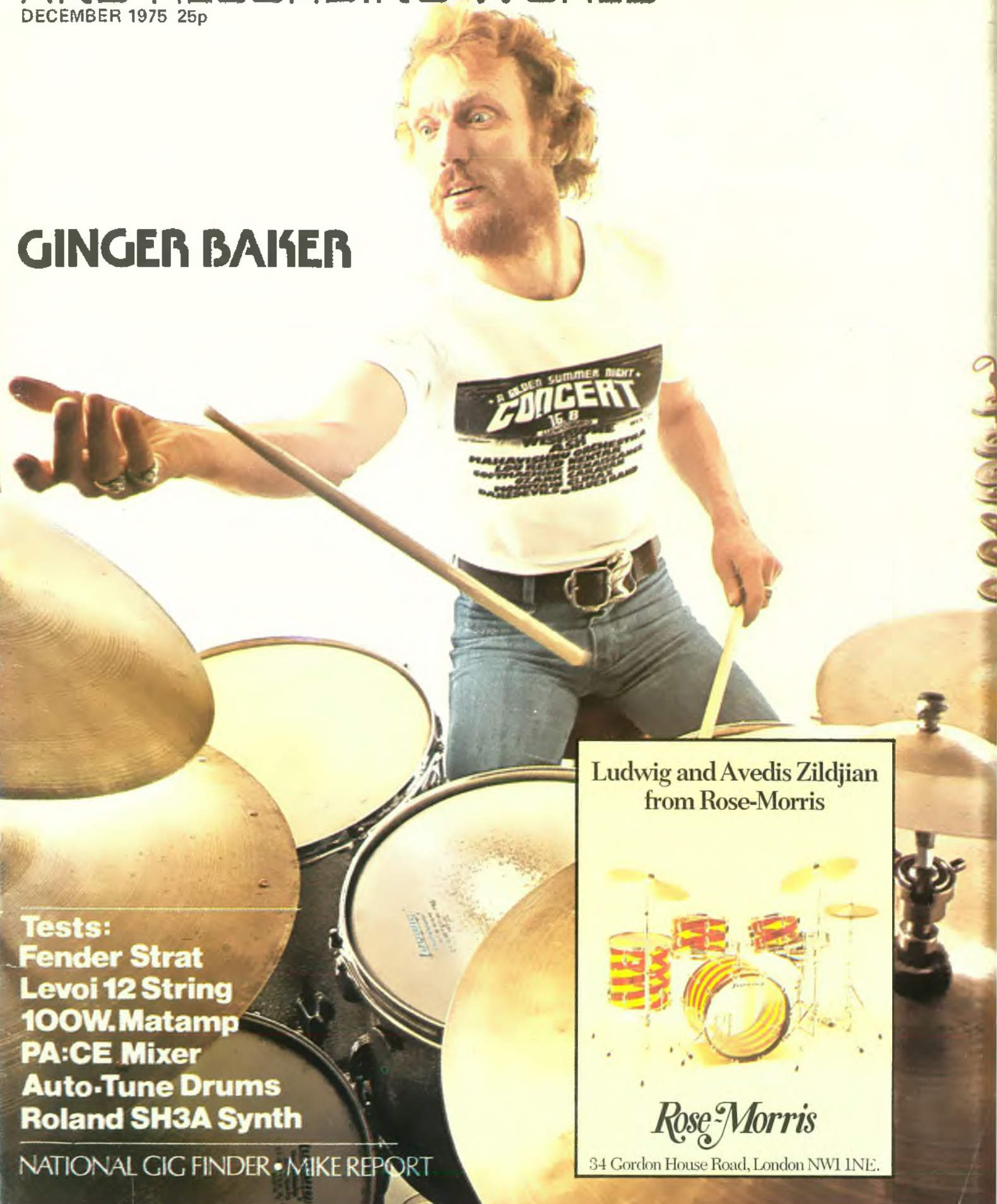


INTERNATIONAL MUSICIAN

AND RECORDING WORLD

DECEMBER 1975 25p

GINGER BAKER



Tests:
Fender Strat
Levoi 12 String
100W. Matamp
PA:CE Mixer
Auto-Tune Drums
Roland SH3A Synth

NATIONAL GIG FINDER • MIKE REPORT

Ludwig and Avedis Zildjian
from Rose-Morris



Rose-Morris

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Soundcraft-Series II

Since first introducing the "Twelve into Four" range of mixing consoles over a year ago, customer feedback from all over the world has enabled us to assess the desirability of certain modifications and extensions to the facilities offered. The new Series 2 incorporates the most popular optional extras as standard, thus saving costly customising.

Particular attention has been paid to increasing the dynamic range and nature of the inputs that can be handled by the console, and complete elimination of additional patching at any time during the recording or mixing process - even when using the console at its full 8-track capability.

The new construction and styling of the console gives considerable ergonomic improvement, and enables us to offer more economically the option between the 66 mm. Ruwido carbon track faders or 105 mm. Waters conductive plastic faders (for which we are the U.K. distributor).

All the items for possible improvements discussed by Angus McKenzie in his review (Studio Sound, October 1975) of the Series 112/4 have been incorporated in the Series 2, plus many features which were not normally available in the original design.

1. **INPUT FACILITIES.** Continuously variable mic/line gain over a 60 dB range. Switchable 20 dB mic pad before input transformer. Max. mic handling using pad + 15 dB at 20 Hz, + 25 dB above 50 Hz. Mic/line switch, max. line input handling + 35dBm. Insertion point pre-equalisation. Four band equaliser. Foldback and echo sends. Switch for pre-fade listen/channel

on/channel mute. LED peak indicator, fast attack, slow release, full wave detection set at 5 dB below clipping level. Slider fader - choice of 66 mm. carbon track (standard) or 105 mm. conductive plastic. Panoramic potentiometer, stereo-mono compatible. Routing push-buttons to: Monitors, Groups 1 and 2, Groups 3 and 4.

2. **OUTPUT FACILITIES.** Slider fader. Tape/Line monitoring with rotary fader, cue sends and panoramic control. The four output groups and monitor returns are selectable by track switches to 8 output sockets and tape return sockets, the latter being normalised through to the first 8 line inputs. Sockets are provided for foldback and echo send outputs at line level and 2 echo return inputs mixing into one return channel with identical facilities to the mic/line inputs.

3. **MONITORING FACILITIES,** allow push-button selection of PFL, foldback or normal monitoring. Outputs are provided for both headphones and line.

4. **TALKBACK** is provided with level control and lever switch to give momentary/off/hold and automatic muting of monitors by 20 dB.

5. **LINE-UP OSCILLATOR** continuously variable from 100 Hz-12 kHz with level control, output socket and switch for slate/off.

6. Choice of Bell spec. VU (standard) or BBC spec. PPM meters. Output capability, + 22 dBm into 600Ω. Relative input noise, -128 dBm with 200Ω source. Output noise better than -90 dBm (faders down). T.H.D. less than .02%. Power supply internal (standard), external option.



DEC 1975

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INTERNATIONAL MUSICIAN AND RECORDING WORLD

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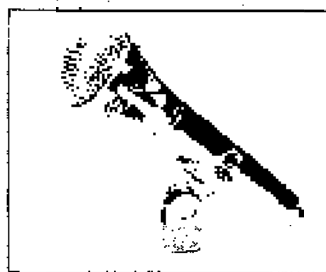
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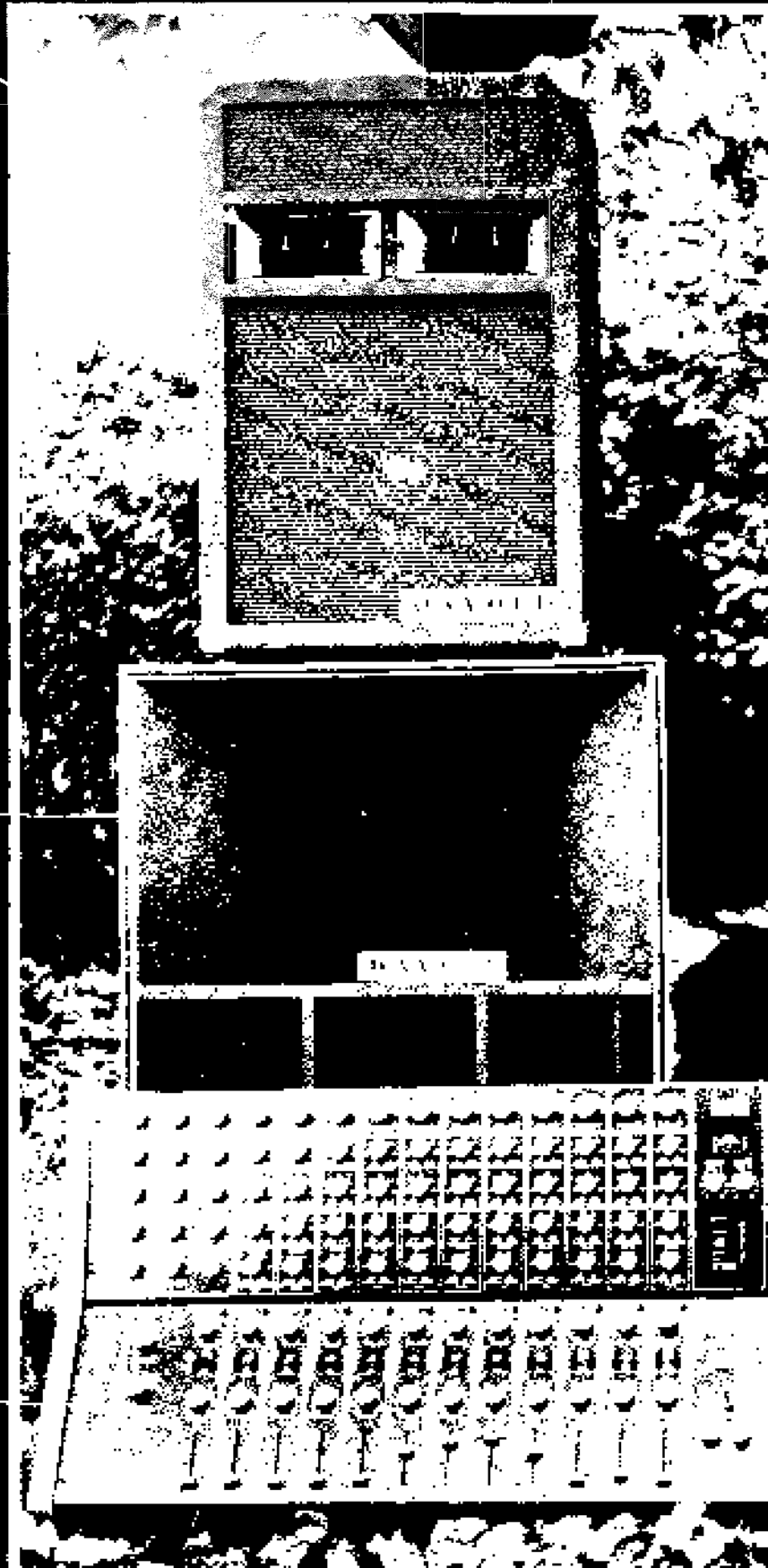
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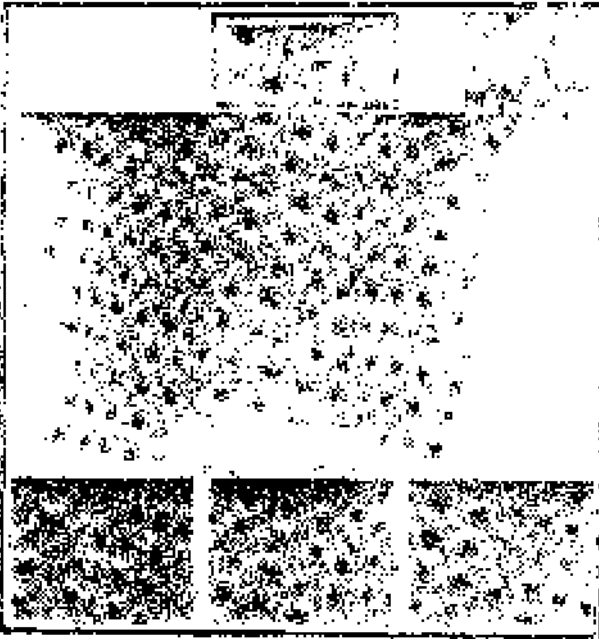
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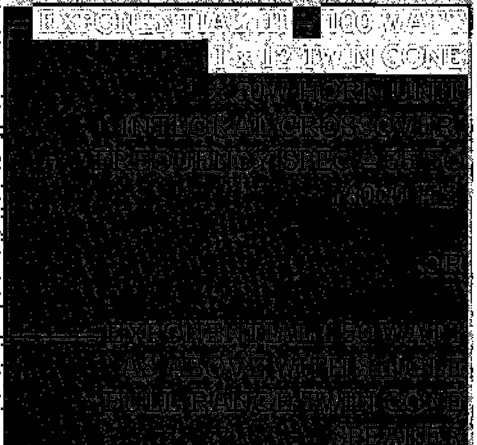


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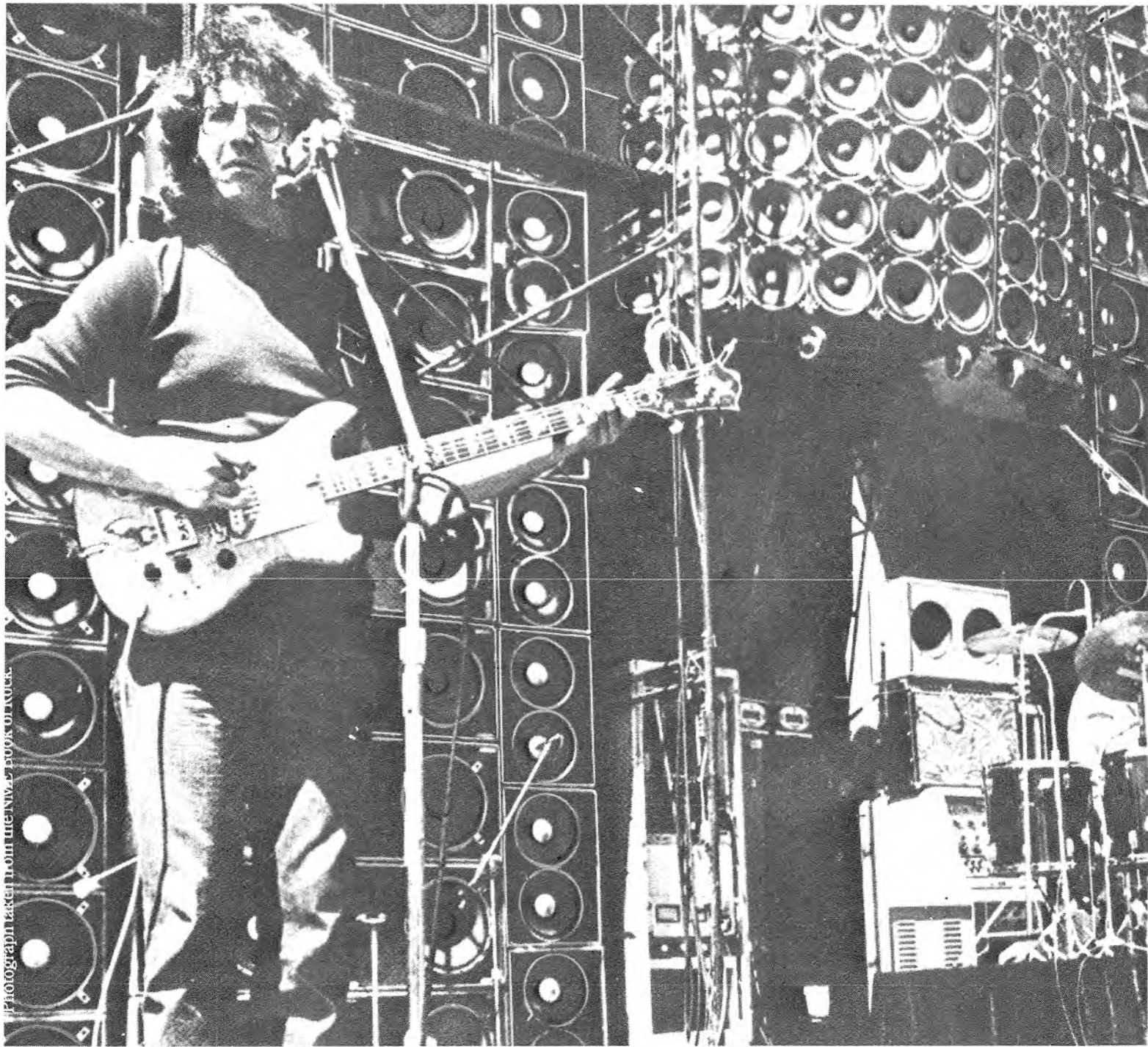
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PHOTOGRAPH TAKEN FROM THE NIVALS BOOK OF ROCKS

Has your sound system reached the he

Don't get us wrong. We're great fans of the Grateful Dead.

But just look at their bank of equipment.

It's getting to the stage where it takes a fleet of pantechnicons to transport it. And scaffolding to erect it.

And whether you're an established band or just getting it together, things won't get any lighter with ordinary equipment.

Enter Bose.

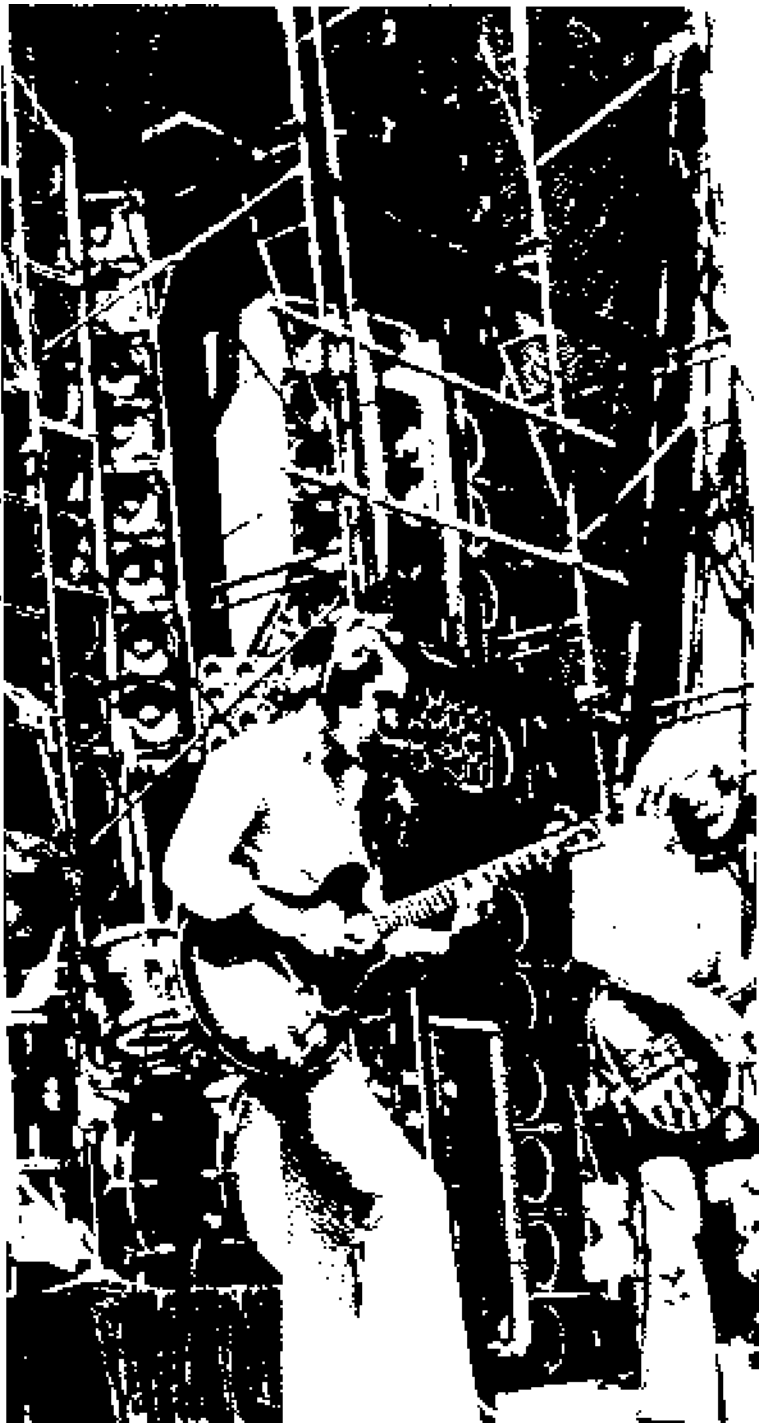
We arrived on the American scene in '71. And already, many of their bands have got rid of their old gear in favour of ours.

