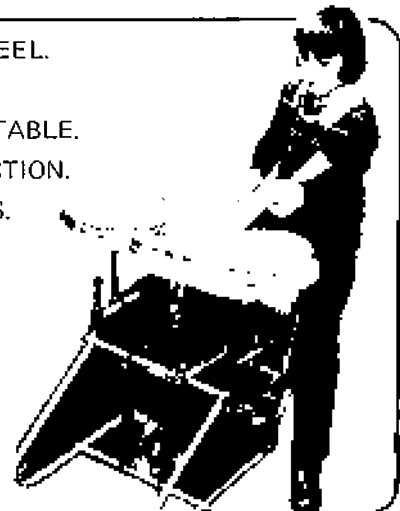
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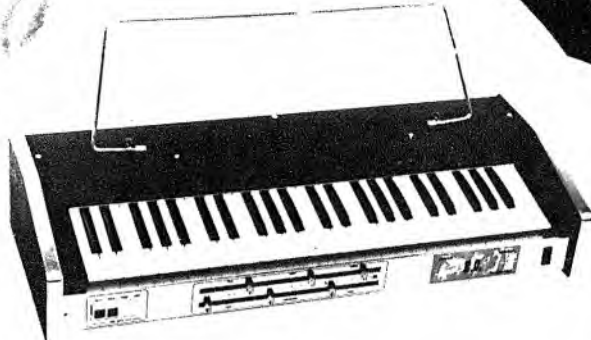
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MONITORING: DRUMS

DM. I'll tell you how to get rid of that. Just get a serrated washer and substitute it for the ordinary round washer. The same thing used to happen to me so I eventually worked it out. It's very simple and that's all you need.

BB. I had the same problem. All you do is get a cotton reel and wrap the cotton around the thread, screw it up and it won't move at all. The only trouble is that it's then very stiff if you want to adjust it.

IM. Do you have any problems with sticks?

DM. They're not as good as they used to be. I think that must be down to the wood.

RW. Obviously, wood is the natural element and our stock

is whatever is sent to us. At Premier, we import hickory which is the best wood you can possibly buy for a drumstick. We buy a year's supply at a time, so we have to accept 100% of what we're sent. As well as that, there is a world shortage of wood which we have to live with. One of the problems is that the quality of wood is not as good as it was ten years ago. It is a difficult one. We've tried making sticks out of fibreglass and even steel, but I

think drummers still prefer a wooden stick. The only other thing is some like a nylon tip.

B. The problem with fibreglass is that one end of the stick comes down a half



second after the other end. EH. Yes, that's one of the problems. Another thing is that a pair of sticks are sold by dealers in all good faith, and if there's a fault it could come from the fact that when the stick is turned and dried, there could still be a lack of moisture in the wood. DM. I think the semi-pro drummer feels this more

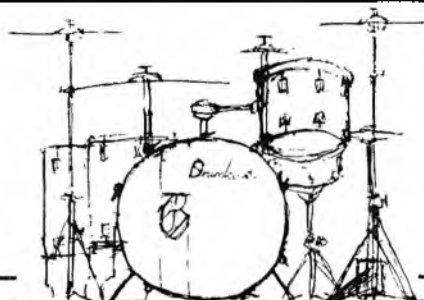
because whereas we can go in and buy a dozen pairs of sticks, the young drummer can only afford one or two pairs at a time.

IM. What would you say has been the most important development in the manufacture of drums?

BB. Plastic heads must come pretty high on that list.

continued on page 75

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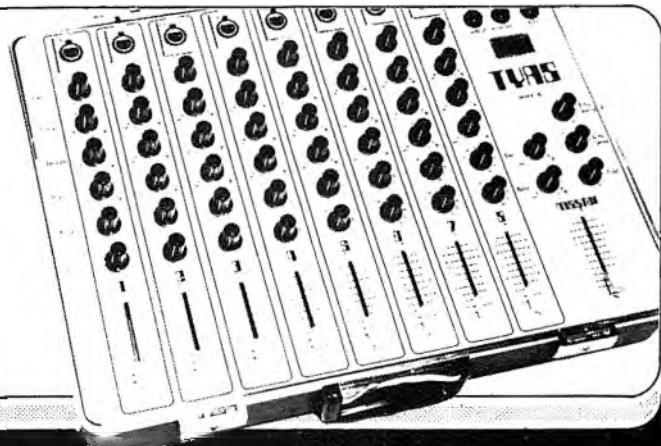
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DRUMS

B. Yeah, plastic heads and fittings generally.

I.M. You mentioned plastic heads. Are you happy with the heads produced today?

B. I am. I think they're fine.

BB. My favourite heads are the old Everplay heads. It's hard to get hold of them now. I went into Footes a while back and asked if they had any old kits in stock. I found one that had a lot of really old Everplay heads on it, so I had them all off and took them away. They're much better for recording.

RW. I think what a lot of drummers don't appreciate is that heads stretch when they're new -- even plastic ones. They've got a certain built-in elasticity, and one of the worst things to do is to try and tune a kit straight away after putting new heads on.

DM. Well, that's like if you get a new kit. It takes a while to wear in, which is accommodation for the shell to adjust to the tension of the head and also the head stretching as you said.

EH. The other thing is when people say plastic heads are impervious to weather. Well, that's not quite true. What they mean is that the heads don't go soggy in the rain, but they can get softer in the hot weather, just as in colder weather they go hard and brittle.

RW. Of course, the ideal head or stick for that matter is one that doesn't break, but that would put us out of business.

I.M. Brian, your 'Little B' solo on the *Out Of The Shadows* album must have influenced a lot of today's drummers. How do you feel about that solo now?

BB. I thought it was good at the time. I'd probably do it differently now.

B. I think it's a good solo today.

I.M. Would you like to get into solos in any way, Buffin?

B. Well, as far as I'm concerned, they're for people who can do them.

I.M. Would you agree it's fairly easy to bluff a good solo?

B. You can, yes. One of the worst things in the world is somebody doing a drum solo that's not very good. One of the worst solos I've ever seen was Jon Hiseman's, who is a really good drummer. He sat for about twenty minutes playing a solo and you could tell by the look on his face that he was thinking 'You cunts - you don't know fuck all - I'm going to sit here for twenty minutes....' and then just before the end of the solo, he must have thought 'I'm making a cunt of myself' and he played great for the last two minutes.