Because Bose amps and speakers are small and light. (You don't need to be a muscle-bound roadie to lift our 43 lb speakers or our 80 lb amps.)

But incredibly, Bose 800 speakers and 1300 amps give a quality and volume no ordinary system can achieve.

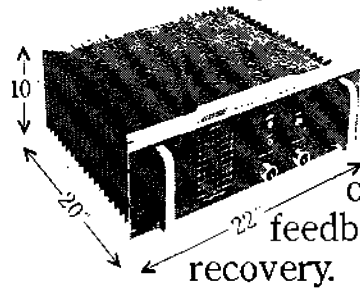
(It only takes eight pairs of our speakers to fill a 20,000 seat sports arena with sound.)

So when, for instance, James Last plays an open-air concert, he doesn't ask for Bose equipment. He insists on it.



While in order to cut power transistor stress, our amp shares out the power between 14 transistors.

The Bose 1800 amp (with case).



The 1800 also has a special overload recovery circuit which senses power overload and adjusts to feedback to ensure rapid recovery.

And just in case there are abnormal load conditions, it's equipped with electronic current limiting.

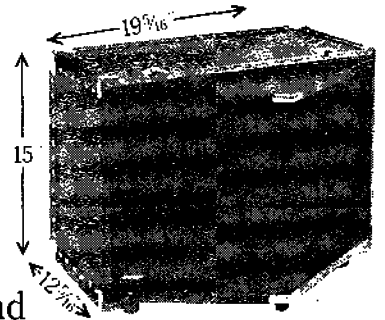
Bose 800 speakers.

Our speakers have multiple drivers in an air-sealed enclosure.

This gives smoother response than ported bass cabinets (which are often 'boomy') and horn-loaded drivers (which often sound 'peaky').

Excellent transient response is another feature of the 800.

The Bose 800 speaker (with cover).



Small cones powered by massive magnetic structures provide rapid response to transient signals. (Drummers soon find that they've never heard their drums sound so good before.)

Finally, with every pair of Bose 800 speakers you get our active equaliser.

This means that a flat power spectrum is radiated. Not just in the vocal range. But from the deepest tones of a bass drum to the highest treble of a snare.

Bose and your band.

By now you've got some idea of what it's like to play with Bose.

Obviously, we'd like you to try out our equipment. Because we think you'll find it sounds even better live than it does on paper.

But before that, you'd probably like a few more details.

So just ring or drop us a line.

Remember. You stand to wind up with an altogether better sound.

Without giving your roadie a slipped disc in the process.

BOSE®

ight of absurdity?

Bose 1800 amps.

You can't get clean power from an amp without knowing how much is going in.

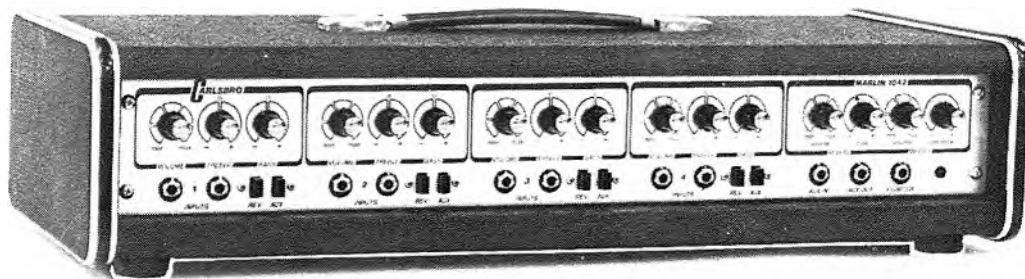
This is why the Bose 1800 is equipped with twin arrays of light-emitting diodes (LED's) which monitor the instantaneous power level supplied.

The LED's also provide rapid response and a wide dynamic range.

A special delay circuit is used to limit power supply inrush currents at the instant of turn-on. This extends the life of power supply capacitors, rectifiers and pilot lights.



SOLID STATE P.A. AMPS



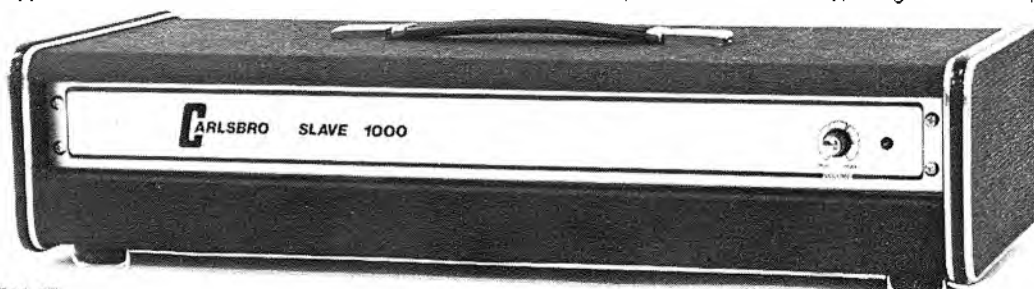
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Specification

Input sensitivity	33 mv — virtual earth mixing
Input impedance	60K ohms
Maximum input voltage	600 mv
Treble	+12db -16db @ 10KHz
Bass	+10db -12db @ 100Hz
Presence	+10db @ 8KHz
Auxiliary input sensitivity	36 mv — virtual earth mixing
Auxiliary input impedance	6K 8 ohms
Auxiliary output	115 mv
Auxiliary output impedance	100 ohms
Pre-amplifier output	500 mv
Pre-amplifier output impedance	1K ohms
Height	146 mm (5 7/8")
Width	673 mm (26 1/2")
Depth	266 mm (10 1/2")
Weight	13 kilos (29 lbs.)



SLAVE MK.II

P.A. Systems giving up to 10,000 watts output can be built up using Carlsbro Slave Amplifiers. Volume control gives balancing and monitoring facility. 130 watts R.M.S. output into 4 ohms. Low distortion typically 0.05% at 100 watts. Slave output/input sockets situated on power module. L.E.D. power on indicator on front panel.

Input sensitivity 500 mv.

Supplied complete with:— One speaker lead two metres long. Mains connecting lead. Operating instructions. Heavy duty cover. Owner's guarantee card.

Height 146 mm (5 7/8"), Width 673 mm (26 1/2"), Depth 266 mm (10 1/2"), Weight 11 kilos (26 lbs.)

For further details contact your nearest dealer or:-

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LETTERS

edited by
Eamonn Percival

Sir: The group I play with at present play fairly regularly at dinner-dance functions in the Sussex area. There is one particular venue we play which always gives me a problem. I own a Gibson Les Paul Deluxe and a very early Burns Black Bison. I also had a Strat until a few months ago. The Les Paul gives no problem, but the Strat would pick up interference from (I think) the lighting. With the Bison, I have taken the original scratchplate and electrics out and made up two new plates. The first plate is with two humbuckers and is wired similarly to a Guild S100 and this gives no problem. The second plate is an exact duplicate of a Strat; so exact that it also picks up the interference. I prefer using the Burns in its Strat form as it complements the Les Paul, but how can I get rid of the "buzz" which increases or decreases according to where I stand on the stage? Secondly, I am considering replacing my Les Paul with a Gibson Firebird. As yet, I have no experience of the guitar on stage. Is the Firebird capable of the same gutsy, sustained sound as the Les Paul? I would be grateful for some unbiased hints as to how they compare.

Brian Dandridge,
Sussex

The buzz from a Strat is probably due to either lack of screening or, and most likely, because Strat pick-ups are not humbucking (humbuckers were originally designed to eliminate this type of problem). The hum itself is likely to be caused by a radiated magnetic field from one or more of your amps, or from a high-power mains cable. This field is directional and sometimes rotating the amp top so that it's angled away from your guitar will help.

Gibson Firebirds sustain pretty well. Those with black plastic pick-ups sound a bit like SG's; those with small metal pick-ups sound like a whole bunch of Melody Makers, as they are more or less two Melody Maker pick-ups strapped together.

Sir: Could you please help me with a few problems. My first concerns the tremelo bridge unit on my Antoria Strat copy. Should this be in such a position so that it can move up and down, or should it be resting flat against the guitar body so that the tremelo arm can only be depressed? Would the type and make of strings used affect the mechanics of this unit? As I have access to a frequency counter, could I use it to determine accurate intonation?

C.P. Painter,
Leicestershire

Yes, the tremelo unit should move up and down. The gauge and therefore the tension of the strings will affect the mechanics of the unit, and you may need to adjust the number of springs attached to the back of the unit - lighter strings need fewer springs, heavier strings need more. Unless your counter is quite exceptional, you're likely to find the job quicker by ear.

Sir: I am interested in purchasing a Jumbo guitar. I do not really want to pay much more than about £50 for it, although a higher price would be possible. I am rather interested in the Fender F series and the EKO range. Could you give me some advice on this matter? S.T. Povey
Kent.

Both the Fender F series and the EKO range are excellent value for money, in particular the EKO Ranger 6. You could also check out the Yamaha range and the cheaper Epiphones.

Sir: Before you read this, I would like to point out that this is not a plug for a specific music shop, but I am writing to you to help the many thousands of people like myself in getting a satisfactory service from a music shop. So many shops (in London especially) turn up their noses at you if you don't turn up in a white Rolls Royce and flash fivers in the air.

I went to Matthews Music this week to try out a few pedals and amps to try and get the sound that I have been searching for for ages. I spent the best part of an hour driving the manager bananas, trying every effects pedal, cabinet and amp that I could. He was extremely helpful and did all he could to help me get my sound. He even came into my car to hear the sound I wanted that I had on an eight-track. Also, Wing Music in Bromley provide a very helpful service and they will demonstrate anything from an electric Jews harp to a Mighty Atom miked up through a Marshall stack.

So what I'm trying to say is that if you want excellent service, good advice and a salesman who doesn't ego-trip all day on his latest Bargain Of The Week, look for the smaller suburban music shops on the outskirts of London and treat yourself to a couple of days blowing your mind on everything in the shop without having your head torn off.

Kim Durdant-Hollamby (Mr.),
Sevenoaks

The purpose of I.M.'s Dealer Guide is to put people in touch with their local music shops who, as this letter points out, can often provide as good a service as the larger shops in the big towns. As for the London shops, we think you'll find that your complaints are really attributable to harassed individuals, and not the policy of any shop.

Sir: I have just bought a second-hand Guild for £70. It's the Duane Eddy model and I was wondering if you could give me some information on it, i.e., how old. The number on the machine head is 24145.

M.J. Watson,
North Wales

A spokesman for Top Gear told me that the guitar is about twelve years old judging by the serial number. The Duane Eddy model was discontinued about five years ago, and was basically a Guild Starfire with a Bigsby tremelo unit, deluxe machine heads and "Duane Eddy" engraved on the scratchplate and truss rod cover. There was also a deluxe model with gold-plated parts. He also thinks you got a bargain for £70, as these guitars have recently been selling for £150 plus V.A.T. in good condition.

Sir: I would like to congratulate you for your excellent magazine and would like some advice regarding my equipment. I use an Antoria SG copy through a Watkins Copicat to a WEM Dominator Mk II. The problem is that I cannot turn the sustain control on the Copicat past 5 without getting an echoed feedback. I have tried both different control settings and moving the position of the equipment but still have no success. Question two regards the amp: When the guitar is set at full volume and the amp at about 6, I can get a really nice distortion/sustain sound. Does this do any damage to the amplifier or the speaker? Thirdly: I recently saw The Who in concert at Glasgow and, at one point, Pete Townshend was getting feedback from the amps, and lifted his guitar and shook it vigorously, producing a tremelo effect on the sound. How did he get this effect?

Duncan Harkness,
Glasgow

I contacted a spokesman for WEM who told me that it was quite normal for a Copicat to produce a kind of feedback when the sustain control is turned past halfway. This particular feature has often been used for "spacey" effects. With regard to the distortion on the amp, I'm told that this is, again, quite normal with the Dominator, as it is a valve amp and not a transistor, and therefore should not harm the speaker. Pete Townshend's tremelo effect was, I imagine, produced by the neck tilting slightly away from the body while being shaken. Obviously, this will raise or lower the notes being sustained by the feedback. I wouldn't advise anyone to practice this too much as it will inevitably weaken the neck joint.

Sir: I have an Arbiter Flying V and I would like to put the treble pick-up out of phase. I'm afraid I am not too hot on electronics, so could you tell me how to do this? Your help and advice will be very much appreciated. Keep up the good work.

Peter Vogel,
Bournemouth

There are certain problems in rearranging guitars to have the pick-ups out of phase with each other. Stephen Delft is trying to solve these problems at the moment and we hope to publish some of the answers in a forthcoming issue.

Sir: I have recently purchased a Vox AC30 "Top Boost" amplifier combination. I wonder if you could give me the output power, treble, bass and cut ranges, and any other specifications relevant to this unit as the dealer from whom I bought it was unsure.

R. Ball,
Birmingham

The figures are as follows:

Output, 30 watts r.m.s.; sensitivity, 30 mv; frequency response, 40 Hz. to 15 KHz.; Mains power consumption, 140 watts.

Unfortunately, frequency ranges are not quoted in the specifications for the AC30, but any other information is available from Tom Jennings, Dallas Musical Industries, Elm Road Estate, Vanguard Way, Shoeburyness, Essex.

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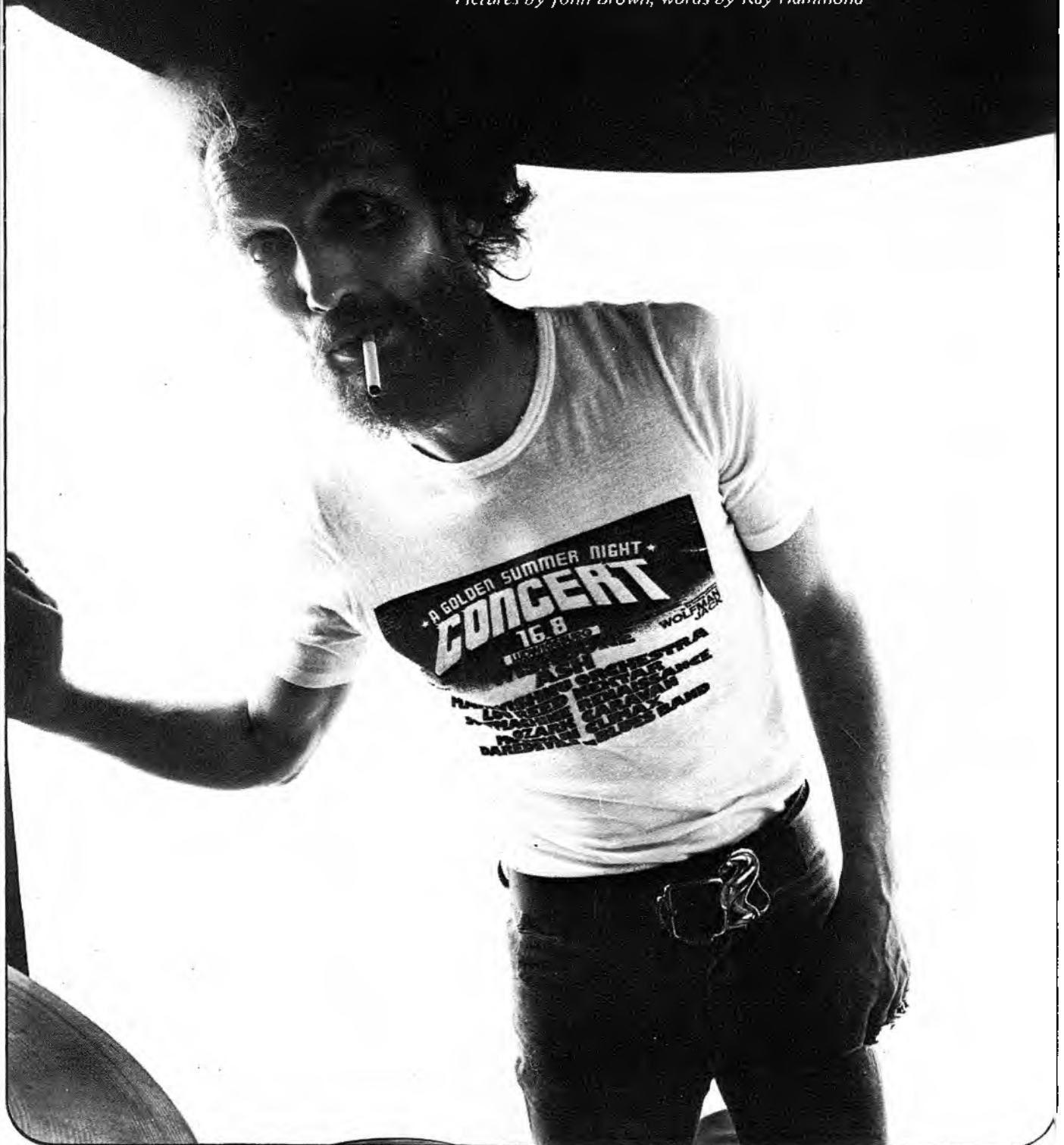
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Barnsley 5867

Ginger Baker

Ginger Baker's been drumming for 20 years. The fact that he's just fractionally bored with the business of music doesn't stop him laying down patterns that are breathtaking examples of timing and control. With the Baker Gurvitz Army he's been more successful at finding a permanent musical base than many of his superstar contemporaries and he's divided his life, more or less, neatly into three compartments. Music (for the money), desert (who knows why?) and polo.

Pictures by John Brown, words by Ray Hammond





Ginger Baker

Are you happy with the way the Baker-Gurvitz Army is developing?

Oh yeah, we're playing better than we ever have and I'm playing better than I ever have done in my life. I actually heard a tape of a concert we did a couple of nights ago and the drum solo frightened me to death. I don't think it's about technique, it's time I think, mostly. It's not how you play but where you put them.

What do you think is responsible for making you play better now than ever before?

I don't know, it's working with the band; there are four people in there apart from me and I suppose you get inspired. I think the rest I had in Africa — well I'm still heavily involved there, by the way — that period I had, away from being on the road and everything, it really helped, it was amazing. Now I've come back and I'm fresh again and young at it.

How often do you feel that special spark developing within the band when you're on stage?

Oh, every night. Something happens every time we play. It's an exciting band. There have been bands I've been with where it hasn't happened very often, but not very many. **Are you getting more personal satisfaction out of what you're playing now?**

You can't measure it, it's very hard to say. We had this gig at Southampton, and when I came off, I thought it hadn't been a good solo. It wasn't until I heard the tape of it that I realised how good it was.

It's very strange when you're playing an instrument, it often sounds very different out front. This is where recording can be very useful. You can play something that you don't think is very good, where there's not a lot happening — often something quite simple — and you hear it back and it really sounds very good. You say 'Right, I'll remember that'. It actually helps playing in that way.

Did the studio in Lagos teach you very much?

No, the studio didn't help me very much at all. You hear a lot of drums in Nigeria. Time-wise, it opened my eyes in a few directions. It's influenced my playing tremendously, but my playing isn't something I consciously work at. I don't sit and listen and think 'Yeah, I like that, I'll use that in future.' Sometimes things go into your brain and you don't realise they've gone in and then you hear a tape when you've played one night and you realise 'Christ, the last time I heard that was in so and so' and you realise where you've picked it up.

What's the next step for you now?

Well, we're recording the next album live tomorrow night, we're doing that at the Colston Hall, Bristol. I like live recordings, I always have liked them. You get feedback off an audience and you obviously get things going on stage that you never can in a studio. It's like when you get a crowd behind a football team that can get them playing amazingly well, it's the same for a band. The thing happens, and you feed on the audience.

Do you believe in re-touching live recording tapes?

That's a very leading question isn't it? If it's necessary, a bad vocal or something, that is usually the area you can work on. It's very difficult to dub on drum parts.

Have you been happy with the P.A. sound and general amplification you've been using on this tour?

Oh yeah, we've got a great crew and the sound we get has been really good. We're using Ricki Farr's stuff, Electro-sound.

Presumably the live album will take some delicate mixing. Are you long staying in mixing or do you like to do it in fairly short bursts?

Depends how you feel. We usually work pretty quickly. Sometimes it goes on a bit. We've been in the studio mixing for 17 hours and not gone out. After that time, your ears start getting a bit confused. We just mix until we get what we're after.

We'll be using the Stones mobile for this recording and they'll be working with Anton, our sound man. The tapes we've been listening to of the earlier concerts on the tour have been cassettes that Anton takes straight from the desk mix and we listen to them after the gig and criticise what's gone on. Our show is two hours long, so we're going to have to cut things out to get the length right. We've got enough material to do a three hour set on stage. It was originally worked out at a one hour set but there's a lot of improvised passages which, depending on the night, will be either shorter or longer.

Do you set up a full kit and play at home these days?

(Laughs — a long time) I wouldn't know how to set a kit up, that is what my roadie does. I never play at home seriously. I've got a lot of African drums at home, I play them with my kids sometimes.

So you never sit down just to play?

No for what?

For yourself?

No. If we have a rehearsal, sometimes I'll play for ten minutes just for myself. I don't believe in practice. I used to practice. But it must be ten years since I did any real practice.

Do you ever feel a little tight when you come back to playing after a long layoff?

Only when I've drunk a bottle. I've got a reputation to keep up. Sometimes, if I haven't played for a few weeks or so. Like when we finished the German tour, I shot straight off to Africa, came back in time to start the British tour, and I ached a bit when I started. Any exercise, when you leave it alone for a few weeks, will trouble you when you start again.

Does that mean that the first gig or the first rehearsal isn't so hot?

No, sometimes I feel a bit tired. Occasionally, there's a couple of things that don't work out, some very fast bass drum triplets, for example. Some nights you hit it, some times you don't.

What's all this about an African trucking company you've started?

We don't run a trucking company, we run a scout car and breakdown service for the trucking companies. We guarantee they get through. There's a great problem about getting goods into Nigeria. I'm a desert freak, I'm always driving across the desert and I liked the idea of the operation. We took a truck down to Nigeria in 1972 quite successfully and it occurred to me that we ought to open up a route for freight and we've been working on it.

We provide special Range Rovers to be lead

continued on page 16





Ginger Baker

from page 14

scout cars. This car goes out a long way in front and then turns round and reports on conditions. We're talking about driving across the biggest desert in the world. Road conditions change daily, so we report ahead. We've also got one ton vehicles carrying aircraft sections—you know, sand tracks — and if we find a bad section we zoom down and get one of the one tonners to come up with us and we lay a road and the trucks all go across it and we pick the road up again. It's bloody hard work.

How personally involved are you?

I get out there and drive the scout cars. It's bloody hard working in temperatures above 130 degrees.

How do you divide your head time between Africa, the band and polo, which I know is another great love of yours?

Actually, it's very confusing. Fortunately, it's not the season for polo now. I just find it all keeps me very busy. I don't find any of them a pressure. The trucking support company's got their Range Rovers, long-wheelbase land rovers, and one tonners and that goes on OK. We all know the desert in fact, I'm the least experienced member, I've only had five years experience, most of them have had ten — I'm probably the quickest out of them though.

Where do the people come from who work with you in Africa?

I don't know, you get people who like the desert, I suppose. We're involved with Quest Four, guys who've been taking people across the desert for a number of years. They're Scottish and English, we're just desert freaks.

What was it that first made you drive across the desert in 1971?

A mad whim I guess. Something I wanted to do.

Any other whims now you're aiming to do?

I want to win the Gold Cup in polo, that's the main thing, to get polo really together. I started playing drums over 20 years ago and for the first ten years it really got hold of me and I really lived and breathed drums. Polo has taken me in the same way. Nothing except drums have ever done that with me before. The desert is something that is there to be done and I want to ensure that it is done, it's not really an obsession.

There's a lot of cowboys trying to do the desert at the moment and then they call on our guys to pull them out. We charge them for it. There's a team that's just arrived there now, it took them nine weeks from the U.K. We guarantee three weeks from the U.K. They end up with us pulling them out and organising their return trip and they got a big thing in the press that said how they'd done it in two weeks and they didn't even mention that we'd pulled them out of the shit.

To come back to playing for a minute, you have your own custom built Ludwig kit, don't you?

Yeah, I went round the Ludwig factory and said I wanted this size and that, and this and that, and they went bananas. But they did it and I've had this kit for six years. It's holding together very well. I wouldn't use anything but Ludwig. I'm getting a new kit when I go to the States, I'm going round there and sorting it out.

Are you going to get the new acrylics?

(Laughs) I invented those, actually. In 1961 I made the very first perspex drum kit with my very own hands. I bent the perspex over the gas stove in a little flat in Highbury where I was living at the time.

What did it sound like?

Fucking great! In fact, Jack Bruce reckons it's the best sounding kit I ever had. I used them for four years and then I gave them to a friend of mine who's now teaching in Africa somewhere. I think they fell apart in the end. I had a Vic O'Brien kit and I took all the fittings off there and bunged them on that. I didn't patent it, which is where I made the mistake.

Did you do any other drum making?

No, there's just enough time to do so much in life. I mean, I haven't got enough time to do what I'm trying to do now, really.

What's "home" for you now?

In Harrow, that's where my family is. I've been living there for eight years. It's not hard to feel roots when you've got a wife and three kids.

What happens after you've made this album?

Do you disappear for a while?

Well, there's a herd of us taking a pretty big convoy next month. We're taking six fridges carrying meat down.

Is your band frightened that you're going to vanish again?

No, the band aren't frightened, the office is. It happened on the last trip I was on, I got delayed and messed everything up. I found a policeman in the middle of the Sahara and ran him over. It was his fault, but it took five days to sort the problem out. Communications aren't that good and they were going frantic this end. Just to cover myself, I send a telegram back to the office saying 'I'm in jail, help', whereon they went bananas.

It was a pretty nasty experience, actually. He was riding a moped and he swerved out in front of me and went under the wheels. He was still in a coma when I left. It's the first time it's ever happened to me, it was a very unpleasant experience, really. I thought the guy was dead, but it wasn't until we'd been with the police awhile that we were able to sort it out.

It was because it was another policeman that they were so heavy. We had to sleep in the sand a few days, a few mosquitos and things like that.

So what's after the next convoy?

You've got about as much idea as I have. I hope to go the States and record another album in Florida. It's a dual reason. The polo season isn't on here and it is on there, and I've got a lot of good friends there.

With musicians - you see, they don't ever get up till the afternoons so I get up very early in the morning and play polo in the morning and go to the studio in the afternoon and in the evenings.

You make do with six hours sleep?

Usually less. I only had three and a half last night. I'm very fortunate, I don't need a lot of sleep. Sometimes I don't sleep for a long time and then I'll crash out for hours. □



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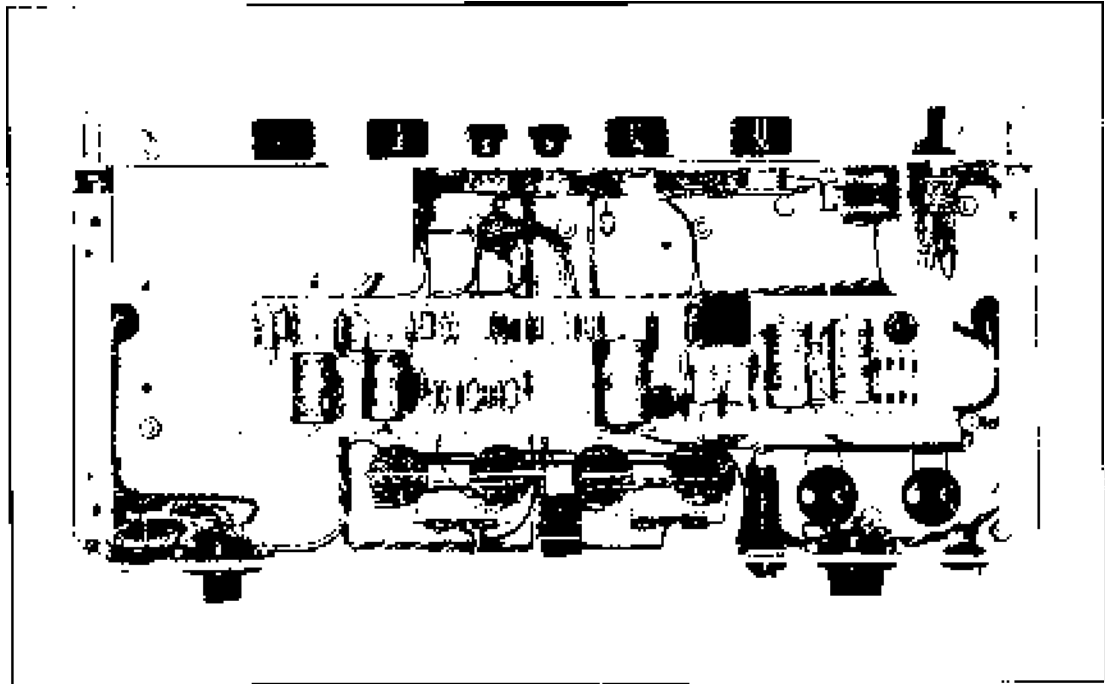


TEST ON: *Matamp RCGT 100 Amp.*

DATE *November 1975*

PRICE *£129.60 Ex VAT*

TEST BY *Bruce Gibbs B.Sc.*



INTRODUCTION

Mat Mathias is a man who has been designing and building amplifiers for the entertainment industry since the early 'fifties. Apart from the products of his own company, which carry the matamp trade work, he has produced designs for other manufacturers, including those for some of the early Orange equipment. The addition of some fully solid-state systems to the Matamp range extends the long experience gained on valve amplifiers by another step. However, the subject of this test report is one of the "all valve" designs.

The RCGT 100 is a 100 watt general purpose valve top which is suitable for guitar, bass, organ or vocals. The full output power can be fed into $3\frac{1}{4}$ ohm, $7\frac{1}{2}$ ohm, or 15 ohm speaker systems by selecting the correct top on the output transformer. There is no loss of power when 15 ohm speaker systems are used, as occurs with many transformer less amplifiers. Using 8 ohm speakers in place of $7\frac{1}{2}$ or

4 ohm in place of $3\frac{1}{4}$ makes no significant difference.

There is also a 100 volt line output which is useful if very long speaker wires are required. However, a transformer must then be fitted in each speaker box.

As is common with many valve amplifiers, only one input channel is provided. This has a volume control, presence, treble and bass tone control, an additional switched six step base boost control and a four position switch labelled "drive". The "drive" switch gives a choice of normal signal or treble boost at either low or high level. The remaining facilities include two input sockets of different sensitivities, mains switch and pilot light, echo input and output sockets, speaker impedance selector, mains voltage selector and two fuses.

The main transformer allows the system to be used, on 110 and 118 volt A.C. as well as 220 and 240 volts A.C.

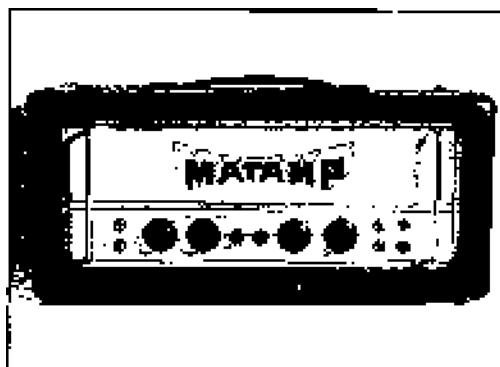
CONSTRUCTION

There is nothing exciting or revolutionary about the style of construction, apart from having chrome plated handles on the inside of the chassis and on the front panel! The quality of construction is very good and well above normal standard. All the components are of the very best quality and of ample rating for their jobs; including the expensive items like the transformers.

One medium size glass fibre printed circuit board carries the majority of small items and everything is well secured so as to withstand vibration.

Access for servicing is very easy. Valves may be changed by removing four screws and lifting the back cover off or the whole chassis can be taken out of the box by removing four

screws in the base. Almost any component could be replaced without having to first dismantle other bits.



PERFORMANCE

	RESULT		TEST CONDITION	COMMENTS
Power Output	126W 132 W 117W	Into 15 ohms. Into 7.5 ohms. Into 3.75 ohms.	RMS power at 10% total harmonic distortion	
	112W 114W 110W	Into 15 ohms Into 7.5 ohms. Into 3.75 ohms.	Power at onset of clipping	
Distortion	5.4% 0.26% 0.3%	@ 100W into 7.5 @ 10W into 7.5 @ 1W into 7.5	Total harmonic distortion measured at 1 KHz.	Distortion levels are high but reasonable for a valve amplifier.
Sensitivity for 100w O.P.	13 mV. 5.6 mV.	i.p. 1 i.p. 2	Tone controls set for best square wave response and "drive" in 3rd position. Measured at 1 KHz.	Quite high sensitivity which is more than enough for guitars and microphones.
Tone Controls	28 dB. 25.5 dB. 28.1 dB. 6.7 dB.	Bass Switch range at 50Hz. Bass range at 50Hz. Treble range at 10KHz. Presence range at 1.7KHz.		Good Good Good Should be better
Noise referred to i.p	-84 dBm. -91.3 dBm.	i.p 1 i.p 2		Reasonable for a valve amplifier. The "noise" is mostly mains hum.
Echo send	+1.8 dBm.			
Output Protection	OK OK	Short circuit Open circuit		Did not blow fuse on short circuit test but the valve anodes became red hot.
Capactive load test	OK	2 uF and 8 ohm. load		

CONCLUSION

Matamp have reason to be proud of the quality of the RCGT 100. The construction is beautiful and the performance is good for a valve amplifier. I would have liked to see more range on the presence control and less background mains hum, but even so, the achieved performance is not unreasonable.

The input sensitivity is higher than normal. This could be very useful if you have low output mics but otherwise has no significance.

In every other way the amplifier is very ordinary and unlikely to attract attention to itself. It is the sort of work horse which can be put

into service and forgotten about; apart from an occasional change of valves.

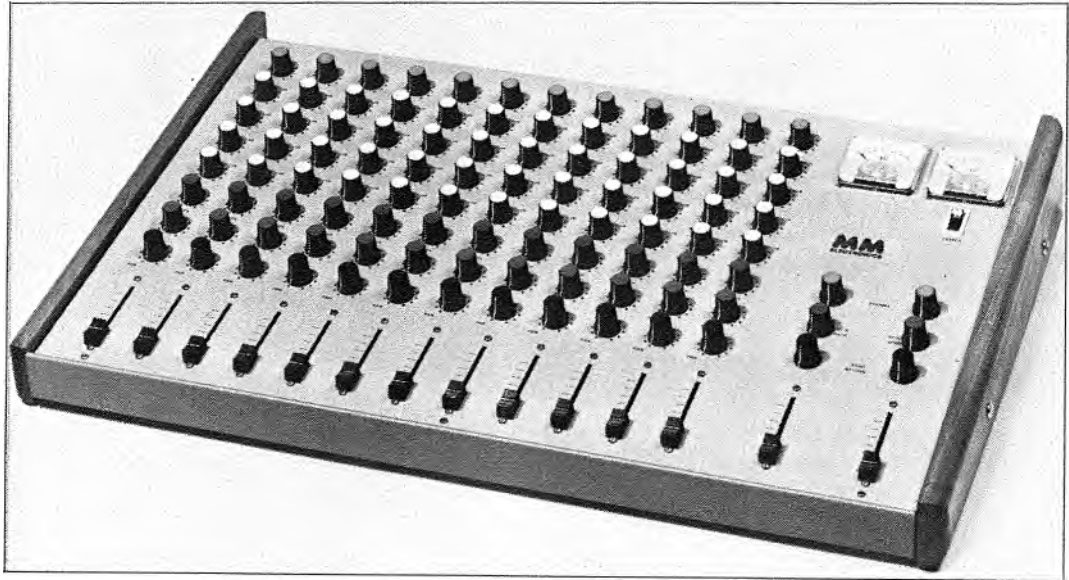
The provision of socket for connecting an echo chamber or reverberation unit is obviously very worth while. However, putting plugs in these sockets does not interrupt the direct signal line. Consequently, one must be careful to choose an echo unit which will provide a "reverb only" output because the mixing with the main signal is done in the amplifier. The echo unit must also have its own "echo send" level control.

TEST ON: *PA:CE MP175 12 Channel Mixer*

DATE *November 1975*

PRICE *£250 Ex VAT*

TEST BY: *Bruce Gibbs B.Sc.*



INTRODUCTION

In the last year or so, many of the more affluent bands and groups have changed policy from one of having separate amplifiers for each musician to one of distributing a mixed sound. This change involves buying a mixer with a large number of input channels, many facilities, and which must also be built to quite a high standard in order to ensure adequate reliability.

The cost of such a mixer has, until now, been out of reach of all but the very top bands. The MP175 changes that.

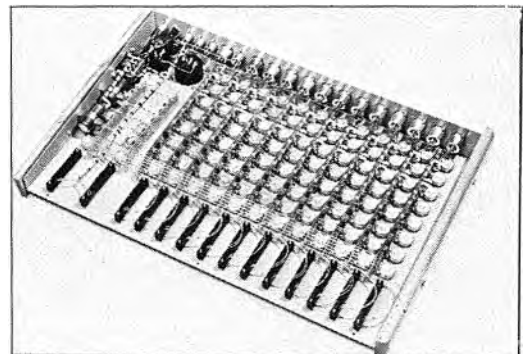
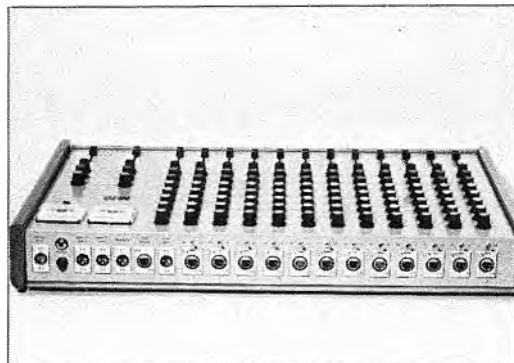
The MP175 is a compact, high performance, but very inexpensive 12 channel mixer.

Each input channel has a main fader, fold-back level, echo level, four channel equalisation, pan and input gain controls. The input is

via a jack socket and there is also a switch to select high or low input impedance.

The output facilities are: left and right output channels with separate master faders and meters; echo mixer with a master send control; foldback mixer with master foldback level; and a stereo headphone output which is driven from the two main channels. An interesting feature is the provision of separate echo return controls for the left and right hand channels.

The unit is powered from standard 240V AC mains and it consumes only five or six watts. There is no mains voltage selector but an illuminated on/off switch and fuse are provided.



CONSTRUCTION

The construction is very simple and tidy and obviously the result of a lot of careful planning. All of the electronics, including the input socket, are mounted in the top part of a two part steel case, the lower part being just a cover. The bright blue control panel has all the control workings (silk screen) printed in dark blue and sports an array of over 100 expensive collet knobs. The lower part is finished in a grey paint which has a peculiar simulated rexine appearance. The finishing touch is added with two teak veneered wooden end plates.

Equally well considered is the construction of the electronics. Each input channel has its own printed circuit board on which all the components for that channel, including the control pots, are mounted. Two further P.C. boards carry the components for the mixing stages and output channels. These 14 circuit boards are then interconnected with copper bus bars

which are soldered into slots in the boards. Apart from these bus bars there is hardly any other wiring.

The quality of components and workmanship and the accessibility for maintenance are all very good.

A feature of the engineering which stands head and shoulders above the competition is the sophistication of the circuit and the number of components. Each input board has six transistors and two integrated circuits and the output board has three transistors and four integrated circuits. Most manufacturers try to squeeze the performance out of half the number of components — and usually fail.

Many details, like the use of long travel slider pots and jack sockets with gold plated contacts, together with the small physical size of the unit, indicate that the designers clearly understand band's priorities and problems.