DM. There's so many drummers like that. I'd much rather listen to a drummer play with a band. I personally wouldn't like to do a solo, because in the first place I don't think I could do a great one, and secondly I've always been able to say what I wanted to say on drums with the people I've been playing with.

I.M. Finally, would you say there have been any great innovators over the years?

BB. I think basically it's been a natural evolution over the years.

DM. There are points in time where drumming advanced though - Elvin Jones for one.

BB. Oh yeah, there are points. Tony Williams did a lot to advance drumming in general and I must say Billy Cobham as well. I think the attitude to drummers has changed quite a bit over the years. Until Gene Krupa came along, people always used to say that a band consisted of fifteen musicians and a drummer! I think that phrase says it all about that attitude. The drummer was an evil necessity at the back. □



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BIROTRON

A NEW musical instrument is being launched this month by a company which boasts keyboard ace Rick Wakeman as a director. Called the Birotron, after its American inventor, Dave Biro, the instrument is a keyboard that offers taped sounds to simulate virtually any orchestral sound.

The instrument is being marketed by a company called Complex 7, a group of companies headed by Pete Robinson and a select board of directors including Wakeman.

Several distinct advantages are claimed for the Birotron. The keyboard does not operate the tape system mechanically. Therefore it has a standard keyboard feel. The sounds are produced from eight-track cartridges and thus give continuous sound without any delay. The eight-track cartridges can be instantly changed to offer different sounds.

Complex 7 claim that substantial orders have already been received for the instrument and a national promotion campaign is planned for the autumn.

NEW DIRECTOR

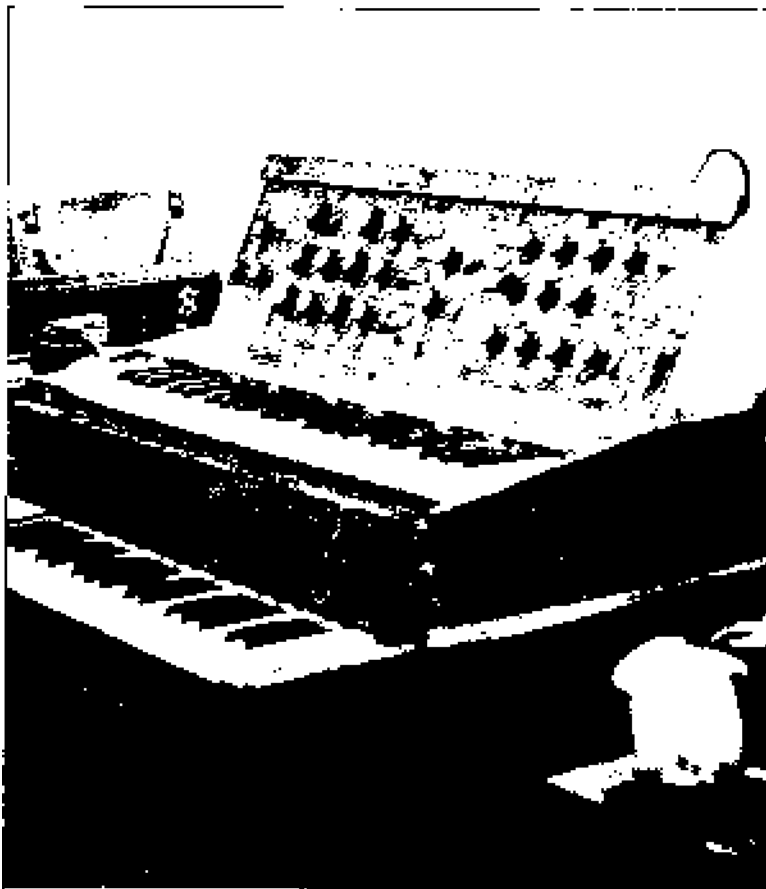
OBERHEIM ELECTRONICS have acquired a new director and vice-president of marketing in Russ Jones, formerly vice-president of sales at Acoustic Control Corporation. His primary task will be to set up distribution, both domestic and international, for Oberheim's product.

Oberheim Electronics have been in existence for nearly six years. Based in Santa Monica, California, they have been manufacturing synthesisers and accessories as well as developing and producing products for Norlin Music under the Maestro label. Oberheimer's latest products include Two Voice and Four Voice polyphonic synthesisers, and an assortment of sound modification devices and two new Studio Amplifiers.

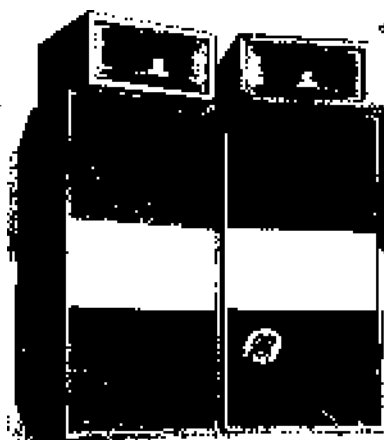
MXR FOR R-M

AT THE recent AMII trade fair, Rose-Morris showed the American MXR range for the first time. The company has just gained U.K. distribution rights for the pedals and units.

continued on page 79



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MUSIC NEWS

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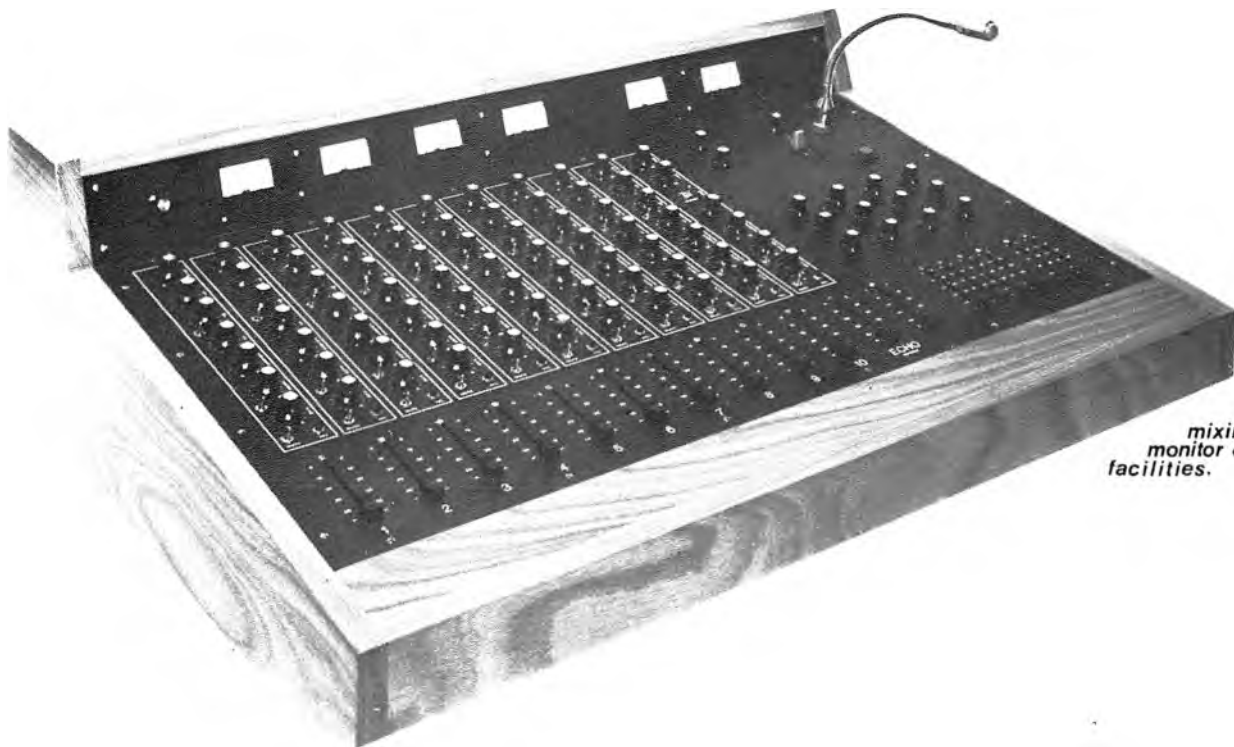
U.S. ORGAN star Maurice Cole is set for a series of Lowrey demonstrations during a forthcoming U.K. visit. The organist has recently undertaken a highly successful Lowrey tour of the U.S.A. and his first appearance for Lowrey in the U.K. will be sponsored by the Burton and Derby Organ Centre in Burton-on-Trent. Other venues are currently being arranged throughout the country.

The Lowrey concerts will take the form of demonstrations of the versatility of the Lowrey "Genie" organs and Maurice Cole will be explaining how various effects are achieved. After the concert, a question and answer session will be held to give visitors the opportunity to get specific answers to problems.

continued on page 80



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MODULATOR

BARNES AND Mullins will be distributing the new Modulator electric guitars, recently introduced at the Trade Fair. These instruments feature a variety of interchangeable modules for variation in tone colours. The man behind this unique project is Jack Golder, former technical director at Burns. Golder later developed his own Shergold factory for the manufacture of not only complete instruments, but also necks and bodies for various companies. Because of losses incurred through the demise of Hayman guitars, Jack decided to branch out on his own. His colleague Bob Pearson, who was previously designer and chief technician with Hayman, invented the new instrument which was thoroughly lab-tested by, among others, top session players before its introduction at the Trade Fair.

The basic instrument should retail at about half the price of the American guitars, and at the moment, is available in four versions. There is the standard guitar and bass models, as well as a single pick-up stage model and a 12 string. There are five modules available, although others can be made to special order.


There's a module which gives a stereo effect, and lined up for future production is a transmitter module which will eliminate the need for guitar to amplifier leads. The guitar's flexibility in tone is expanded by inserting a neat, 6½ inch module in the body of the guitar.

OTHER BROADWAY

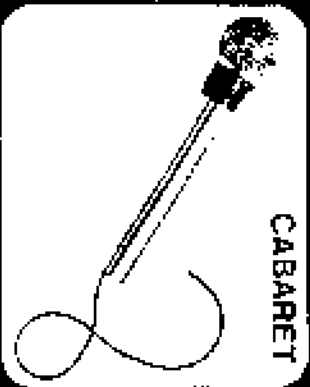
TOP GEAR (Music) Ltd. have recently announced the opening of a new shop, Broadway Music. Located at 9 The Broadway, Brighton Road, in Worthing, Sussex, the new shop is ideally situated to serve the South coast area.

The aim is to offer comprehensive service to the surrounding area, and Top Gear announced that Barrie Feest, a guitarist and teacher well-known in the area, will be managing the shop. Guitarists in the West Sussex area will be glad to know that an exhaustive range of guitars, ranging from student instruments to professional models, will be provided. An equally comprehensive range of amplifiers and P.A. equipment will also be on display.

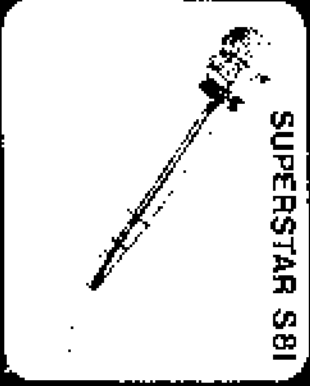
continued on page 82




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KEYNOTE ORGANS

KEYNOTE MUSICAL Instruments Limited is a new name in the organ business. Launched earlier this year, the company is run by Managing Director Jeremy Syons and Sales Manager Stephen Radford. Both have had considerable experience in the retail and wholesale music business and as working musicians. They have recently introduced a new type of two manual portable organ, which, it is claimed, can be carried in the back of an ordinary saloon car. Called the Consort, it is aimed at the professional and semi-professional market and retails for £625, including V.A.T.

Keynote have also introduced a new 60 watt tone cabinet, called the Vortex, which is available in two models. The 600 features a black leathercloth finish and kick-proof grilles, while the 601 is aimed more at the home organist. It is housed in a satin finished veneered cabinet with black grilles. Both are suitable for connection to either home or portable organs, and are expected to retail at well below £300.