PERFORMANCE

Parameter	RESULT	TEST CONDITION	COMMENTS
Maximum gain	Hi. i.p. 31.5dB. Lo. i.p. 58.9dB.	Flat frequency response — all gains — maximum	A little on the low side
Input saturation level	Hi. i.p. -4.8dBm. Lo. i.p. -32.3dBm.	(450 mV.) input gain (19 mV.) at maximum	Good
Noise referred to signal	Hi. i.p. -93.2dBm. Lo. i.p. -120.8dBm.	Wide band measurement with inputs open circuit	These figures would have been a little better if a restricted bandwidth measurement had been done.
Residual noise	-65.2dBm.	Noise at output with all channels at minimum o.p., at max.	Quite good
Distortion	0.075%	T.H.D. at 1KHz. with +13.2dBm. output.	Excellent
Tone control range	+13.2dB. -11.2dB.	Treble at 10KHz.	Excellent
	+10.3dB. -9.7dB.	Mid 1 at 2KHz.	Nice and symmetrical
	+10.8dB. -10.2dB.	Mid 2 at 600Hz.	Good square wave response with tone control.
	+11.2dB. -12.7dB.	Bass at 100Hz.	Control.
Maximum output	+22.7dBm.	10.5 V. r.m.s.	Very good
Output meters	OVU= +12.2dBm. OVU= +13.2dBm.	Left meter Right meter	Rather high levels and not accurately balanced.

CONCLUSION

Of all the equipment we have tested, this is the first item which has given a performance as good as the best — at a price found only among the least expensive.

The noise level we measured is slightly outside the manufacturer's specification because there is mains hum present. The manufacturers know about this and are going to correct it. But even so, the background noise level is very low.

The bright blue front panel and meters with yellow dials, in my opinion, give the unit a cold and not too attractive finish. This is a pity because a prospective customer will make a first

assessment on the basis of appearance and may not fully appreciate the gem of engineering behind that bright blue front panel.

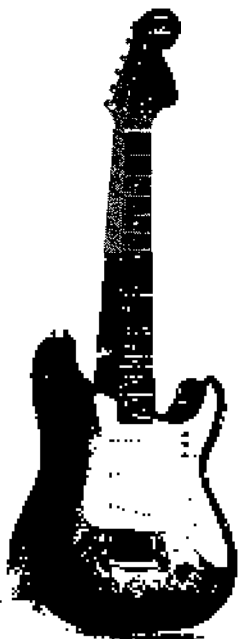
The facilities provided are the same as all the expensive mixers except the MP175 does not provide pre-fade listen. Four channel equalisation is provided. The extra middle control is an unexpected but useful luxury. A slightly strange feature is that the output meters monitor the mixer levels before the output faders. There are, however, advantages in doing it this way.

I do not know how MM can produce such a sophisticated machine for this price but this really has to be "the best buy".



Zenta HES 5000 Strat Copy

Retail Price £34



Let's be honest, this is a cheap guitar. In the past we've tended to review instruments aimed solely at the professional and ambitious semi-pro ignoring somewhat the needs of the student and the player whose budget (or intent) does not allow an expensive guitar.

The influx of oriental guitars has pushed the standard of cheap guitars up rather than down. In the late 'fifties and early 'sixties, cheap guitars poured into this country from East and West Germany and most of them were frankly unplayable and unfixable.

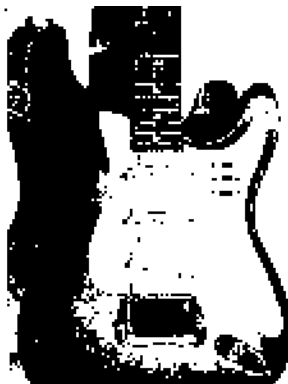
Today the situation is different. This guitar is typical of many models available at real economy prices, but which also have considerable potential and can most certainly be made to perform properly.

Understand that adjustments will have to be made to get the guitar into a fully tuned condition. Students should make a point of ensuring that their dealer checks the harmonic tuning and the action before they collect their instrument and they should have little trouble after that.

The neck on this Strat copy bears little resemblance to the original. I think that's a good point, as the quality needed in a neck as fine as a Fender Stratocaster is outside this price bracket. The neck is heavy, chunky and acceptably straight and the frets are well finished off on the edges of the (rosewood?) fingerboard. Plastic position dots are fitted into the fingerboard and the fitting has been well done, leaving only an almost imperceptible ridge.

The body is also extremely heavy and coarse. There's an attempt at sculpting but it doesn't really bear a relationship to the Strat. String retention is by the bridge/tailpiece rather than the through/body system and individual string intonation is just about possible with the rather clumsy forward and backwards adjustment fitted.

The electrics on this guitar enjoy an extra facility over a Strat. Three



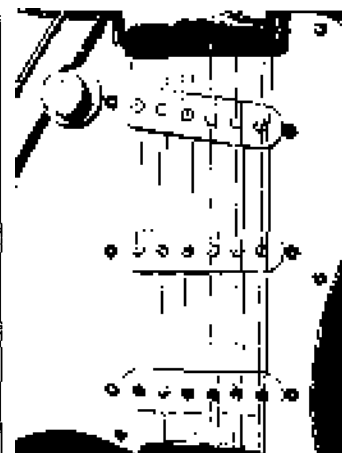
slide switches on the scratch-plate allow any combinations of pick-ups to be selected, unlike the Strat, which allows only individual sounds. There the advantages end, and you must understand that if you want a Strat, this isn't one. The electrics all work well enough if a little brutally and some degree of pole-piece adjustment is available.

If you get one of these instruments, instantly change the strings — they're supplied with the tape wound variety. This guitar is heavy, unwieldy and ungraceful. But it works and it's cheap and you shouldn't ask for much more than that.

Fender Stratocaster

Retail Price £232.00

I really don't think it is necessary to describe a Stratocaster. Its design has continued with few visible changes since almost the beginning of the electric guitar's popularity. The design has not changed in principle because it was right first time and is a good compromise between the conflicting require-



ments of versatility and simplicity of operation. (If you really don't know what a "Strat" is, CBS/Arbiter will be pleased to send you some very well produced literature, with lots of pictures and explanations, if you fill in the reader service coupon in this issue. With the exception of the claim that "all parts subject to wear are case-hardened steel", the Fender catalogue is really rather impressive.)

These Guitar Checks exist primarily to answer the sort of questions a player would wish to ask. I believe they would be: 1) How well does it play? 2) How reliable is it? 3) How close is it to an old Strat? 4) Compared with its competitors, is it good value for money? These are the questions I shall try to answer. The answers are my opinions only, based on this review sample and an average of other new Strats over several years.

1) How well does it play? After reasonable, but not fanatical adjustment, I achieved an action of 1.2 mm. treble and 1.7 mm. bass, under our standard conditions, with a reasonable grading of actions on the other strings. This test included bending string one up by two semitones, and strings two and three, up by three semitones. These action measurements are very good; there was a slight kink in the neck, but it did not cause fret buzz even at this low action. The minimum action could be reduced further by "stoning" the frets, and either accepting a smaller amount of string bending (particularly on the first string) or by causing the stoning to reduce the fret and fingerboard curve a little between strings one and four. The positioning, fitting and levelling of the frets are all good; trimming of the fret ends and the shape of the fingerboard edge



could be improved.

There was no question of faulty intonation as the Strat system allows large individual octave adjustments on each string, and the nut slot was cut (accurately) at the same time as the fret slots. There were some tuning problems with the open strings until I adjusted the depth of the string slots in the nut.

The tremelo arm was slightly loose in its socket, which made its "feel" less certain: one strand of sewing cotton in the socket would probably fix this.

All electrical controls worked well and smoothly and the pick-ups could be adjusted up and down without problem.

I find it strange that modern Fenders are fitted with pick-ups which are apparently balanced for a *wound* third string. The plain third, which was supplied, and which many people use, sounds too loud. There were once two sorts of pick-up: for the two sorts of third string.

Apart from the above reservations, and my own preference for lower frets, I would find it difficult to fault the playability of this review sample, although I have seen some which had more serious neck problems. One *could* say that the pick-ups do not sound the same as old ones, but then I know of at least three different vintage of Strat pick-up all sounding different, so where does one go from there?

The guitar balances well, weighs about right, is made from roughly the same materials as before and has no recognisable mechanical weaknesses which are not also present in "vintage" models.

2) How reliable is it?

I can foresee only three reliability problems: The machine heads are dreadful and are obviously a faulty batch; part of the scratchplate, near the support screw for the bass end of the bass pick-up, is already warping and is raising the pick-up as it does so. This is not common to the other Strats I have seen; I have some reservations about the long-term stability of the neck. For a rock maple neck, it is surprisingly flexible, and much more so than some older models. The change seemed to occur between five and seven years ago. My guess would be a combination of slightly different wood combined with a different truss rod system, but until I can arrange X-Ray facilities it is just a guess.

3) How close is it to an old Strat? The most obvious change is the use of black pigment for the "black" edge of the sunburst. This looks more like dark grey and gives the whole body the appearance of being moulded from plastic.

I have reservations about the suitability of die-cast alloy for the tremelo block and the bridge inserts. I would prefer heavier castings and hardened steel. This could have a significant effect on the instrument's dynamics and sustain.

If you get one with a good neck and you are willing to subject it to the same process involved in restoring an old one, (ivory nut, new machines, a very good fret job, hand re-winding pick-ups, etc.), then you will probably not be far off.

Remember that some old Fenders were always magnificent — and some were originally dreadful (I see some of them before they have been worked on). Some features such as the additional string clips on the head, and the present "bullit" neck adjustment are an improvement on the original.

4) Is it good value? If you compare on the basis of materials and workmanship, better value than some American guitars; less good than others. But you can't compare this way — guitars all sound different, and if you want the sound of a Strat, then that is what you have got to have. If you compare between new (or nearly new), and old/restored, and a really good hand-made replica, then I would say if you know what you are doing and you find a new one which will be what you want with only minor adjustments, then that is your best buy. If it is going to need major modifications to satisfy you, then consider a restored or unrestored old one, or a very good "one-off". Don't forget that it is *possible* to spend a lot of time, and care and money on an old wreck, without actually making it work really well. Remember also that beautiful workmanship in a "one-off" is not a *guarantee* that it will do the same job as a Fender, old or new.

John Levoi 12 S Deluxe

Retail Price £225.00

You may think that the only really good Folk and Jumbo Guitars are made in America. If you read all our previous reviews, you may think I feel the same way. You would be wrong on both counts. There are some very good acoustic (and electric) guitars made in this country and I hope to review as many as possible in the future. The problem is that most good makers have waiting lists; many of them also live in relatively inaccessible parts of the country, and work mainly for people in that area and the few musicians who will travel halfway across the world for a good instrument. I would prefer to review instruments which you can obtain through your usual music shop, but I would not exclude a really good instrument because it was only available directly from the maker.

This is a fairly large 12-string with a 640 mm./25¼ in. scale. String spacing is 58 mm. at the bridge and 44 mm. at the nut.

These figures should tell you that the neck hardly tapers at all, and the fingerboard is considerably wider than the Guild. What you will not see from the figures is that the two strings of each pair are as close together as is practical. This, combined with the wide neck, makes it play rather like a classical guitar, and with the excellent action on my sample, one can almost forget that there are twice as many strings to hold. In fact, the major advantage of this guitar over other 12-strings is that it seems to have been designed particularly for playing finger style. It is sensitive, responsive, and fairly light for its size. All mechanical fittings (and, incidentally, the price includes all-metal Schaller machines) are solid and should not give any problems. I am tempted to say that the entire guitar has been made with the reliability and solidity of a tank.

The neck construction is unusual for a 12-string, there is no adjustable truss rod. Instead, depending on the model, there are one or two steel stiffeners bonded into the neck. In practice, the stability of necks made by this method depends on accuracy of internal construction and (critically) on the adhesive used to glue the stiffeners in place. As I have said before, the final test is time: this neck system is now several years old and it seems to give no more trouble than the adjustable rods. It is not quite as good as the Guild system of two adjustable rods, and it has a disadvantage: for the stiffeners to be effective, both they and the neck must be deeper than usual. The neck is fairly massive by American standards, but it is comfortably shaped and does not feel lumpy. Personally, I can accept a fairly thick neck on a guitar if the string action is very easy.

Typically for this maker, the guitar was supplied with the action already adjusted to the lowest



possible without buzzing for average playing technique. Taking the worst-case string of the lowest and highest pairs, this was 2.4 mm. bass and 1.9 mm. treble. If anyone can get an acoustic action lower than this without fret buzz, I should like to know how it is done.

The slots in the nut are cut very low, and while this makes the instrument a delight to play, I think it has been overdone a little. While nothing actually buzzes, some strings have no margin for normal nut wear, and may start to hit the first fret soon. Fortunately, the nut is held in a deep slot with ebony on both sides, and it is an easy matter to raise it slightly with a shim. The nut, incidentally, is ivory, and the string slots are polished and near-perfectly spaced.

The accuracy of tuning at the 12th. fret is probably as near as possible on a 12-string. In fact, of the top pair, one is slightly flat and the other equally sharp, showing that the limiting factor is the inevitable slight inaccuracy in the strings. Some of the string pairs do not quite agree with each other at the octave fret, but in most cases, the dominant string is right. The worst intonation occurs on the lowest strings and even this is so near that it might be correct with another set of the same strings.

The frets on this guitar are narrow and flat-topped. While they are in no way sharp, there is rather a lot of resistance to sliding up and down strings. If this doesn't suit you, the guitar can be supplied with wider frets.

Internal construction is as solid as the outside suggests; this is not the sort of guitar which is going to die on you in two or three years. It is not in any way clumsy inside, but there is just something about it which inspires confidence. There are certain bits of design, which as a guitar maker I could argue about, but the important factor is that this design is particularly free from mechanical troubles.

It is always difficult to describe tone. The bass tends towards Martin 12 strings, the treble sounds more like a good "flat-back" mandoline, and if there is a deficiency, it is a slight lack of warmth in the middle. The dynamics are very different from most American 12 strings, though they are perhaps more like Leo Kottke's "Bozo" guitars.

I find the instrument very suitable for playing with fingers and for light pick playing, but if you push it hard, it tends to clang a bit. Perhaps more playing should improve this.

This guitar does not compete — it stands on its own merits. John Levoi guitars are available in the London area from Stephen Deift, London E.1. and from Potters Music, Croydon. Otherwise, contact John Levoi at Acacia Cottage, West Street, Alford, Lincs. for details of your nearest stockist.

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ALBUMS

Freddie King: Larger Than Life. RSO 2394 163

A very disappointing album from one of the best Blues guitarists alive. The man who gave us such gems as "Driving Sideways", "The Stumble" and "Hideaway" now seems to be satisfied with churning out meaningless, funky, riffy songs obviously aimed at the discos, and not playing and singing what he's best at — namely, Blues. When an album starts off with rubbish like Don Covay's "It's Better To Have (And Don't Need)", I find it difficult to take the artist seriously. The disco direction is all too obvious on an appalling number called "Boogie Bump". It's pure, unadulterated crap with a rather weak guitar floundering helplessly between a jerky bass line and oh-so-funky drums. To his credit, however, six out of the nine cuts were recorded live in concert and they give a fair indication of King's untapped talent. Darrell Leonard produced the live tracks and an excellent job he made of it, but it came as a bit of a shock to find the three studio cuts were produced by none other than Mike Vernon, the man who set up the Blue Horizon label in the 'sixties, which issued many collector's items by Blues artists. One of the better moments on the album occurs on the live version of "Have You Ever Loved A Woman?". A slow, twelve-bar Blues, it shows what Freddie King can do and why he should not be wasting his time with nursery rhymes like "Boogie Bump".

Produced by Mike Vernon and Darrell Leonard, various engineers and various studios.

Eamonn Percival

Deep Purple : Come Taste The Band. (Purple TPSA 7515).

This is the first Purple album since Blackmore's departure and features his replacement Tommy Bolin. Bolin is trying hard to be a guitar hero — too hard. He plays well but goes out of his way to prove it. The overall effect makes you wonder if he gets paid by the number of notes played. As far as the rest of the band are concerned, they appear to be happy enough just to blast out standard organ/bass/guitar riffs as though they had just got hold of their first Marshall stacks. There is one exception — a track called "This Time Around". Part-written and, I imagine, sung by bassist Glen Hughes, it's a slow number that owes more than a little to Stevie Wonder in both instrumental approach and vocal phrasing. The backing on this track is provided by an array of keyboard instruments, all played by Jon Lord, giving the song a certain ethereal quality. Drummer Ian Paice comes over well throughout the album, due to his brilliant technique and Martin Birch's excellent production. This is what bothers me about Purple. They are all undoubtedly great musicians, yet the whole album comes across as totally unadventurous.

Produced by Martin Birch and Deep Purple, engineered by Martin Birch, recorded at Musicland Studios.

Eamonn Percival.

Pavlov's Dog: Pampered Menial. CBS 80872.

A new band to British audiences, Pavlov's Dog are from New York if the choice of studios is anything to go by. They're an incredibly good band and it should be said straight away that I expect to hear a lot more of them. Vocal styles can do a lot to break a band (or a solo artist) and David Surkap's sound here is so unusual it will have a lot to do with the initial attention the band received. It's a cross between Russ Mael and Marc Bolan (Mael's pitch, Bolan's tremulant) and the sound gives all the songs of the album a certain edge. The songs are fairly straight love songs. The band is seven strong and four of them are credited with composition on this album. It's a slightly unusual line — up in that it includes flute, mellotron and violin. "Fast Gun" on side one is a particularly good track and I believe it has a high singles-chart potential. As well as having a very interesting melody line, the song also reveals how extremely tight the band are musically. If the band can arrange a tour here, they should be OK.

Produced by Murray Krugman, engineered by Tim Geelan at CBS Studios, New York.

Ray Hammond

Steve Howe: Beginnings. Atlantic K50151

Perhaps Steve Howe is having a wry joke placing the title track, not at the beginning of this record but at the start of side two. "Beginnings" is the best track on the album, not because it's an instrumental and the vocal tracks are weak, rather because it's a superb piece of music which shatters the usual "pop", "rock", "classical" descriptive music barriers that chain music down. It's a delightful composition that has been arranged by Steve and Patrick Moraz and there is evidence of a real understanding of orchestral composition. It's the only orchestrated item on the album — which is a pity because it's so good. Unlike an ex-member of Yes who has repeatedly attempted to write "serious compositions", Steve has a real ability to write a sustained melody that is both enjoyable and interesting. However, on this track I got the impression that he was going out of his way to avoid too simple a melody line, which I think is a small fault, because his ability with melody suggested he might be able to write something of magnificent simplicity. Guitar freaks will find another instrumental ("Ram") particularly fun. On this, Steve picks "clawhammer" style at a rasping Dobro with dipping, weaving lines that had finished up being a miracle of tight overdubbing. Most of the tracks are vocals, with Steve singing main vocals and harmony lines. He has an excellent ear and a pleasant, light quality to his voice but he stretches his limited range too much and in some vocal passages pulls melody into uncomfortable patterns that might be less comfortable from a voice with a wider range. Over the whole album (with the exception of the instrumental tracks) there's an air of abstraction that is present on Yes record-

ings. In this setting I find it irritating and detracting. Steve's lyrics are a little clumsy. "Break Away From It All", for example, is my favourite vocal track on the album and is a comment on the individual spirit's power to break away from an inherited social syndrome (autobiographical?). It's gently done, with some real feeling. But there's the odd word that sticks out which I find irritating, as though the right word couldn't be found and the Thesaurus supplied a synonym. The album gives greater insights into Howe's playing than all his previous work with Yes and the pedestal on which the guitar freaks have placed him is already starting to seem somewhat inadequate.

Recorded at Morgan and Advision Studios, London. Produced by Steve Howe and Eddie Offord, Engineered by Eddie Offord.