VITAVOX FOR NIPPON

VITAVOX HAVE won their largest order ever from Japan for domestic hi-fi equipment. Acknowledged masters of the world hi-fi market, the Japanese have been buying Vitavox's hi-fi products for some time and the latest order involves the very expensive System 191 Loudspeakers which have been manufactured for over 27 years.

AUDIO FAIR

MUSICIANS WILL be able to see and hear the ultimate selection of hi-fi and recording equipment at this year's Audio Fair. The fair is being held at Olympia, London, between October 20th and 26th and in addition to the fabulous array of equipment on display, there is also a live-theatre show each day.

BRODR JORGENSEN

BRODR JORGENSEN have set up a distribution company in the U.K. to handle the Japanese - made Roland electronic equipment. Brian Nunney, previously export director with Dallas, will be in charge of the new company, Brodr Jorgenson (U.K.), which is situated at Strand House, Great West Road, Brentford, Middlesex. From here, they will be distributing their range of synthesisers, guitar amplifier effects units and electronic pianos. The U.K. distribution for The Roland Corporation has previously been handled by Hammond Organ (U.K.) and John Hornby Skewes and Company. Hammond are discontinuing the Roland lines, while Hornby Skewes will still be handling various effects units and the RE201 echo machine.

Brodr Jorgenson (U.K.) recently held an exhibition at the Morton Hotel, Russell Square throughout the duration of the Trade Fair last month. Among the exhibits were the Roland rhythm boxes, electric pianos, synthesisers, a PA mixer and their new SH200 synthesiser.

LEEMAN

THE MUCH talked about Lecman drums are now becoming available. The British Leeman Drum Company are producing a range of six kits. Since the drums were first shown at this year's Frankfurt trade fair, orders have been building up that ensure the name of good start.

The kits are finished in stainless steel under the name Leeman Silver and although the company produced their own fittings, kits are custom-built which allows other fittings to be used if required.

MACINNES TRIUMPH

MACINNES LABORATORIES of Saxmundham, importers of Amcron amplifiers, entered an Alfa Romeo Alfasud T.I. in the Avon Motor Tour of Britain last month. Jon Dooley of Alfa Romeo and Ian Marshall, director Macinnes, drove for the Macinnes Amcron Team. In the up to 1300 cc class, the car took the lead from the first day and for three days battled with the Fiat Coupe of Tony Dron, eventually beaten into second place by only seven seconds.

The car won four of the circuit races, including the night race at Snetterton, and came second in the fifth race at Silverstone. Dooley and Marshall came 17th overall (out of a total of 100 cars), beating drivers like Gerry Marshall and Will Sparrow in much more powerful cars.

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ORANGE

THE ALEMBIC REPORT

Orange OR120

The Orange OR 120 is a British-made tube-type guitar amp with some exceptional features seen too infrequently in such equipment. It is normally sold as a 120-watt top, accompanied by two speaker bottoms each containing four 12" speakers. The latest models are being supplied with Eminence speakers, which can handle somewhat more power than the Celestions that were formerly used. The bottom can optionally be ordered with other speakers, if desired. Orange also makes an 80-watt amp top, which is the same as the 12-watt model except that it is missing two tubes and their sockets. Yet the holes for the sockets are already there so that a technician can easily convert it to the higher power (the same transformers are used in both models so they would not need to be replaced).

The most outstanding feature of the Orange amps is the incredibly rugged way in which they are built. *We have become used to unusually high quality workmanship from other British manufacturers, but Orange perhaps surpasses them all.*

For one thing, the cabinets for the top and the bottom are made of expensive 13-ply finished birch marine plywood, the strongest plywood available, laminated double-thick at points of maximum stress and then covered neatly with orange Vynide. The electronic chassis is built of heavy gauge steel, and the corners are not just spot-welded together in a couple of places, but are actually arc-welded all along the seams, and ground smooth. In addition, there are large handles both inside and outside the chassis, for further reinforcement and ease of handling. All

of this strength does make the unit rather heavy.

We found that the Orange top met its 120-watt power output rating with perhaps a little room to spare. Distortion measured 4% at full output, at 1 KHz -- high but typical of most tube amps. At higher frequencies, however, it did not fare so well, and was only able to put out 60 watts -- half power -- at 6 KHz, and that with increased distortion. Since most electric guitar pick-ups have little output beyond 6KHz anyway, that would not normally be a problem. But if the amp were used to play-back recorded music, a loss of brilliance would be immediately noticeable.



As for the controls, they are quite simple and perhaps leave a little to be desired in terms of flexibility. There are two input jacks, one of which has a 6dB loss for extra-hot guitars. Both

feed the one and only pre-amp channel. There is a volume control, bass and treble controls, a presence control, and a "Frequency Analyzer Control", which, despite its pretentious name, is really a six-position bass cut switch. This latter control has been erroneously described as a midrange frequency notch in at least one nationally-distributed catalog.

The frequency response with all controls at center is far from flat (uniform). Instead, there is a large peak in the 3- to 4-KHz range (11dB more gain there than at 400 Hz). This is the range of the audio frequency spectrum usually associated with "presence" and "punch", so that the emphasis there gives the Orange a distinctive sound with a lot of bite. Of course, boosting the presence control intensifies the effect still further. This may be exactly the sound that many guitarists want, but others might find it too one-sided.

The Orange top does not have a built-in reverb unit, but has provision for hooking in an external one.

Among the other features worthy of mention are: The speaker impedance switch, allowing use of 4-, 8-, or 16-ohm speaker loads; a pre-amp output, for driving extra amps; and a fine voltage switch, meaning the unit can be plugged in directly in any country in the world. Also, the attractive panels and nameplates deserve notice. The colorful coat of arms of the House of Orange is well done, and the controls are all labelled with international symbols (e.g., mountains for "echo", a clenched fist-punch for "presence", etc.).

This report was prepared independently by Alembic Inc. California U.S.A. and was published in the March 1975 issue of Guitar Player Magazine. Reproduced by kind permission of Guitar Player Magazine.