Ray Hammond

Rory Gallagher: Against The Grain. CHRYSALIS 1098

Rory Gallagher has suffered in the past from the old problem of not quite being able to transfer the charisma (no pun intended) from his live gigs to a studio. It's a problem common to many artists, and is borne out by the evidence that his live albums always score over his studio cuts. The *Live In Europe* and *Irish Tour* sets are among my favourite Gallagher albums, both of them live recordings, but *Against The Grain* seems a step in the right direction. Produced by Rory, it has all the ingredients that make his live shows the success they undoubtedly are, although the album is a studio recording. With his best band to date — Gerry McAvoy (bass), Rod de'Ath (drums) and Lou Martin (keyboards) — Rory plays and sings with more confidence than ever. Side one opens with "Let Me In", a powerful raunchy number that's fairly typical of Gallagher. At the end of the solo, he repeatedly bends a string up and down a tone until the octave sustain takes over — a neat trick and not particularly easy on a Strat. It's not only his playing that has improved, but also his writing and the general construction of the songs. The Blues influence is much in evidence throughout, but there's a lot of dramatic chord changes and melodic lead lines, adding extra substance and depth to the songs. Also on the first side is the jazzy "Cross Me Off Your List" with well thought out double-tracked guitar parts, the number ending in a spine-tingling harmony octave sustain. Bo Carter's "All Around Man" features Rory doing some amazing improvised scat-singing in unison with slide guitar. It's a pounding blues number, probably destined to be a Gallagher show stopper. Leadbelly's atmospheric "Out On The Western Plain" is a stand-out track. Double-tracked acoustic is the background for a pained vocal telling tales of Jesse James and Buffalo Bill, before slide guitar enters unobtrusively over the chords. Rory is one of our better guitarists, and this album is a joy to hear.

Produced by Rory Gallagher, engineered by Robin Sylvester, recorded at Wessex Studios.

Eamonn Percival



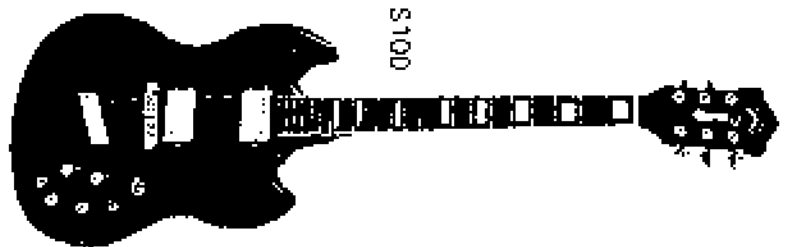
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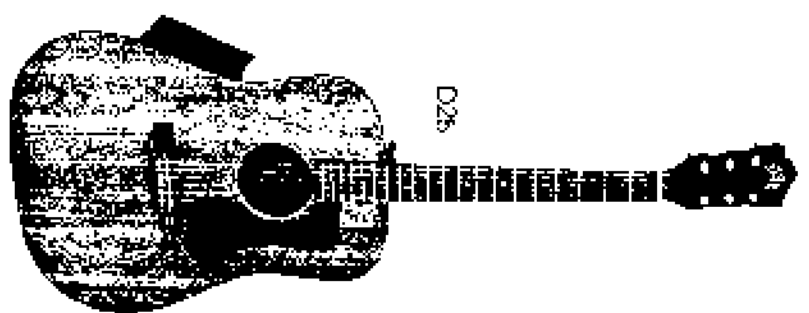
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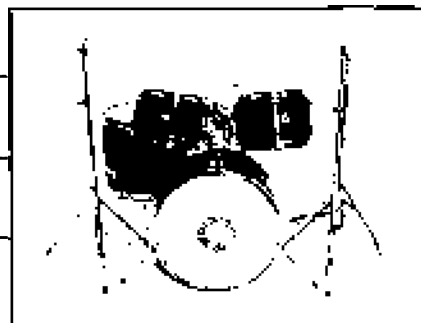


TEST ON: *Arbiter Auto-Tune*

DATE *November 1975*

PRICE *£642.40 Ex VAT*

TEST BY *Bob Henrit*



Over the past fifteen years, one person seems to have been almost solely responsible for dictating the popular taste of drummers. Ivor Arbiter's success has been astonishing to say the least. He started off in the 'fifties by importing an almost completely unknown German Drum kit from Hamburg. In a couple of years anybody who was anybody (and some people who were not) had one of Ivor's Trixon kits. The drums were extremely popular for five good years.

Ivor then became concessionaire for Ludwig, who by this time were fully prepared to crack the U.K. market. This coincided with the advent of the beat boom and Drum City were astute enough to steer Ringo Starr away from his Premier kit and on to Ludwig!

Ludwig were also fabulously successful with Ivor for five years. About 1966 Ivor seems to have woken up to the fact that the British drum industry was sadly lagging and could, with the right product, corner some or all of the home market for itself. Armed with ideas gathered over the years, Ivor and his team devised a drum set with a new look and a new sound. His round nut-boxes (which nobody outside America had seen before), American-style triple-flange counterhoops and revolutionary looking silk metallic finishes gave the new drums a distinctive look. More importantly, because their interiors were polyurethane sprayed, the drums had a very loud and very good sound. All of a sudden, here was a reasonably - priced drum kit with balls - and it was made in Britain! It couldn't fail and it didn't. Soon the Hayman Drum set (after George Hayman) was outselling everything in its path - not just in England, but all over the world.

The story becomes a little less cut and dried at this point. For roughly another five years, Hayman did absolutely marvellously until Ivor relinquished his partnership with the John Dallas Company, and moved off on his own to import Rogers drums from America. For one reason or another, they weren't ever seen to be as successful as his former ventures. Ivor Arbiter has again resurfaced with a revolutionary drum set which captures the imagination and shows all the signs of becoming another of Ivor's five year success stories.

The new Auto-Tune drums have been in development for the past two or three years and it's only now that the manufacturers consider everything good enough to begin thinking about production. Ivor Arbiter, as reported in these pages in August, got the idea for his new kit whilst looking at a pickle jar. After doing some experimental work on a Hayman snare-drum, he went to the Bournemouth School of Technology and told them what he wanted to do. The College came up with all the right answers and Ivor was back in business.

It's a little tricky to explain the principles of the Auto-Tuning technique, because it's an unusual percussion concept. Ivor Arbiter's own analogy comparing it to the pickle jar is probably the closest to the truth. The shell of the drum corresponds with the glass jar, the drum rim with the jar's metal securing ring, and the plastic drum head with the glass lid.

Briefly, the drum is tensioned by a screw thread running around the edge of the drum, and another running inside the rim. The two threads mate and as the rim is screwed down in a clockwise spiral, the head is tightened against the shell.

However, instead of threads we have several pairs of rollers, spiralled evenly around the shell of the drum and set about an inch or so from its edge. These pairs of rollers are one inch apart horizontally and roughly

an eighth of an inch apart vertically, but each set is placed slightly lower clockwise than the one before it. This simulates the thread on a bolt. The counterhoop itself in this case simulates the nut, albeit a very large one. Inside the counterhoop and at the bottom are fixed several small flanges, protruding at right angles into its centre. These flanges correspond to the rollers and locate tightly underneath them. The very lowest of these flanges is actually a rack of 21 horizontal teeth which meshes with a cog or pinion with 14 teeth, which is fixed to the drum shell within a housing. Thus the rim can be moved round laterally clockwise to increase the head-tension simply by turning the pinion in a clockwise direction.

One complete turn of the pinion would move the rack along 14 teeth about two inches or so, which is enough to tension the head substantially, roughly equivalent to about three or four full turns on a conventionally tuned drum. These ingenious flanges are spot-welded on to the turned six-flanged rim. The rack is conveniently rivetted to the rim in case it should be necessary to replace the mechanism. It's a very sensible idea, this, since there's an awful lot of pressure and friction on the rack and pinion and wear will be inevitable. Each different diameter drum has a specific number of these screw thread flanges which are situated underneath the five tuning screws - more of these later. The 12" drum has five flanges, the 13" and 14" six, the 16" has seven and the 22" bass drum has eight.

The fine tuning screws were fitted to compensate for wrinkling of the drum head when lateral tension was applied. Arbiter told me that drum-heads aren't of uniform depth from top to bottom around their circumference. This is of course irrelevant on a conventionally tuned drum because you can compensate for any discrepancies with a little extra tension on the tuner nearest to the wrinkle. However, with the Auto-Tune system, it's more difficult since we would have to increase tension all round to remove the wrinkle. This would of course mean that the pitch of the drum would go up substantially too.

The American square-head pattern fine tuning screws are sensibly longer than usual and screw through the counterhoop which is tapped to weave onto the fine-ring of the drum-head itself just above its "U" shaped metal rim. Since heads aren't supposed to be subjected to heavy pressure at this point, Arbiter has devised a thin dished ring of metal which goes over the glue-ring inside the counterhoop and protects it from damage. I'm not too sure of the longevity of these de-wrinkling screws, as there wasn't a very substantial thread through the 16 gauge counterhoop. However, the manufacturers assured me that after a plastic head has been de-wrinkled, it's no longer necessary to maintain the tension at the fine-tuning point since the "wrinkle" will have stretched forever under strain. It is possible, I discovered, to tune the drums by ear in the conventional way by taking the head close to the pitch required with the ratchet and then tapping in front of each of the five tuning screws until they sound the same.

The shells are made from moulded fibreglass and because of their shape are made in two pieces which are glued together later. A piece of "glass" is put inside a former or female mould and then some resin is painted on to shape and harden it, more fibreglass and resin are added until a wall is built up. This is exactly the same way that fibreglass sports car bodies and boat-shells are made. The present shells are made to a gauge which gives seven ounces of "glass" per square inch.

Originally the shells were made one sixteenth of an inch thick which resulted in a sound which was too much like ordinary plexiglass drums. This was not the sound the manufacturers were looking for at all and

they thought it lacked projection. So they doubled the thickness of their shells, "roughened" the insides and fitted a reverse flange.

The shell itself is shaped in such a way that it fits into a standard size plastic head. To accommodate the screwing mechanism there is a one inch shoulder about an inch and a half down from the rim. The drum shell proper then begins. This means of course that a 14" head diameter drum actually has a shell of 16" in diameter and so on.

Bass Drum

The 22" bass drum had a very solid sound with both heads on but with one head removed (in seconds) a really authentic funky sound resulted. It wasn't even necessary to put any extra padding in. The drum comes fitted with Rogers spares and tom-tom holder and the fibreglass has been thoughtfully made doubly thick underneath these fittings. Because of their shape it is impossible to fit the foot-pedal directly to the rims of the drum, instead a rectangular piece of fibre glass is bolted directly to the shell and any make of pedal will fit onto this. The drum has eight fine-tuning screws per head and two tuning ratchets placed on the right hand-side for ease of operation. It's child's play to get a decent sound from this bass drum. One first adjusts the batter head to the required tension with the ratchet and then the front head by ear to round out the sound, all the while playing the drum from the normal position. What could be simpler?

Tom-Toms

So far the only available sizes are 12" x 8", 13" x 9" and 16" x 16" but evidently they're working on a 14" x 10" which should be available soon and also a 14" x 16" which evidently has an amazing sound. The company also plan 6", 8" and 10" tom-toms for the future which I think is a great idea. The drums had a very strong sound and were simple to tune and much more tonally accurate than normal drums. The smaller drums both had Swivomatic holders on them and as on the bass drum, there was a double shell thickness underneath these fittings. The floor toms had Rogers "Knobby" fittings for its hexagonal legs. It's necessary to support the suspended tom-toms with your free hand when tuning them with the ratchet. Otherwise, damage to the shell could result. It really does seem to put an alarming amount of strain on the shells when the drums are tensioned but Carl Palmer says that the drums can definitely take the strain. We shall see what we shall see.

Snare Drum

A good sound, but perhaps a little difficult to get used to if you normally play a metal shell drum. It really does seem to have its own particular sound, completely different to anything I'm used to. At present the drum takes a 14" head with a 5" shell, but a 6 1/2" shell model is on the drawing board at the moment and should be ready next year. I found the rim-shot sound to be a little unconvincing but I think familiarity would probably breed content. The drum is fitted with the very positive Rogers Dyna-Sonic snare strainer, a Rogers damper on the batter head and a 20" strand Rogers snare which settles neatly into an extra long snare bed. This drum has its two tuning ratchets placed diametrically opposite each other since the shell isn't deep enough to put one below the other, as on the other drums. We fitted a C.S. head to this drum and although it was more difficult to tune out the "wrinkles", the result was definitely superior to the sound produced by the Ambassador head.

Accessories

All of the accessories with the exception of the snare drum stand are made by Rogers U.S.A. and as such have been well tested over the years. The Hi-hat stand is the Rogers "Supreme". It's a centre-pull, adjustable spring model which has a larger bore top tube than is normal. This tube has sensible grooved indentations pressed into it to locate the height adjustment screw. Because of this its probably the most sturdy model now on the market. It's fitted with Roger's famous top cymbal clutch which I have personally never had too much success with, but I suppose it works well enough.

The bass drum pedal is Rogers' Swivo-matic model with a one or two piece foot-plate and more than enough three dimensional adjustment to keep you happy (or unhappy) for days. I've had one of these pedals for years now and to be quite honest have never really found time to adjust it to its optimum efficiency. (I can't believe it works properly at the moment.)

The tom-tom holder is ostensibly Rogers normal Swivo-matic double-holder but it has been cleverly improved by Arbiter. The screws which lock and unlock the ball and socket mechanism have had their heads made larger. They're now the same size as the pinion nuts on the tuning mechanism. This may be of dubious benefit. Although it's more convenient to have the nuts on the kit all one size, it could result in too much torque being put on these tom holder screws and they could sheer off as a result. All of the Collets have been completely sleeved with nylon and this means that the hexagonal rods on the kit are now held much more firmly. Normally the rods are held by the nose of the Collet but Arbiter's improvement means the whole of the Collet grips them. The spurs too are Rogers disappearing and they also have this plastic-sleeve innovation. Full marks to the development engineers: it's a much more positive system.

The cymbal stands supplied are Sampson II, three stage, high rise models with Roger's justly famous and positive ball and socket fitting mechanism.

The snare drum stand I saw was very difficult to evaluate since it was both a hybrid and a prototype. Basically it's a non-adjustable basket-type stand which actually bolts on to the drum itself. For my money it's not a very good idea, since this way the stand transmits the sound vibrations from the shell down to the ground and deadens the sound. I tried the drum on an ordinary stand and I'm certain the sound was somehow brighter and more open. Unfortunately, a normal stand will not take the strain of the force necessary to tighten the ratchet without the drum and stand toppling over. However, I would do most of my tuning with the drum off the stand and only put it back on for the final tensioning on the fine tuner-screws. The supplied Arbiter stand had an ingenious fitting mechanism; it can only be described as an off-centre rotating clutch with a camber. As you rotate the drum, it changes the angle of the drum. Strangely enough the system works really well!

Ivor Arbiter has certainly succeeded in getting the drum world talking about his new innovation. So much so that Billy Cobham has been corresponding with the company and is evidently very anxious to get hold of a kit. It's a bit premature comment on stress and strain in the shells but, as mentioned earlier, Carl Palmer had a snare drum for a week and played it constantly. He claims to have given the drum six months wear and tear in a week and subjected it to the sort of hard tension normally only pipe band drummers use. Most people would find it impossible to play on a drum tuned this tightly! Before each practice session he took the batter head off and then put it back together again just to make it more difficult. The Auto-Tune drum evidently came through with flying colours. Personally, my heart was in my mouth when I was tensioning any of the drums, but the manufacturers say there should be no problems if you obey all of their rules. The drums must always be tensioned in a downward direction for reasons now obvious to me. I would like to have heard the drums with C.S. heads on them and I think it would make a lot of difference overall. I can't understand why the heads weren't fitted in the first place, especially since they have a more modern sound than the Ambassadors. It also occurs to me that the Auto-tuning system would be the perfect vehicle for an all metal drum set - certainly as far as the snare drum is concerned.

It's very difficult to criticise such a new development since there are no real guide lines, but the Auto-Tune drum set is not a gimmick. It is probably the most logical development in percussion since the plastic head and possibly since the rope-tension tuning system.

Conclusion

TEST ON:

Roland SH-3A Synthesiser

DATE

November 1975

PRICE

£400.15 Ex VAT

TEST BY

Bruce Gibbs B.Sc.

If you are prepared to spend time and effort learning to use the SH-3A, this versatile and very flexible instrument will do your slightest bidding. Every control on it gives an extremely wide area of adjustment and even a small movement on any control, assuming it's in circuit at the time, will cause a clearly discernible change in the Roland's sound or behaviour.

Like all good synthesizers, this one has the three basic essentials. A Voltage Controlled Oscillator. (V.C.O. for short), a Voltage Controlled Filter. (V.C.F. for short), and a Voltage Controlled Amplifier. (V.C.A. for short). It also has three very low frequency oscillators used to generate the vibrato, tremelo, growl and other effects and one of them is used to drive the "Random" and "Semi-random" pitch selection unit (Sampler).

In addition, a noise generator giving "white" or "pink" noise is included in the instrument.

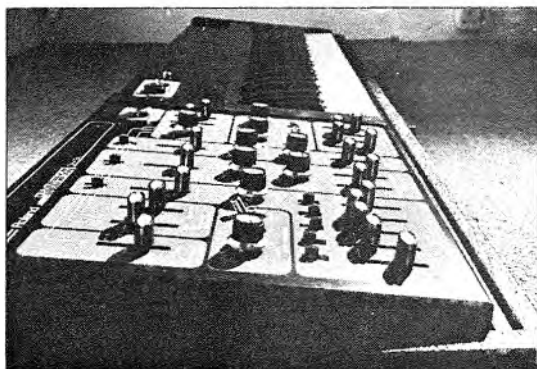
FACILITIES

- 1) One 44 note ($3\frac{1}{2}$ octave) keyboard.
- 2) V.C.O. The signal source is a voltage controlled "Function Generator" which creates three different waveshapes, each being rich in harmonics. The signal is passed through a series of "Divide by Two" networks which make available a total of five octave ranges per note on the keyboard. Each "Octave" has its own volume slider and its own waveform selector switch. Any combination of these is acceptable.
- 3) V.C.F. From here the signal is passed to a voltage sensitive tone filter with a cut-off frequency slider which adjusts the pitch and a resonance slider to control the "Q" of the filter and cause a peak to occur just below the cut-off frequency. This exaggeration of the high harmonics gives a very wide tonal range to the filter. This can be programmed to change automatically by setting the "Envelope" switch to wave length and adjusting the sensitivity control to the desired level. The effect is similar to that created by a Wah-Wah, Cry-Baby or Race filter but automatic in operation, the exact effect being also dependant on the waveform chosen, the octave range(s) selected and the settings of the two filter sliders.
An interesting side effect with this type of V.C.F. is that, when the resonance control crosses over the cut-off control, (is set higher than the cut-off), the controlling signal breaks through and causes resonances in the filter which, at the output end, sound like a Swanee Whistle. This sound is fairly consistent in its behaviour and gives a quite attractive effect, which is obviously why it has not been muted.
- 4) V.C.A. The enveloping of the waveforms is done with a voltage controlled amplifier which is, in its turn, controlled by four sliders:
 - 1) The Attack Speed.
 - 2) Speed of Decay from the Attack level to the rest of the note.
 - 3) The Sustain Volume.
 - 4) The Release time.

A selection of preset enveloping settings are also available on the "Enveloping" control.

These positions are:

- a) "ADSR - being the initials of the sliders, gives normal manual operation.
- b) Preset Violin/Trumpet mode.
- c) Pizzicato/Percussion mode (Preset).
- d) Preset Organ mode.



Pye Studios from page 71

equalisation, so at a reasonable volume, you can hear the same curve at a certain point in each room. This means we don't get people saying 'I don't like this room, it's not as good as the other one.' It's a gamble that's paid off because we can get a reasonable sound without too much aggro."

Pye Studios also make up all the interims for Precision Tapes. "We've got a guy called Kim Shaw who's really into programming and mastering cassette and cartridge duplication," Howard explained.

"I'd also like to emphasise the fact that we have a very good maintenance department," he added. "It's so important. Machinery is so complicated now, you've got to have somebody who knows the ins and outs of it. I can't remember the last time we had a breakdown. I insist that all the machines are lined up every morning and if there's something wrong with

one of them, then it's got to be fixed fast. We have a technical staff that can handle it, so we don't have to call the distributor out to mend it."