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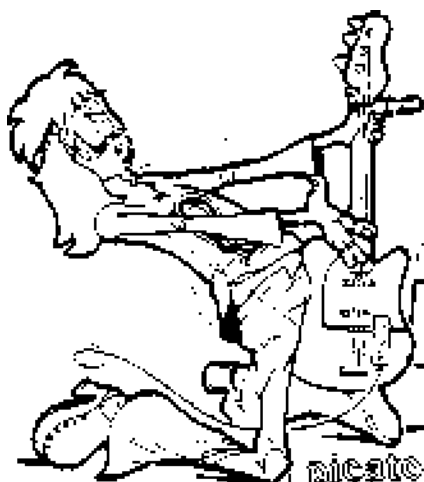
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In the five years or so I've been going to America I have never had a chance to visit the Avedis Zildjian Cymbal Factory. Of course we play in Boston on every tour but, up until now, never on a weekday. So this tour I decided that, come what may, I would visit the factory. What this actually meant was, I had to persuade the other members of the band to take their precious two days off in Boston.

The Zildjians are the justifiably proud possessors of a beautiful, brand-new glass and marble factory, out in the country, twenty-five miles from downtown Boston. Inside the marble foyer is a huge metal sculpture, constructed completely from cymbals and pieces of cymbals. As I arrived, Avedis himself wandered over to say hello and enquire how everything was in Europe at the moment.

Our guide for the factory tour, sales manager Lenny Di Musio, took me to the hall of fame. Here are priceless photos of famous drummers through the past fifty years or so, from Zutty Singleton to Billy Cobham, via everyone you could possibly think of, and a few you possibly couldn't. All these drummers with one thing in common: Avedis Zildjian, the Rolls Royce of cymbals!

The plant itself is spacious, airy and light, seemingly perfect working conditions. Although the building is a hive of industry, there are only twenty-five people employed here, including all of the office staff and the Zildjians themselves. Their engineering work force is divided into (if my memory serves me right) two men in the laboratory working on the formula, five men for foundry work, three men for finishing, one man for hand-hammering the Chinese Cymbals, and three more for selection and quality control. This gives a total of fourteen men making all of the best cymbals in the world.

One cymbal starts off as a highly secret alloy, which becomes an ingot behind locked shutters and out of sight of prying eyes. I picked up an ingot weighing three or four pounds and struck it. It astonished me when it rang like a bell.



"Aladdin's Cave": the Zildjian warehouse

This seems to prove that the Avedis sound itself is in the formula of the alloy before the manufacturing process is begun. At the ingot stage, each blob of metal is earmarked for a particular size of cymbal.

The whole process, from ingot to finished cymbal, takes five days, with one completely different process for each day.

The first step is to make the ingot red hot in a furnace and then flatten it in a rolling mill. This operation is repeated four or five times on the first day.

On the second day the bell is stamped in, and the cymbal heated and quenched to give it strength and hardness. The hole is then drilled and the metal roughly cut to size and put, five at a time, into a press and left to assume its characteristic shape.

Day three, the cymbal is hammered, not by hand any more but by a completely automatic machine which, evidently, works just as well. This secret machine bangs the metal, at random in concentric circles, thus removing all the lumps and high spots and making the surface more uniform. The only cymbals which aren't worked on the automatic machine are the Chinese ones which, because of their upturned edge, must be laboriously hand hammered.

The fourth day of processing is for planishing the still-rough hammered cymbal on a horizontal lathe with a hand-held tool fixed to something like a broomhandle. This takes out the roughness and puts in the characteristic grooves.

On the fifth and final manufacturing day, the cymbal is polished and cut accurately to size on another lathe. Zildjian's brilliant range of cymbals are, I believe, highly polished by hand, although I didn't see any being worked while I was there.



Bob Henrit with Avedis Zildjian

It's now time for the cymbal to be visually inspected for imperfections and rejected if necessary. All cymbals go into a huge storeroom and, only when orders come through are they aurally inspected by one very skilled person, who designates crash ride, medium bounce, pang or whatever. It's only as the cymbal is about to be shipped that the "Avedis Zildjian, Made In U.S.A." trade mark is stamped on it.

The warehouse where I finished off my tour is a drummer's Aladdin's Cave; absolutely wall to wall and floor to ceiling cymbals. Eight inches is the smallest they make and twenty-four inches the largest, while in between they have all the intermediate sizes, including some unusual dimensions, which don't seem to come to England. Most of their smaller cymbals can be supplied in two or three different weights, while the larger ones in no less than five. From time to time, the factory stops work on cymbals and completely switches production over to their Taiwan Gongs.

My trip to see the Zildjians was an exceptionally interesting experience, made doubly so by the kindness and interest shown me by the Zildjians, Lenny Di Musio and all the staff. Very enjoyable. □



ZILDJIAN

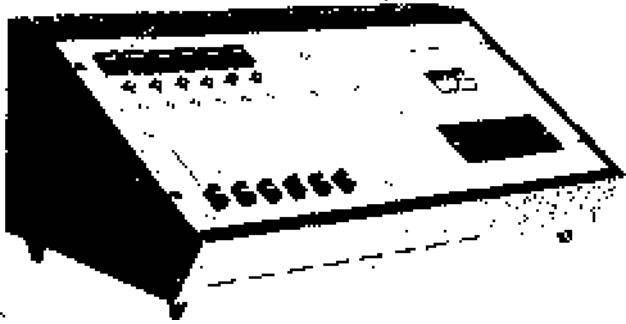
BOB HENRIT VISITS THE AVEDIS ZILDJIAN CYMBAL PLANT IN BOSTON

On the fourth day, the cymbals are planished

The Chinese Cymbals are still hand-hammered

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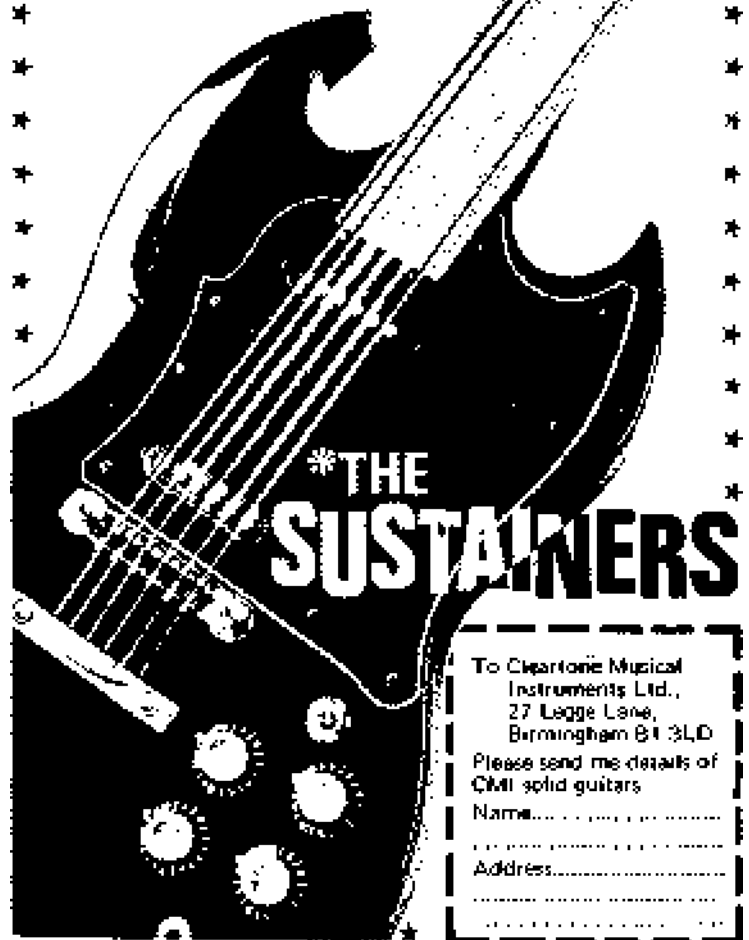
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DEALER NEWS

CASS MUSIC of Eastbourne offer the customer a combination of two shops in one: they are both a conventional music shop and at the same time, they provide a good range of gear for groups. A Gibson Star Dealer, Cass also stock a broad range of such copies as CSL, Antoria, and Kimbara. They hold an HH agency, their keyboards are mostly the electric pianos of Kemble and Yamaha, and they stock Slingerland and Pearl kits. Cass also recently became a Premier agency.

The real strength of Cass, however, is their extensive and still burgeoning range of second-hand gear. Manager Jeff Frost told us that Cass intended to continue their expansion in this area. "Not only has it been bucking up our turn-over," he continued, "there is an enormous amount of interest in second-hand instruments and equipment."

Cass also specialise in spares, and they carry an impressive range of Fender and Gibson guitar spares, and receive mail-orders from all over the world. In addition, they are exporting fretwire to Japan!

Customers visiting Cass recently include local bands Alice Trout and Fat Max, and touring professionals such as Hackensack and the Peddlars.

Cass also have a second branch in the London suburb of Mitcham, which exclusively caters for group needs. The manager there is Boot Lapwood, and one of the shop's specialities is custom built guitars, by such craftsmen as Graham Noden, Dick Knight and Jeff Gale.

CHARNLEY OF WISHAW, situated 11 miles from Glasgow on the Edinburgh road, offer a substantial range of equipment which might tempt the musician. A Gibson Star Dealer, Charnley also provide Rogers, Hayman, Ludwig and Beverley drum kits. Their range of amplification includes Fender, Sound City and Carlsbro.

Local groups such as Ryan's Express and Daybreak have visited the shop recently. Country and Western acts, including Country Friends and Branded, are often in the shop - in fact, they get most of their gear from Charnley's.

A recent venture is Charnley's foray into club installation, which is proving successful for them. Employing Sound City speakers, the 100 w bins, the new systems are especially noteworthy for their low feedback. Shure, AKG and Beyer microphones are all stocked.

Operating completely as a family business - the staff consists of Mr. Dick Charnley, his wife Margaret, and their daughter Pauline - Charnley's have managed to keep abreast of the times and to provide comprehensive musical service to Lanarkshire since 1949.

ISLAND MUSIC CENTRE of Douglas, Isle of Man, are the largest Manx Music Shop, and provide a friendly and comfortable atmosphere for both local and visiting musicians. They stock Fender, Gibson and Rickenbacker guitars as well as a full range of copies. Like most small shops, Island may not always have every

item that they offer in stock, but they are willing to get them for the customer on request.

Their amps include HH, Marshall, Carlsbro, Selmer, Custom, Gibson and Dan Armstrong. Their P.A.s are HH and they do both Soundcraft and Calrec mixers, and Shure and AKG microphones. The range of drums include Ludwig, Hayman and Rogers, and they also hold the Premier agency for the Isle of Man. Repair services on guitars and amps are carried out on the premises (except in the most complicated cases).

The summer season is the busiest time of year for the Isle of Man, and groups visiting the shop have included Slade, T. Rex (who had their Hohner Clavinet repaired) and Whitticomb Fair.

Most of the musicians on the Isle of Man are semi-professionals, and original Fenders and Gibsons do a roaring trade. P.A.s can also be hired from the Centre.

An added attraction of the Island Music Centre is a recording studio, which will be operationally eight-track by the middle of September. Shop manager Terry Clough and Robin Kelly of nearby Kelly's Records handle the engineering in the studio.

Terry Clough and his two assistants aim to run a happy-go-lucky music shop serving the needs of musicians playing in groups. There is also another music shop under the Island Music Centre banner, located in Ramsey the Organ Studio. Organs ranging from the very economical to the great Lowreys, Thomases and Hammonds are available there.

Continued on page 50

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DEALER NEWS

MARSHALL'S are situated in the centre of Bletchley, Bucks., an increasingly busy town since the birth and subsequent growth of the adjacent city of Milton Keynes.

As well as the increasing population and customer potential of the area, Marshall's are situated in the middle of what Pat Peacock, the shop manager, described as "The musical county". His description of Buckinghamshire seems justified, as there is a musical school not far from Marshall's at Woburn Abbey.

It's run by John Dankworth and Cleo Laine and the summer and evening courses they organise give Marshall's a lot of business. The Open University is also nearby and Marshall's sell them a great deal of sheet music.

An increase in the sale of educational equipment is not the only advantage of having a new city grow on their doorstep. Pat Peacock feels that the influx of new people from London and other regions is bringing with it new and very lively musical tastes.