Pye have always been thought of as a middle-of-the-road studio, but things should soon change when the new plans are completed. "We're going to aim to please everybody. One of the problems is that we are too often identified with the record company. I think also that outside people have been a little nervous about using us, but the fact is that we guard other people's product even more jealously, because a mistake can only happen once and you're finished. We all work hard and so I've no qualms about the future. We can, I feel, always offer a good product at a reasonable price without aggravation.

"If the customer comes in, he wants a good job doing. The time's booked and it's a case of 'You're on, mister'. There's no room for messing



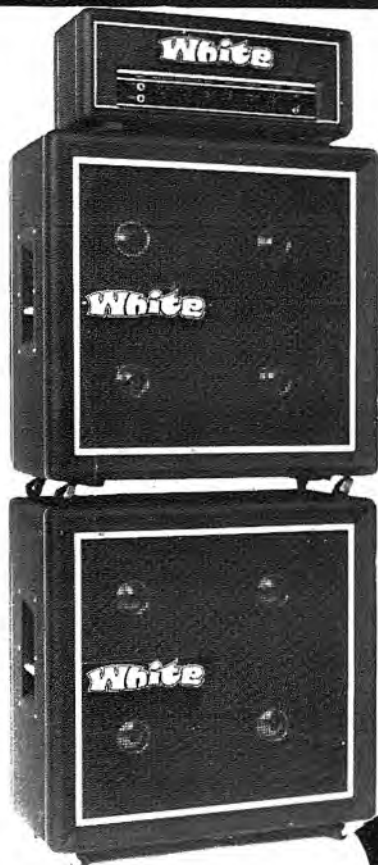
Studer two-track machine

about. It's got to be taken very seriously."

According to Howard, the most important thing in the success of a recording studio is professionalism. "It is so important," he stresses. "The main thing is to be in a situation where the customer can walk out happy with what you've done, and happy to have worked here. It's like when you go to a restaurant, you want good food, good service and you want to walk out satisfied. Basically, we are a service industry."



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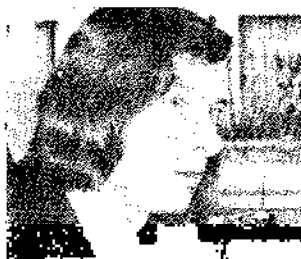
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A "Hold" control over-rides sliders 3 and 4 and holds the note indefinitely at the volume to which it is set. By transferring information voltages from the V.C.A. to the V.C.F., the automatic (Wah-wah) facility on the filter is triggered by each new note played on the keyboard. Should you not wish to trigger the filter, just play in a legato manner and no trigger pulse will be generated. Thus, complex passages can be phrased and single notes accented without resorting to knob twiddling.

EFFECTS

Tuning A tuning control allows overall tuning over an interval of approximately nine semi-tones on the synthesizer we tested.

Octave Transposition This switch has three positions, giving a central (loco), an "up" and a "down" one octave position for all the voices. This is in addition to the five octave sliders available at the V.C.O.

Portamento The ability to slide or glissando up or down to the next note is very useful and the Portamento knob adjusts the time it takes to reach the new note. Most stringed and windblown instruments have a natural facility for portamento of some sort or another, so it is essential to have this effect available if you are intending to synthesize these instruments (or a human voice) effectively.

Glide A manually operated, short time duration, one semi-tone only, upwards only preset version of the portamento is also included.

Noise "White" or "Pink" at whatever volume you require. By having a VCF/OFF/VCA switch, you can decide whether you want the filter to modify both the musical note and the noise or just the musical note.

Low Frequency Voltage Controlled Oscillators The Vibrato, Tremelo, Growl, Vibrato Delay and Phasing facilities are all controlled by two very low frequency oscillators built in as effects units.

Three waveforms are available:

- 1) Sawtooth, a reiteration effect.
- 2) Square Wave, an off/on/off/on effect.
- 3) Sinewave, a Tremelo or Vibrato effect.

The various effects controls can select which waveform is used to drive which effect by means of three triple-position switches.

Vibrato The Vibrato control introduces pitch variations of the V.C.O. at a speed set by the Low-Frequency Oscillator's "Rate" slider and by a pitch interval set by the amount of Vibrato selected.

On the sinewave mode, it sounds like ordinary vibrato, on the Sawtooth, a little like an American Police siren and on the squarewave, like a twin-mallet marimba playing in intervals defined by the vibrato slider.

Tremelo This is similar to the vibrato, except that it works purely as a volume variant.

Growl This effect is one of the many facets of the V.C.F. It enables you to trigger the filter from low frequency oscillator signals instead of doing it from the keyboard's trigger pulses. It can also create the growl a flautist can get from his instrument, switch-clicks and buzzing noises.

The trigger mode can be selected by means of a second "Envelope" switch which selects the V.C.F's behaviour characteristics.

Chorus This is a phase-shift effect with a sweep speed controlled by the eight Chorus knob and only works on the eight range of voices.

This can give a very realistic "Leslie speaker" effect or make a good reverberation sound when used in conjunction with the "Release" slider.

Volume A master Volume slider is included.

A random and three semi-random "Note selection" Sampler modes are available:

- 1) Off. (i.e. You play the keyboard).
- 2) Scales up and down;
- 3) Scales slowly up and quickly down;
- 4) Scales quickly up and slowly down;
- 5) Random.

A sample "time" control sets the speed at which the sampler operates by means of its own (the third) low frequency oscillator. A level control sets the top note to which the sampler will operate. Thus you can set for long or short scales.

These include an Off/On switch, Red Indicator LED, (no fuse was evident from careful external examination), eight feet of mains cable, complete with a moulded-on two-pin American plugtop, is wired directly into the instrument.

POWER CONTROLS

A jacksocket for the amplifier cable with a three position volume switch labelled H, M. and L. is located at the rear of the instrument, and an earphone socket with its own volume control is also located at the rear.

OUTPUTS

A steel, chromium plated music rack, and lid for the instrument are included in the price (complete with lock). A padfull of "Memo" sheets with a drawing of the control panel comes with the instrument, making it easy to take accurate notes of the setting of any new or favourite sound. A pedal to control either the V.C.O. glide or the V.C.F. cut-off frequency is available at extra cost.

ACCESSORIES

Separate jack sockets are fitted for each of these pedal facilities, so two pedals could be used if required.

40" x 12 $\frac{3}{4}$ " x 6".

SIZE

32 $\frac{1}{2}$ lbs.

Weight

9 watts.

Power Consumption

117v., 220v. or 240v. AC @ 50/60 Hertz.

Voltage Selection

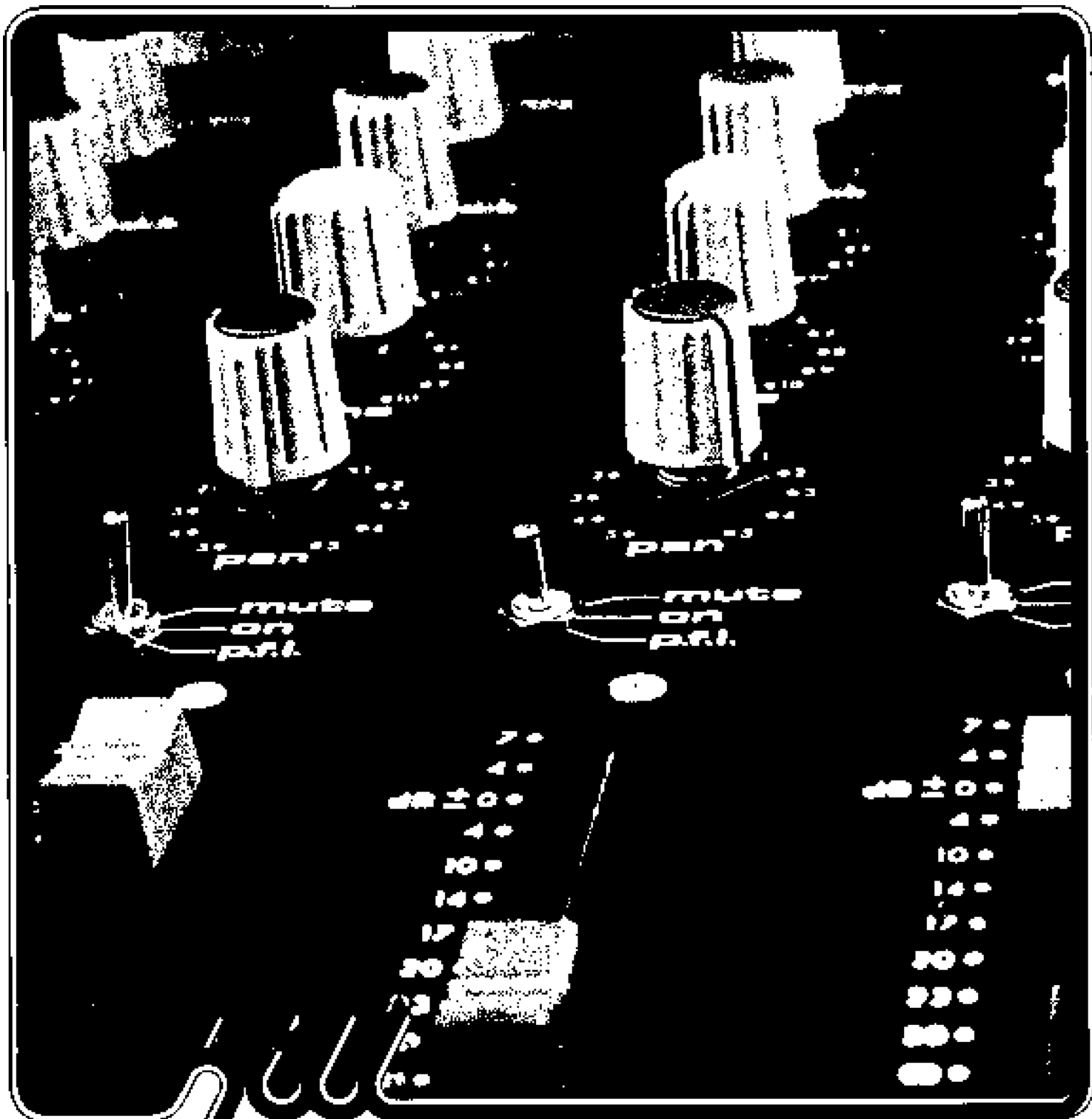
Some players may find this synthesizer too complicated for ordinary on-stage use but it is certainly a beautiful and very flexible studio machine. Bigger knobs and longer sliders would have made operating the SH-3A much easier but I can see the advantage of giving each and every control lots of range.

COMMENT

The background noise and interference levels were very low indeed, which is why I think this device was built especially for studio work, or possibly as a dual purpose machine. The Roland Corporation of Japan also make an on-stage synthesizer with presets and much simpler controls, but a loss of flexibility is inevitable as a result, so we have a swings and roundabouts situation where one has to trade versatility for practicality.

It is very disturbing to see a new product appear which has no visible fuse and no earth connection via its main power cable. These points are too serious to be overlooked and they mar an otherwise well built, well designed and strongly constructed instrument. On the credit side, a nice feature, is the extra V.C.O. tuning control on the rear panel which allows one to set the tuning knob on the control panel to zero and adjust the V.C.O. to concert pitch. The ability to calibrate an instrument is very useful indeed.

In my opinion, the Roland SH-3A Synthesizer is a very good keyboard instrument, not likely to be prone to annoying little faults and well worth its price.



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registers: Piano - Clavichord - String Section registers:
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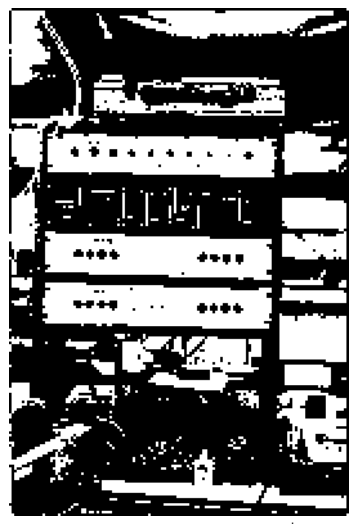
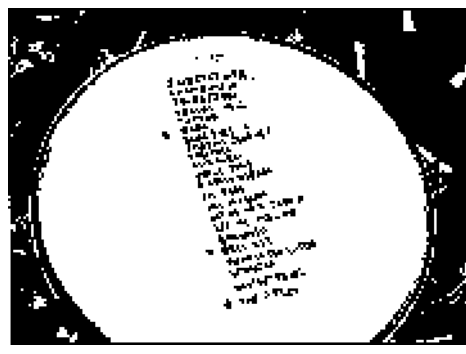
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ON TOUR WITH THE



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A row of small, repeating text or logos along the bottom edge of the page.

WHO'S ROAD CREW

I.M.'s Eamonn Percival humps gear for the Best Band in the World

The new Bingley Hall, Staffordshire, was the place The Who chose to kick off their first British tour in nearly two years. Situated on the huge Staffordshire Agricultural Showground just off the Stafford-Uttoxeter Road, the hall is a giant 8,000 seater usually used for cattle shows, but ideal for a band like The Who and their massive Marshall Equipment Hire P.A. system.

The whole sound system was transported up to the gig with the road crew on Thursday night. Most of it was set up on Friday morning, the day of the first gig (The Who were to play two consecutive nights at Stafford). My journey began at Friday midday, when MEH's Joe Brown, his wife Barbara, Ken Fleg, (the brains behind the Gelf desk which I'll be detailing later) and I started out from MEH's base in London's Mile End Road. We arrived at Bingley Hall at three and a check was carried out to make sure everyone had done their jobs correctly. The mixing desks were set up on a scaffolding halfway down the hall and overlooking the stage, which was built to The Who's road crew's specification. The P.A. system, as usual, was set

continued on page 36



from page 35

ON TOUR

up on either side of the stage, with one section stacked on a scissor lift at either side, and raised to a height slightly above that of the P.A. stack.

By five o'clock, the Steve Gibbons Band had just about finished their soundcheck, and all was going well. Various members of MEH and The Who's sound crew were scuttling round the hall, listening intently to the sound in the gigantic auditorium. Massive queues were forming outside, and their patience was rewarded at 7.50 when the doors opened. They were still pouring in by the time the Steve Gibbons Band came on stage, and they gave the band a rousing welcome.

Bob Pridden, the man who does The Who's monitor mix, was busy behind his desk on the side of the stage, hidden between the P.A. stacks and the onstage monitors. As well as mixing the monitors for The Who, it was Bob's job to handle the monitor mix for the Steve Gibbons Band for this tour.

Halfway through the Steve Gibbons Band's set, Roger Daltrey strolled about backstage and eventually perched on an empty flight case at the side of the stage to listen to the band. They have recently been signed up to Daltrey's Goldhawk label, hence Roger's fatherly interest in them. The set finished at 9.00 p.m., and what seemed like hundreds of roadies immediately converged on the stage to remove the Gibbons Band's equipment, replacing it with The Who's.

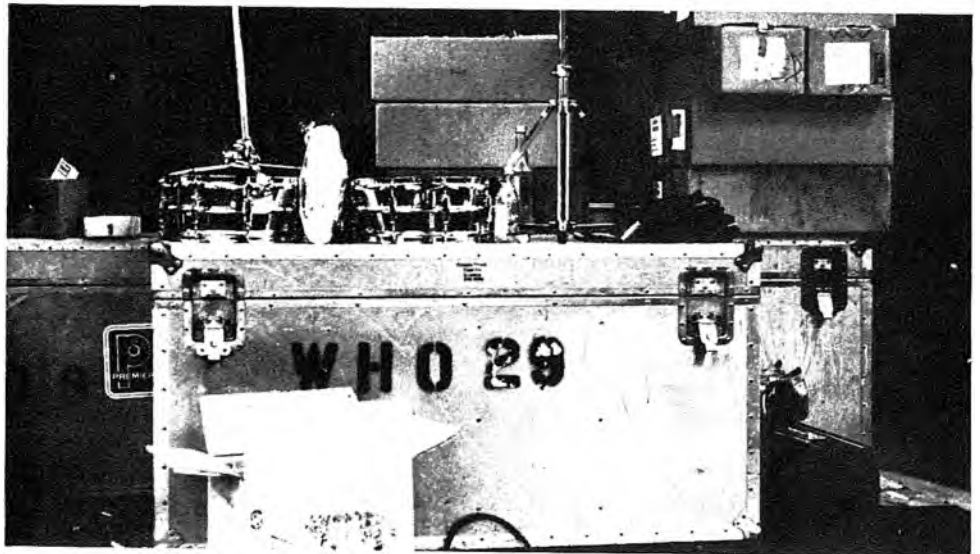
Keith Moon uses so many mikes on his kit that a separate mixer had to be used to mix the Steve Gibbons drummer's kit to avoid complications in setting up a different system of mikes. Entwistle's and Townshend's stacks and Moon's gigantic kit were set up on risers behind the band with coloured lights underneath, so virtually all of the stage had to be rearranged before The Who came on.

Promoter Harvey Goldsmith appeared onstage for five minutes and tried to get everyone to sit down. Under the circumstances, he managed very well. The front half of the hall was thick with Who fans, virtually sitting on top of each other, while the back half of the hall was arranged into seats, although most people were standing on them.

At 9.30 p.m., Daltrey, Townshend, Entwistle and Moon ran onstage, completely destroying Goldsmith's efforts to calm the crowd. Moon hammered the drums, Entwistle thumped out a bass line, Daltrey shouted "Hello", and Townshend thrashed out the opening chords of "Substitute". Coloured stage lights and glaring follow-spots burst into life, as did The Who. They followed with "Can't Explain", "Squeeze Box" and "Heaven And Hell" at what seemed like deafening volume from the front.

This is where the problem comes in for the sound crew. With each member of the band playing at such a high level, the vocals must still be able to cut through without feedback. Not only that, but the band need to hear what they're singing through the monitors.

"Baba O'Reilly" followed and Bob Pridden was, by now, really working frantically. The number starts with a taped synthesizer played through two large monitor stacks behind the band, and Bob has to have the track already cued in before the end of the previous number. Moon wears headphones during the "tape" numbers, and the synthesizer track is cued in

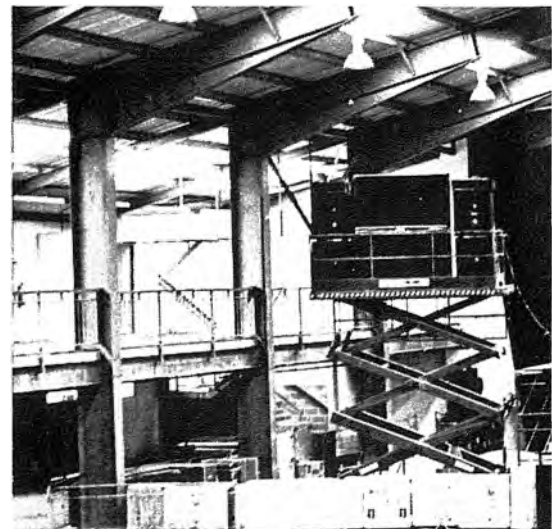


with a "click" on the tape which is fed through the cans, but switched out of the P.A.

Eight songs from "Tommy" followed, climaxing with the "listening to you" section of "See Me, Feel Me" at which point, five giant spotlights rose from the back of the stage trained on the audience. They carried on with "Drowned", "Bell Boy" and "Punk" from the "Quadrophenia" set, and it was during "Drowned" that the first real problem arose. In the guitar intro, Townshend stopped playing, turned to Moon and shouted "I can't hear, Keith!". The number started again, and all went smoothly. "My Generation", "Won't Get Fooled Again" and "5.15" ended a superb set, and the band trooped off stage arm in arm to the dressing room.

The time was now 11.15, and the press and most of the road crew converged on the bar. As The Who were there for two nights, the gear was left onstage and the show was discussed in detail. The problem which arose during "Drowned" was tracked to the fact that the drums and guitar stacks were on the riser about a foot above stage level, so it was decided to remove the platform for the following night's performance.

TOP The road crew loading up after the show
ABOVE spare snares on the stairs
BELOW The left-hand side of the P.A.



By midnight, the bar had closed and everybody left for the North Stafford Hotel. The hotel boasted 24-hour service, and so the staff were kept busy ferrying drinks in and out of the lounge, where various roadies, soundmen, and journalists sat around discussing the show. Daltrey and Entwistle were also there, laughing and joking with the road crew and wondering where Keith Moon had disappeared to. At 2 a.m., The Who's drummer turned up with four young ladies he'd met at a local discotheque. Wearing a floral smoking jacket, tapered Levi's and knee-length boots, Moon wandered round the lounge talking to anyone and everyone, while constantly sipping from a glass of brandy. Things started to warm up when he decided to do his Tarzan impression with the aid of a rather expensive-looking chandelier. The normally placid Entwistle also entered into the spirit of the occasion by tipping a vase of water over Bob Pridden, who retaliated by aiming the fire extinguisher at him. They encored by lifting a glass coffee table three feet into the air and dropping it, spilling glasses and bottles everywhere, and smashing the table to pieces. The fun over, everyone drifted off to their respective rooms to sleep for what was left of the night.

Everyone surfaced at midday for lunch in the hotel dining room and, after a hearty meal, left for Bingley Hall. While the crew set up the equipment, I decided to have a look at the amazing Gelf mixing console. MEH's Derek Dickinson explained "It's a 30 channel desk and you can record out from each channel. You can either send it before or after the Eq section, so you can get 30 in and 30 out. Then there's four effects send and returns on each channel, so you can put things in like a phaser or, as The Who are doing, a Wem Copicat, or a limiter, or a digital delay line. It's got ten sub-groups, of which 9 and 10 are quadrophonic, and there's a five-way crossover. Most desks have built-in reverb, but it's not really needed on this one. With the sends and returns, you can put anything in. Each channel has got full parametric equalisation (you can pick a frequency and either cut or boost that frequency,) and there's a high pass filter and a low pass filter as well.

"All the faders on the desk are Penny and Giles which are the best you can buy. They're used on the Neve desks. Obviously, each chan-

nel can be switched into whatever sub-group you want, and you can record out from the masters, which is after the sub-groups but before the masters."

The desk is the same one that was used for Frank Sinatra at the Albert Hall earlier this year, when the sound system was highly praised by both Sinatra and the press. It was designed by Joe Brown and Martin Birch, and put together by Ken Fleg. "It certainly is a very good desk," added Derek. "I do all the mixing for Bad Company when they're on the road, so I've used desks all around the world, and it's definitely the best desk I've ever used."

From my vantage point atop the scaffolding, I could see the full layout of the stage. The P.A. stacks at either side of the stage were split into two separate sections — one half was on a platform beside the stage, while another section was stacked on a Flying Carpet scissor-lift. The reason for this was to throw the sound out to the back of the auditorium, without deafening those at the front. The crew had almost finished checking the gear, so I decided to ask Bob Pridden about The Who's monitor system, and his role as sound engineer.

"With The Who," Bob explained, "I used to always have to mix the sound onstage, because the act relies on a lot of lip-reading between Pete and I or Roger and I. I've done masses of tours and gigs with other people when I've been out front mixing, and it's great. I did it once with The Who and I felt almost selfish. I like to be onstage beside the band because there's that much more contact.

"What I usually do is use two 4560 bins in a stack with a 2440 lens horn on the top of each one. We have two stacks on each side of the stage, so that's eight bins and four horns just for vocals. We also use three-way stacks for tapes. I feed them through their own separate system on stage, so it's almost as if there was someone up there playing. It gets a bit confusing at times but it's a lot easier than it was. Now we're using someone out front so I can concentrate more on what I'm doing. I used to have two Mavis mixers, a tape mixer, echo units on both systems and I really had to be like an octopus. It was getting a bit out of hand for me, and I felt as though I was cheating The Who, because someone must go out front. This is the first tour we've had someone out front, and it's working out really well, because I can concentrate on my own mixing.

"The desk I use is a Mavis 15 channel four out board. Groups 1 and 2 power stage left and right stacks on a stereo three-way crossover, and I cut it off at 6k, so we don't really get into the feedback problem. Groups 3 and 4 are for Pete and John's slant-back monitors respectively. You can't use a slant-back for Roger because of the way he swings the mike about. It would be smashing into the monitors or feeding back all the time. Also, we have two monitor outputs on the board, one of which I use for a slant-back behind Keith, so he can have bass drums and snare through it. For the tapes, we use a mixer, which was built by Alice for us. It's got six main outputs, and I can cue up on cans without anyone hearing it. Two of the outputs go to the P.A., two go to the stacks either side and the last two go to Keith's cans. The machine is a four-track Scully and there's a Revox for backup, in case the Scully goes out."

Bob was interrupted by the arrival of John Entwistle, who wanted to check his bass set-up, so I wandered over to the stage to get a close look at the P.A. system. It's very tempting to just stack all the cabinets and horns together, but things have progressed since the days when two Marshall 4 x 12 columns would be enough to fill the Marquee. MEH had obviously put a lot of thought and planning into the system, and the bins and horns were positioned in such a way as to get the best possible sound reproduction.

The second gig was much better. The Who had obviously gotten into their stride and were much happier without the risers. They dropped some numbers like "Bell Boy", "Punk" and "5.15" and substituted them with a prolonged version of "Magic Bus", giving them all a chance to improvise over the basic Bo Diddley riff. Dick Hayes, the man out front slaving over a hot Gelf desk, was working hard on this number. Each time Townshend went into a lead break, the level of the guitar had to be brought up via the desk. It was miked up from one of Townshend's bottom cabinets, and out through as clear as crystal.

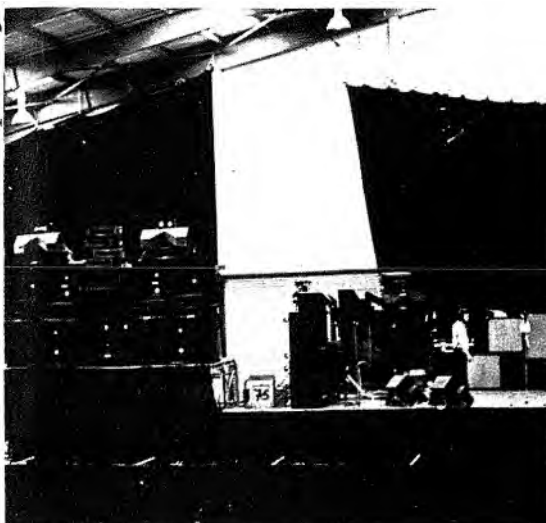
With the absence of "5.15", the last number was "Won't Get Fooled Again" — an ideal choice for a closer. With the dramatic blackout halfway through, it brought the show to a stunning climax. At the end of the number, Moon leaped over his kit and joined the rest of the band for an old-fashioned theatrical bow, before bouncing off stage to the relative calm of the dressing room.

While the band, press, security guards and police relaxed in the bar, the road crews set to work dismantling the gear. It was a gargantuan task. The scissor lifts had to be lowered and the equipment unloaded, the lighting gantries had to be taken down and packed away, and the mixing consoles had to be lifted down on a fork-lift truck from the scaffolding. All the bins, horns, and monitors were numbered and were packed very carefully into heavy-duty flight cases.

By 2 a.m., the stage had been cleared and the gear loaded into two trucks. The crew headed back to the hotel, happy with the two gigs. A meal awaited the workers when we arrived back at the hotel, and eight of us sat up until 6 a.m. discussing the gigs, the excellent sound system and The Who. As the sun came up, everyone headed for bed looking forward to a day off before travelling on to Manchester for the next two gigs. The general feeling was one of complete satisfaction in a job well done. The crew were pleased, the audience were pleased and, perhaps most important, The Who were pleased with the first part of their 1975 British Tour.

Details of the Marshall Equipment Hire sound system employed by The Who at Stafford:

4 x Showco long-throw bass bins
 8 x JBL 4560 1 x 15" bass bins
 4 x Roy Clair 2 x 12" mid-range cabs
 8 x JBL 4550 2 x 15" bass bins
 12 x JBL 2350/2482 mid-range radial horns
 8 x JBL 2395/2482 mid-range lens units
 4 x JBL 2356/2440 mid-range/long range radial horns
 12 x JBL 2345/2420 high-range radial horns
 24 x JBL 075 high frequency transducers
 25 x Crown DC300A power amplifiers



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We wish you all the compliments of the season and look forward to a tremendous New Year.



Tony Zemaitis is among the better-known individual guitar makers in England. His customers include Eric Clapton, George Harrison, Peter Green, Donovan, Rod Stewart and most of the Faces. Clapton's famous "Ivan The Terrible" 12-string was built by Tony and is, apparently, his most prized possession. Between them, The Faces have over 20 Zemaitis instruments, which, in itself, is a pretty good recommendation.

Tony began his working life as a cabinet maker, working on top-quality furniture in places like Windsor Castle and St. Paul's Cathedral. He became interested in the guitar and, with his vast knowledge of wood, decided to build one for himself. "It wasn't brilliant, but it worked quite well," he recalls. He built others and gave them to friends, charging them just enough to cover the cost of the materials. His first "customers" were Davy Graham, John Baldry and Spencer Davis. "They were mainly 12-strings then," explained Tony, "and gradually more people started to come round and ask me to build guitars for them."

Soon, Tony was spending all his lunch hours and most weekends building guitars until he eventually found a job where he could divide his time equally between cabinet making and guitar making. When his boss went broke, Tony took the fateful step and decided to try and make a living building guitars. At first, he had to subsidise the business by doing other odd jobs, including boat-building and decorating, but Tony's guitars gradually caught on and his patience and skill were rewarded.

At first, Tony concentrated on acoustics and only began making electric guitars about six months ago. "I originally made the mistake of building a hollow-bodied electric, which fed back. I had to stuff it full of old socks and pillow cases to kill it off. I sat looking at the wireless one day and I thought to myself 'Well, that's got a metal grid so why shouldn't I do that with a guitar to keep all the extraneous noise down?'"

Tony brought out a guitar he'd recently finished to demonstrate his point. It was a fairly lightweight solid with a beautifully engraved metal front. "Technically, it's a very good thing to do," Tony explained, "because it acts as a common earth to everything. It started out as a bit of a technical exercise using metal fronts, but now it's ended up with some really intricately engraved plates."

Tony has also experimented with various shapes of sound-holes. "I started out making round holes like everybody else, but I found that they 'woofed', particularly on recordings. So I experimented and came to the conclusion that if you have a round hole, then it must be a big one. Otherwise, I put in a D-hole, a heart or an oval. Then you won't get that feedback that a circular shape will give. I found a D shaped hole is very successful for throwing a good spread. A round hole is almost directional at certain frequencies."

I wondered what Tony thought of mass-produced guitars. "When you mass-produce, you can have some very good instruments off the line, but you can also have some very bad ones. How do you differentiate the price? That really is my point. If you could up and down the price according to the quality of the guitar, then you would have a fairer way of doing things. But then, what is a good guitar for one person is a bad guitar for another. The standard isn't what I'd like to see but I do understand their problems. I think these days, people want to see something that isn't mass-produced."

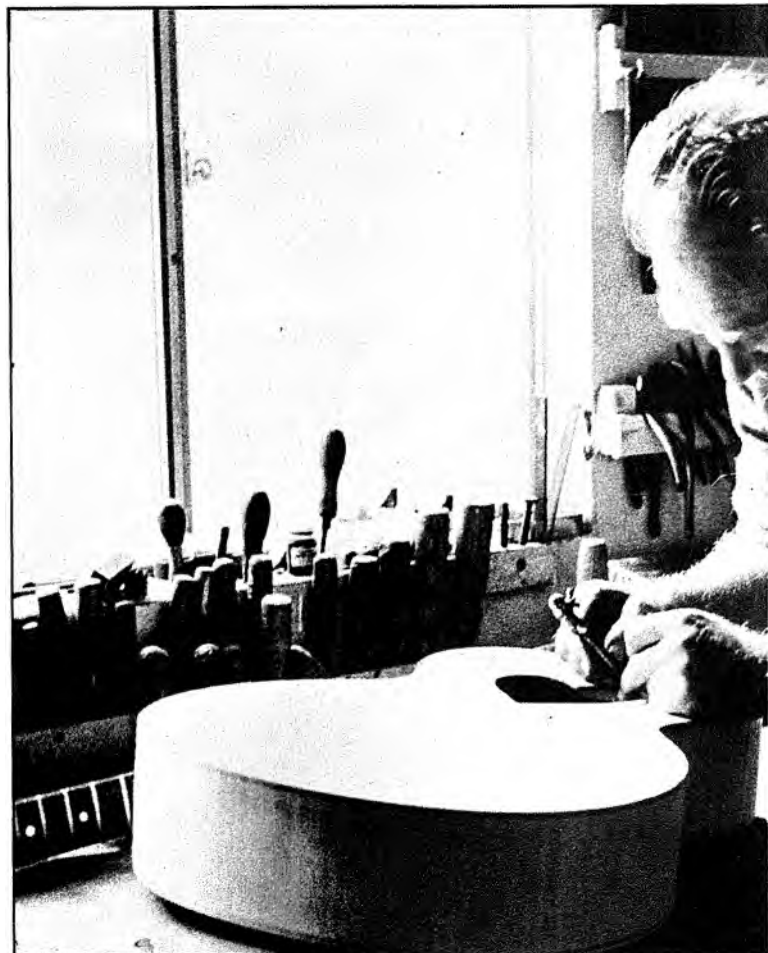
When Tony first started building guitars, they were purely experimental models. "I was teaching myself how to build them," he explained, "and I used to stick a label inside stating that it was an experimental instrument, and sold them off cheaply. But then people would tear off the labels and whip down to their shop and tell them it was a custom model. That upsets me a bit because people are buying my very early experimental guitars and paying much more than they're worth. I wouldn't say they were not properly done, but they are not up to the standard I'd use today. One good thing is that my guitars seem to get better with age, so a lot of the old ones that weren't particularly well-made at least sound O.K."

To enable the guitars to "weather" well with age, Tony chooses his woods very carefully. Either spruce, cedar or mahogany is used for the fronts. The backs are rosewood, maple or walnut, and the fingerboards are always ebony. He prefers to use Schaller machine heads because "they are well-made, nicely geared, presentable and they wear well. I've always found them to be of a consistent quality."

Tony prefers making acoustic guitars as he feels there is more

Tony Zemaitis

words and pictures by Eamonn Percival



skill involved. "I suppose I was pushed into making electric guitars, in a way," he says, "because that's the way music has gone over the years. In an electric, it's really just a case of making a good neck, and getting some good pick-ups. There's more of a challenge in building an acoustic for me."

Tony is now in the enviable position of having a backlog of orders. He is currently quoting three months for building a guitar but nine months for delivery. "It varies. If you were to order a guitar now," said Tony, "I wouldn't be able to start on it for another six months, and you would get it in about nine months. I get extremely busy at Christmas time, but as the summer comes on, people are more worried about holidays than guitars, so it does vary. I usually work on two guitars together until I've got to a certain stage, and then I start on another two. Then the first two will have dried off enough for me to carry on polishing them or whatever, so there's usually about four on the go. That's the trouble with a lot of the amateur boys. They can't afford to wait for the wood to dry properly, so they are really rushing things. Once you start to rush it, you'll get cracks and splits and warps and all sorts of things. For instance, on necks I use a four-piece splice. On the cheapest guitar I'll never use less than a three-piece splice. That way, if one piece wants to bend, it'll be held by the other two."

When approached by a customer, Tony takes everything into consideration to determine which type of instrument will be best suited. "What I like to do," he explained, "is to talk to the clients, get to know them, get them to play and see what they're capable of. I try and keep all this in mind when I'm making their guitar and, thank God, ninety-nine out of a hundred times, I come up with a guitar that really suits them. That's where I get my kicks — to see someone pleased with what I've done."

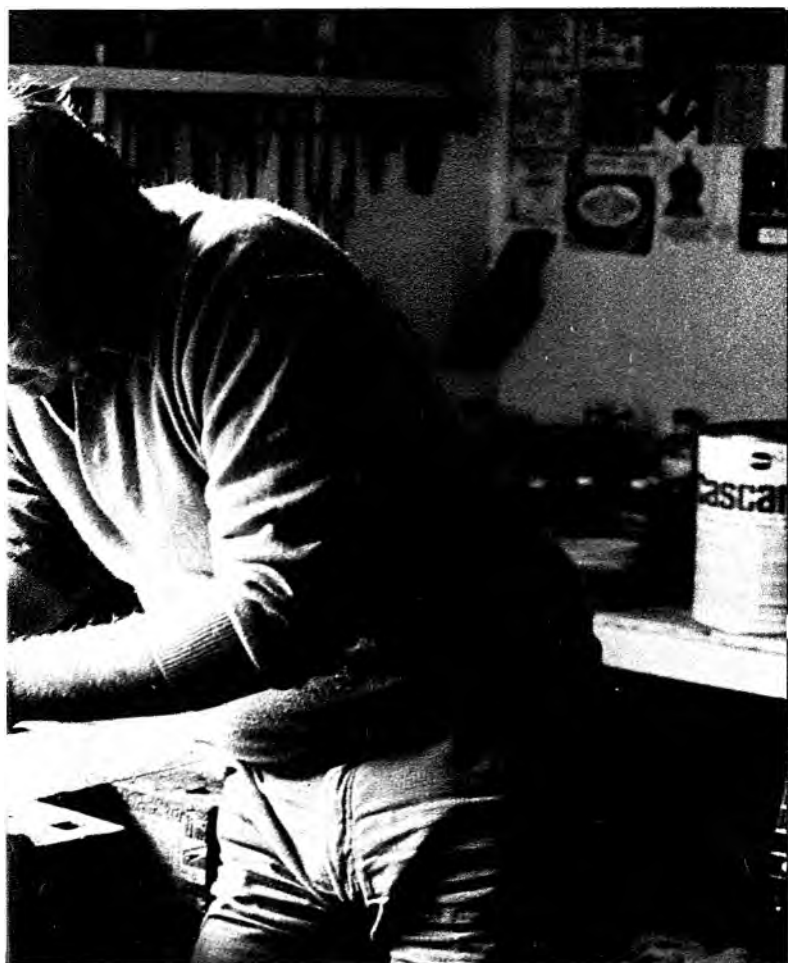
Of all the guitars Tony has built over the years, the one he made for Clapton gave him the most pleasure. "It was a giant 12-string called Ivan The Terrible, and it had a 26 second sustain. An American company tested the length of sustain and when they told me 26 seconds I couldn't believe it. I didn't set out with that purpose in mind when I built it. I thought it would sustain for maybe 17 seconds, which is still very good, but 26 seconds!"

I wondered how Tony worked out the shape on an acoustic guitar. "Well, there's two ways: visually and aurally. If someone wants a waisted guitar, then it's got to nip in at the waist, but then it starts getting a bit more technical. You decide what string length you want and how many frets, and that determines where the bridge is. At that point where the strings hit the soundboard, the lines of sound go along and hit the curve of the body and then reflect back at right angles to the tangent. You have to keep that going as long as you can, and if you trace those, you'll get the position for the bridge and soundhole, so as to get the best sound and tone.

"There again, tone is a very personal thing. Some people like a soft, pretty tone and others like a hard, strident tone. This can then be subdivided by different soundholes, strutting and timbers so you can get quite a variety of sounds from one particular shape."

Tony works to a standard string length of 25 5/8 inches from nut to bridge. "I do short-scale guitars as well, but a longer string length gives a better sustain. I've tried pre-amps and all sorts of things built into the guitars but I've come round to Clapton's way of thinking, of keeping it plain and simple. That was brought home to me when I had the first electric I'd built. It had two really cheap pick-ups and it was only a test guitar. All I had at the time was a little five-watt amp, and Clapton came round, plugged it in and I've never heard anything like it. He was telling little stories on the guitar — it was incredible. I wish to God he would record like that."