Bands are forming rapidly and they visit Marshall's frequently to buy new equipment and replacements for their older gear. Pat's assistant, Dougie Barnwell, plays with White Satin and is obviously aware of the needs of local bands. Regular customers are Winter's Tale, Scarlet Jade, Born Free and The Cockatoos. The Barrow Knights' roadies drop in to stock up on parts and Marshall's do have the interests of the professional musician at heart. One

reason for the popularity of the shop with local bands is their repair service. The shop is not a large one but they manage to undertake any running or casual repair jobs on the premises; any larger repairs are done at the factory.

The shop is a Gibson Star Dealer and the Gibsons and Fenders are the most popular guitars but the comprehensive range also includes Dynalectron and Dan Armstrong instruments. Yamas sell well too, and Pat thinks that this is a result of the popularity of Folk music in the area. Marshall's also stock woodwind and brass which are Pat's special interest. That's explained by the fact that he was once principal clarinet player with Her Majesty's Scots Guard.

The only member of staff not yet mentioned is another musician, Vera Clare, in charge of the piano and organ showroom which is across the road from the main shop. The range of keyboards include Kemble, Barrat and Robinson, Callen and Bentley.

Pat Peacock did make an interesting comment on the new V.A.T. Since the 25% rate was introduced, there has been a rapid increase in the sale of drum kits (which are still at 8%). People who want to learn an instrument ask about drum kits, rather than about more expensive equipment. The most popular drum kit in Marshall's is the Maxwin kit which sell at about £145.

They also stock a fair bit of second-hand equipment, mostly amps, but some guitars and even a bit of brass and woodwind.

MUSIC MARQUEE is a friendly shop in the busy old part of Plymouth. The shop has only been there for three years but the owner, Brian Hearn, has been in the business for thirteen years. The result of his experience is a shop which manages to run efficiently and on a very personal level.

He's helped by Rodney Passmore, who has been doing the same sort of thing for seven years and has been with Brian since the shop opened. Between them, they have managed to create an atmosphere in Music Marquee which attracts musicians from all over the Western counties.

One unusual thing about Music Marquee is the rapport that has grown between disc-jockeys and musicians in the area. Brian plays the organ and piano, bass and acoustic guitar. His assistant Rodney is a disc jockey and the store of information and advice they share attracts people from both sides of the industry. Musicians are welcome to come in and play albums and their own music on the most sophisticated disco equipment in the shop. As a result, the shop is a favourite meeting place for local musicians. Among the bands visiting the shop are Revival, Sweet Life, Canyon, Clockwork Orange and Ronny Potter's Sound.

continued on page 91

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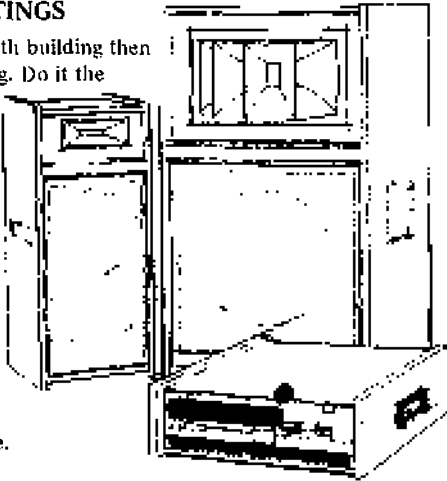
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DEALER NEWS

Music Marquee is a Traynor agent and they also stock WEM, H H, DJ, Marshall and Laney amps. The most popular of these are the small Traynor Combos. Most of the guitars sold are copies like Jedson and Zenta, although occasionally they have a Gibson or a Fender.

As well as stocking such a comprehensive range of new equipment, Music Marquee is justifiably proud of the vast amount of second-hand gear the shop has. They have a work shop at the back of the building and Music Marquee specialises in professional adaptations to equipment. Their adaptations of keyboards are among the most popular things they do. There is always an engineer on the premises and they are always willing to undertake any kind of repair job.

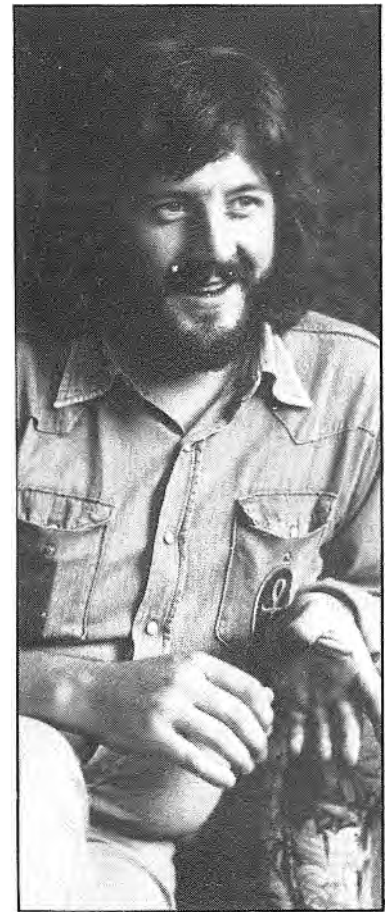
A point of special interest in a town as Plymouth is that Music Marquee also manage to provide an hour's free parking space, which can't be bad.

WOODROFFES OF BIRMINGHAM can truly claim to understand the group scene and to cater for it. Managing Director Michael Woodroffe's brother Gerald recently joined Black Sabbath on keyboards, and recent visitors have included Tony Iommi of Sabbath and John Bonham of Led Zeppelin. No one in the shop is over thirty, and the policy is to concentrate on groups, leaving brass, woodwinds, and educational toys to the competition.

Both a Fender Soundhouse and a Gibson Star Dealer, Woodroffe's specialise in American guitars, keeping over 500 in stock. Other makes include Guild, Gretsch, Arbiter, CSL, and Antoria. Stepping up to the first floor, amplification is spotlighted with such names as Fender, Traynor, Carlsbro, and Acoustic being represented. The second floor finds a range of Fender, Traynor, Custom, Acoustic and Carlsbro P.A. systems, as well as Soundcraft mixers. The third floor is given over to a workshop, with a full time engineer in the person of Malcolm Deeley.

Next door but one, Drumland — also a part of the Woodroffe empire — is located, under the care of Mike Evans. This shop is reckoned to be the largest drum shop in the Midlands, if not the country, and kits from the stables of Rogers, Fibes, Ludwig and Premier, as well as cymbals from Paiste and Zildjian and hundreds of accessories. Tuned percussion is represented by tubular bells, vibraphones and gongs.

Woodroffe's hire mixers to venues around the Birmingham area, and Malcolm Deeley goes along with the system to see that it works as it should. With Craig Feeney looking after guitars, Peter Malloy taking care of P.A. systems, Woodroffe's are definitely geared up for group gear. The only exception to this is their newly finished disco showroom, which boasts equipment from Citronic, Carlsbro, Optikinetic Lighting, and Dream Lighting. □



Woodroffe's visitor John Bonham

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Table listing various audio equipment including AMPS, SPEAKERS, COMB. AMPS, MIXER CONSOLES, SOUNDOUT, and THEATRE PROJECTS with prices and specifications.

Table listing audio equipment including 5000 Prof., DAVE SIMMS MUSIC PRODUCTS, SIMMS-WATTS, SOLA SOUND, and MIXER CONSOLES with prices and specifications.

Table listing audio equipment including PA AMPS, SPEAKERS, VITAVOX, VOX, and WHITE with prices and specifications.

Table listing audio equipment including CRUMAR, KEYBOARD INST., J.T. COPPOCK, ELGAM ELECTRONIC ORGANS, DAVOLI, ELKA-ORLA, and WING TRAYNOR with prices and specifications.

Keyboards

Table listing various keyboard instruments including ORGANS, JOHN HORNBY-SKEWES, EKO ELECTRONIC CHORD ORGANS, EKO PORTABLE ELECTRONIC ORGAN ORGANS, EKO CONSOLE ELECTRONIC ORGANS, ELGAM ELECTRONIC PIANO, DAVOLI, LOGAN CONSOLE ELECTRONIC ORGANS, ADD-ON ELECTRONIC KEYBOARDS, ELECTRONIC PIANOS, and JENNINGS ORGANS with prices and specifications.

Percussion

Table listing various percussion instruments including SOLA SOUND, THOMAS ORGANS, VOX, BEVERLY, ZILDJIAN CYMBALS, and TOM TOMS with prices and specifications.

PERCUSSION

Table listing various percussion instruments including SLINGERLAND, BOOSEY & HAWKES, and TOM TOMS with prices and specifications.

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 R-R-C-Cr-£10p/h D OTC

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 Studio 2 16T £33p/h Cap 25
 Studio 3 16T £32p/h Cap 12
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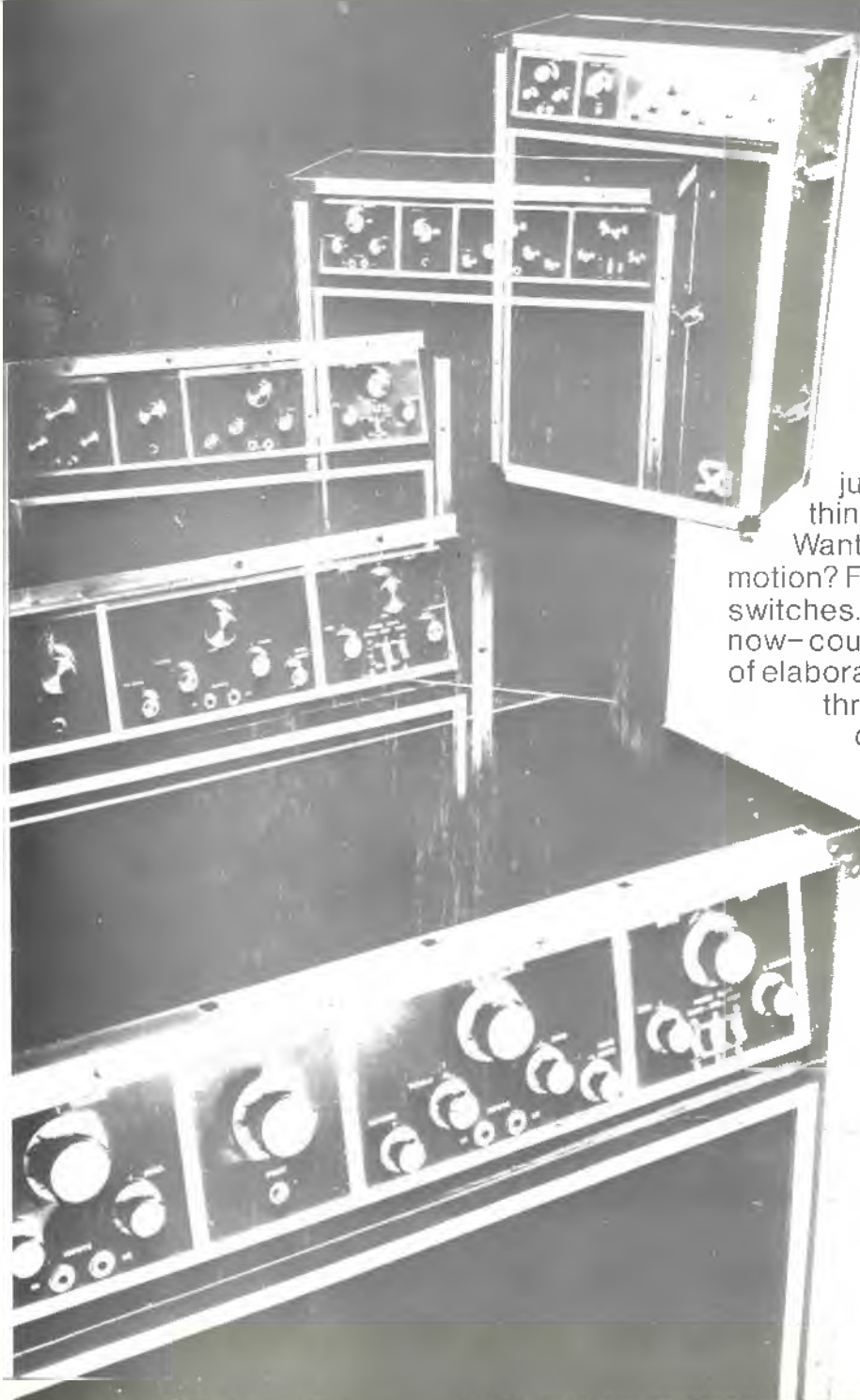
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