Tony used to build 35 guitars a year, but for tax reasons he now only builds about 20. "If I did more than that I'd lose money. Then again, I'm fairly satisfied with the way things have gone for me. I've had ten years of hard graft without a single holiday and now I'm just ticking over, and I can take it a bit easier. That's all I want. It's been a natural progression over the years, and as soon as people stop wanting my guitars, then it's time to pack it in." □



below: Zemaïtis electric with metal front

below left: A Zemaïtis 12-string

far left: Tony Zemaïtis working on a heart shaped soundhole



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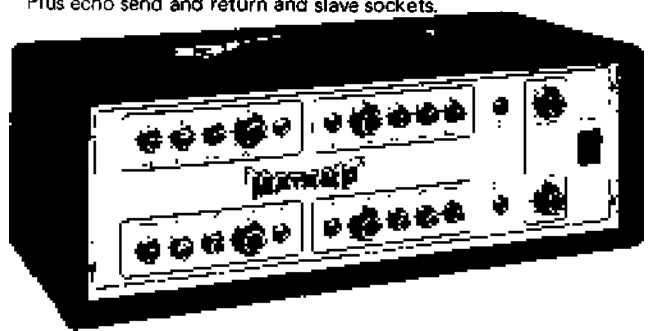
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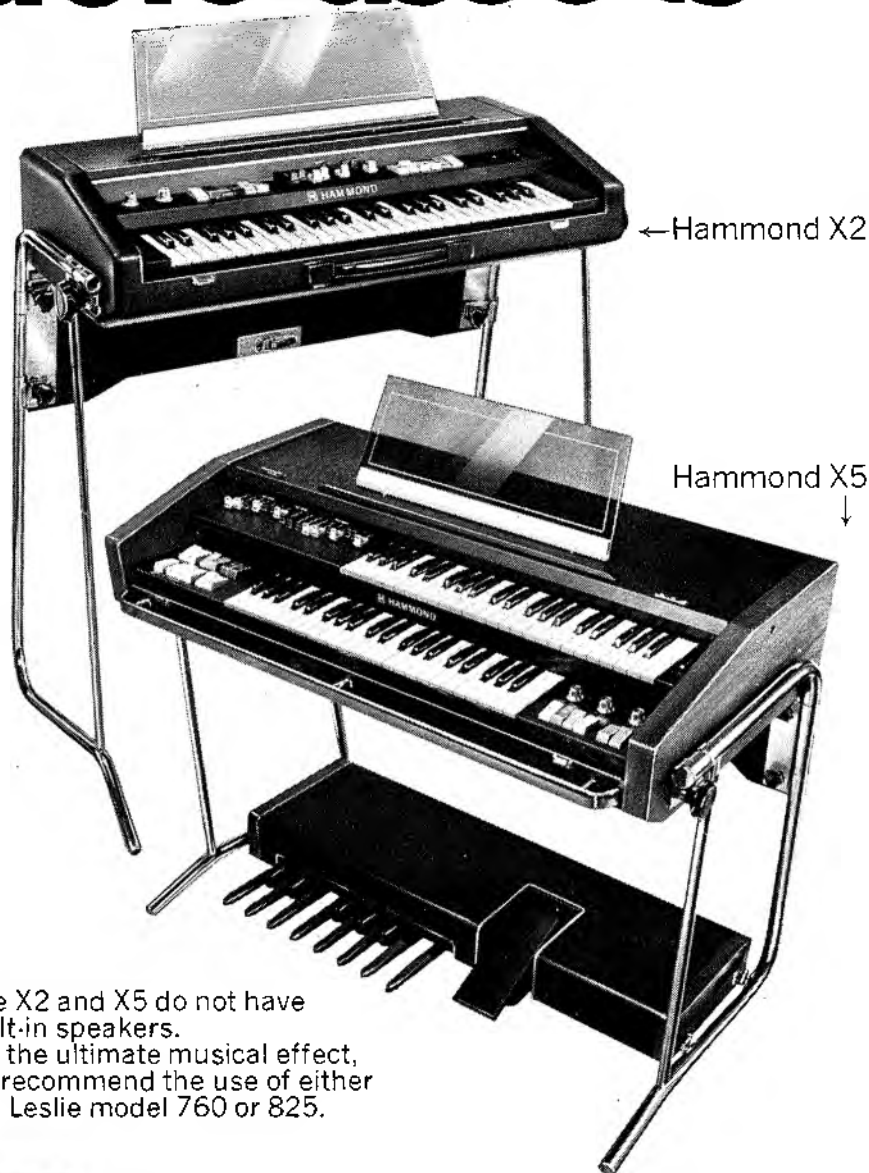
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Sound Centre Newport

"One of the most important things, as far as a musical instrument shop is concerned, is personal contact with the customers. You've got to be aware of what they need."

— Roger Jenkins, the man with his finger on the pulse of the South Wales music scene. Roger's story began twelve years ago when he decided to give up playing drums in a local group and open a music shop in Queens Street, Tredegar. Going under the name of The Sound Centre, the shop's trade flourished and, two years later, Roger opened a new Sound Centre in Taff Street, Pontypridd. Success followed success and, some three years later, yet another Sound Centre appeared in the capital city of Cardiff, in St. John's Square. This brings us up to date with the opening last month of the latest Sound Centre in Commercial Street, Newport, Monmouthshire.

It's a large, three-story building situated right in the centre of Newport and managed by Derek Morgan, himself an accomplished musician well-versed in brass and woodwind instruments. With plush carpeting and wood-panelled walls, the decor is, to say the least, impressive. "The ground floor is the showroom, the second floor will be for teaching, and the third will be our offices and administration, which is at present in Cardiff," explained Roger. The ground floor houses an impressive line-up of stock including Hayman, Slingerland, Olympic, Rogers and Pearl drum kits, Fender, Gibson and Rickenbacker guitars and no less than eight synthesizers. There is also an organ demonstration room at the rear of the ground floor, which boasts keyboards by Haven, Lowrey, Farfisa and Roland among others.

There is also an extensive range of sheet music in stock, ranging from Jim Reeves to Yes. "We do a good trade in sheet music," Roger mused, "Probably because there are a lot of cabaret and club acts around here. Actually, the

heavy rock scene is pretty grim locally. It's mainly trios, dance bands and solo performers."

On the subject of live music, Roger feels that the emergence of D.J.'s caused a major disruption. "About five years ago, D.J.'s came along and hammered live entertainment. They got popular because they played what people wanted to hear, but I think the trend is turning back to live music now. The D.J.'s just didn't progress and expand along with the business. What you've got to remember is that the business is dictated by trends. Like the Hammond organ boom in the 'sixties: all of a sudden, everyone wanted a Hammond organ because the trend was there. But I think that live music is definitely on the up and up again now, which is good for everyone in the business."

Roger caters for everyone, from the beginner to the professional. "We try to cover what people want. You've got to realise that, in the business, people start off not being able to play, so we stock student guitars and Stylophones at one end of the scale, and Les Paul Signatures and maple-necked Strats at the other end. If you want to be in the business for any length of time, then you have to diversify. There's a lot more to music than six strings on a guitar.

"The floor space is the selling area, so we're prepared to collect a lot of stock," Roger continued. "It's no good looking at catalogues. You've got to have the stock to back it up. Customers need to see what they're getting. I don't think there are many people who shop from catalogues any more."

H/H amplification is very popular at the Sound Centre, and Roger has an extensive range. "They are probably our best selling line at the moment. It's another trend in a way. They came along at the right time with the right shape and specification, and were big enough to back

continued on page 50



DEALER OF THE MONTH

Roger Jenkins

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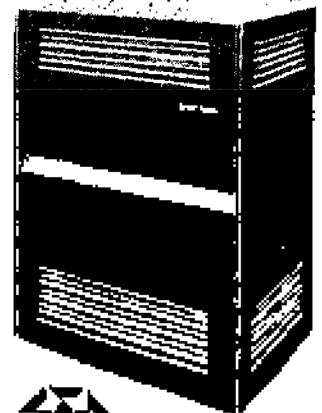
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from page 47

it up financially. There's better stuff on the market, but at about three times the price." Roger formed an import company four years ago called Sound Imports to bring in specialised equipment from abroad, so if anyone wanted a one-off job like a left-handed Rickenbacker Stereo Bass, it could be obtained quite easily.

Customer contact is essential as far as Roger is concerned, and most of his staff are working, semi-pro musicians. His day doesn't end at five-thirty, as he often goes out to see various acts around the clubs. "I'm prepared to work if customers have a problem. Sometimes I go along and just basically give advice on different systems. I like keeping my eye on the acts. It's good policy - they like it and I like it. Sometimes, if a customer phones in to say he's travelling down to the shop, we will keep the shop open for him. That's

what I mean about personal contact - we've got some customers who have been with us for ten years.

"You see, in relation to things like cigarette companies, airlines and things like that, the music business is very small. You have to keep an eye on what's going on. That's what people don't often realise. It's small and very specialised."

Although Roger deals with all types of musicians, his personal preferences are towards popular music as opposed to "pop" music. "I like people like Simon and Garfunkel. Basically, just good music. I don't really go in for this heavy, funky stuff."

In keeping with Roger's policy of catering for everyone, the Cardiff shop has school instrument hire facilities. "That's doing particularly well," Roger explained. "They hire an instrument for thirteen weeks to decide whether they will stick with it or

Sound Centre Newport

not. In fact, we did over 600 hires in September." The Cardiff Sound Centre also has a large workshop for repairs and instrument hire. "It's a very good workshop. We do a lot of club installation work from there, as well as repairs.

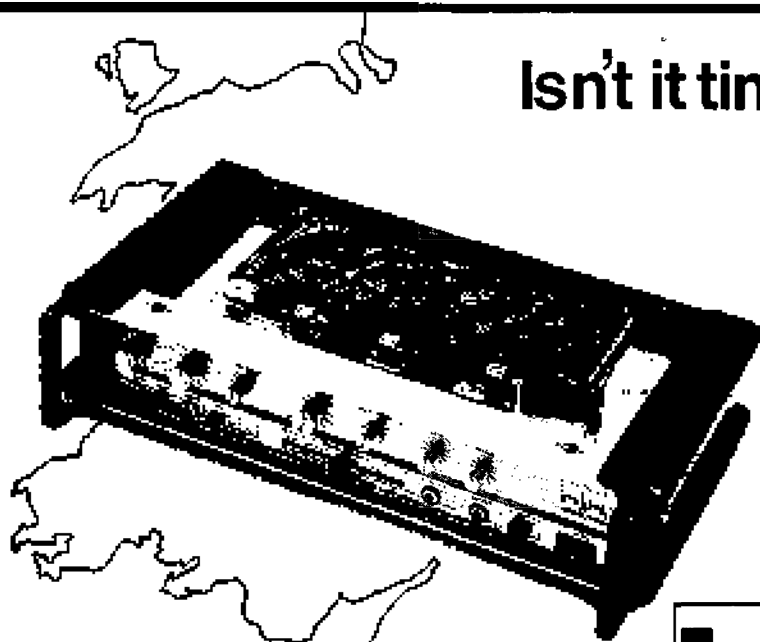
The thing is we don't discount like a lot of other shops. We concentrate on good service rather than offering all sorts of discounts, because you can't effectively do both. To us, service is of primary importance." □

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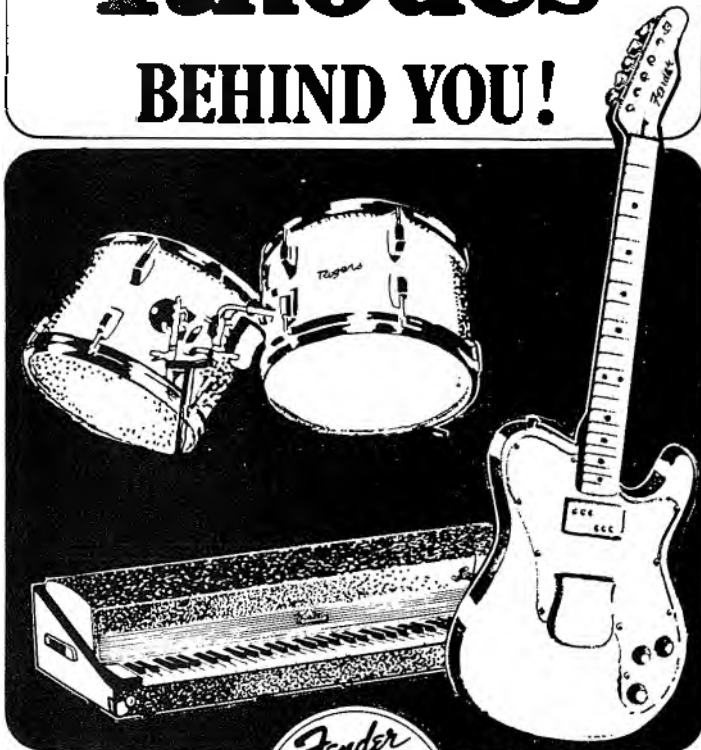
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National Gig Finder

From time to time, International Musician will be publishing a list of venues who regularly book bands. The following list is by no means complete, but is a cross section of pub, club and college gigs. We do not guarantee you will get a gig at these venues; this all depends on the availability of free dates, and the discretion of the contact at each particular venue. In the case of colleges and universities, the Social Secretary should be contacted. We will be adding more venues to this list and so if any readers know of more gigs, we would like to hear from you giving details of venue, address, telephone number, contact, nights of gigs and fees.

VENUE	ADDRESS	TEL.NO	CONTACT	NIGHTS OF GIGS	FEE
Scamps	Wollaton Street, Nottingham.	(0602) 43890	Alan Cottrel	T,W	Negotiable
Scamps	Abbey Street, Leicester	(0533) 28485	Malcolm Palmer	T,W,Th.	Negotiable
Scamps	Elmer Approach, Southend	(0702) 42882	Richard Morris	M,Th.	£20
Scamps	Crown Hill, Croydon	01-686 9295	Dave Hicks	M,T,W	Up to £25
Scamps	The Pithay, All Saints St., Bristol	(0272) 299120	Steve Winston	W.	Negotiable
Scamps	Anglia Square, Norwich	(0603) 27263	Jim Brown	W.	£25
Scamps	Eyre Street, Sheffield	(0742) 28403	James Clark	T.	£40-£50
Scamps	Stow Hill, Newport, Gwent.	(0633) 54234	George Aniszewski	3 nights	£15
Dingwalls	Camden Lock, London NW1	01-267 4967	Dave Goodman	M-S	Negotiable
100 Club	Oxford Street, London W1	01-636 0933	Roger Horton	M,T,W,F, S, Sun.	Negotiable
Red Cow	Hammersmith Rd., London W14	01-748 5720	Bill Rose	Nightly	£20-35
The Nashville	North End Rd., London W14	01-603 6071	The Manager	M,T,Th,F, S, Sun.	From £15
The Wellington	513 Archway Rd., London N6	01-340 4375	Mr. Charles	Nightly	£20 average
Nag's Head	63 London Road, High Wycombe	(0494) 21758	Mick Fitzgibbons	Th,S,Sun.	Negotiable
Hope & Anchor	Upper Street, London N1	01-359 4510	Fred Granger	M-S	75% of the door
Newlands Tavern	Stuart Rd., London SE15	01-639 0563	The Landlord	Nightly	From £25
Lord Palmerston	Kings Rd., London SW6	01-736 4501	The Landlord	Nightly	From £20
Golden Lion	Fulham Rd., London SW6	01-385 3942	The Landlord	Nightly	From £20
University of Aberdeen	151 King St., Aberdeen	(0244) 25810	Social Secretary	Varies	Negotiable
University College of Wales	Laura Place, Aberystwyth, Dyfed.	(0970) 4242	Social Secretary	Varies	Negotiable
University College of North Wales	Deiniol Rd., Bangor, Gwynedd	(0248) 3709	Social Secretary	Varies	Negotiable
Bath University of Technology	Claverton Down, Bath	(0225) 5828	Social Secretary	Varies	Negotiable
Queens University	University Rd., Belfast	(0232) 24803	Social Secretary	Varies	Negotiable
University of Birmingham	University Rd., Edgbaston, Birmingham	(021) 472 1841	Social Secretary	Varies	Negotiable
University of Bradford	Richmond Rd., Bradford 7	(0274) 34135	Social Secretary	Varies	Negotiable
University of Sussex	Falmer House, Falmer, Brighton	(0273) 64681	Social Secretary	Varies	Negotiable
University of Bristol	Queens Rd., Clifton, Bristol	(0272) 35035	Social Secretary	Varies	Negotiable
University of Kent	Canterbury, Kent	(0227) 65224	Social Secretary	Varies	Negotiable
University College	Park Place, Cardiff	(0222) 396421	Social Secretary	Varies	Negotiable
University of Warwick	Coventry, Warwickshire	(0203) 62869	Social Secretary	Varies	Negotiable
University of Dundee	Airlie Place, Dundee	(0382) 21841	Social Secretary	Varies	Negotiable
Heriot-Watt University	Grindlay St. Edinburgh	(031) 229 3574	Social Secretary	Varies	Negotiable
University of Edinburgh	South Bridge, Edinburgh	(031) 667 1290	Social Secretary	Varies	Negotiable
Exeter University	Devonshire House, Stocker Rd., Exeter, Devon	(0392) 75023	Social Secretary	Varies	Negotiable
University of Strathclyde	John St., Glasgow	(041) 552 1895	Social Secretary	Varies	Negotiable
University of Surrey	Guildford, Surrey	(0483) 65017	Social Secretary	Varies	Negotiable
University of Hull	Hull, Yorkshire	(0482) 42431	Social Secretary	Varies	Negotiable
University of Lancaster	Bailrigg, Lancaster	(0524) 3352	Social Secretary	Varies	Negotiable
Leeds University	University Rd., Leeds	(0532) 39071	Social Secretary	Varies	Negotiable
University of Leicester	University Rd., Leicester	(0533) 26681	Social Secretary	Varies	Negotiable
Liverpool University	Bedford Street North, Liverpool	(051) 709 4744	Social Secretary	Varies	Negotiable
University of Manchester	Oxford Rd., Manchester	(061) 273 5111	Social Secretary	Varies	Negotiable
Newcastle University	King's Walk, Newcastle	(0632) 23402	Social Secretary	Varies	Negotiable
University of East Anglia	University Plain, Norwich, Norfolk	(0603) 52068	Social Secretary	Varies	Negotiable
Nottingham University	Portland Bldg., University Park, Nott.	(0602) 56101	Social Secretary	Varies	Negotiable
University of Reading	Whiteknights Park, Reading	(0734) 860222	Social Secretary	Varies	Negotiable
University of St. Andrews	St. Mary's Pl., St. Andrews, Fife	(St.Andrews)2694	Social Secretary	Varies	Negotiable
University of Salford	The Crescent, Salford, Lancs.	(061) 736 7811	Social Secretary	Varies	Negotiable
University of Sheffield	Western Bank, Sheffield	(0742) 24076	Social Secretary	Varies	Negotiable
University of Southampton	University Rd., Highfield, Southampton	(0703) 556291	Social Secretary	Varies	Negotiable
Swansea University	Singleton Park, Swansea	(0792) 24851	Social Secretary	Varies	Negotiable
York University	Heslington, York	(0904) 59861	Social Secretary	Varies	Negotiable

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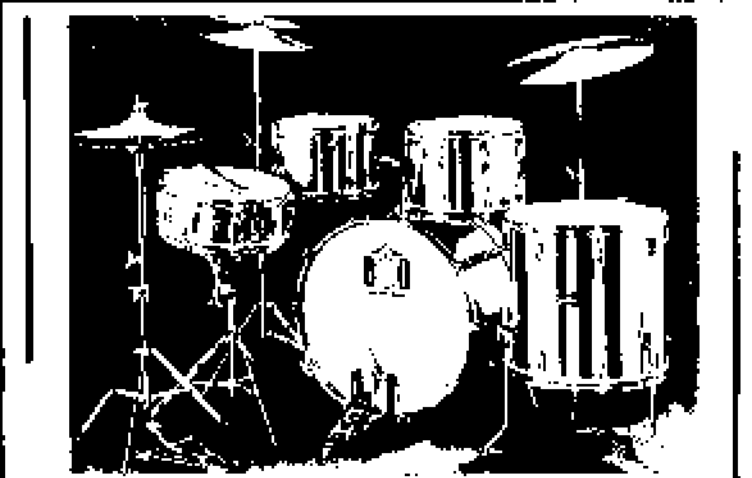
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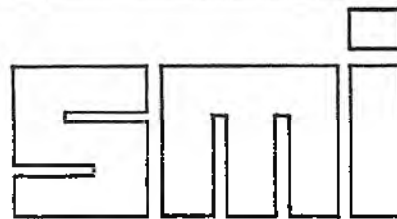
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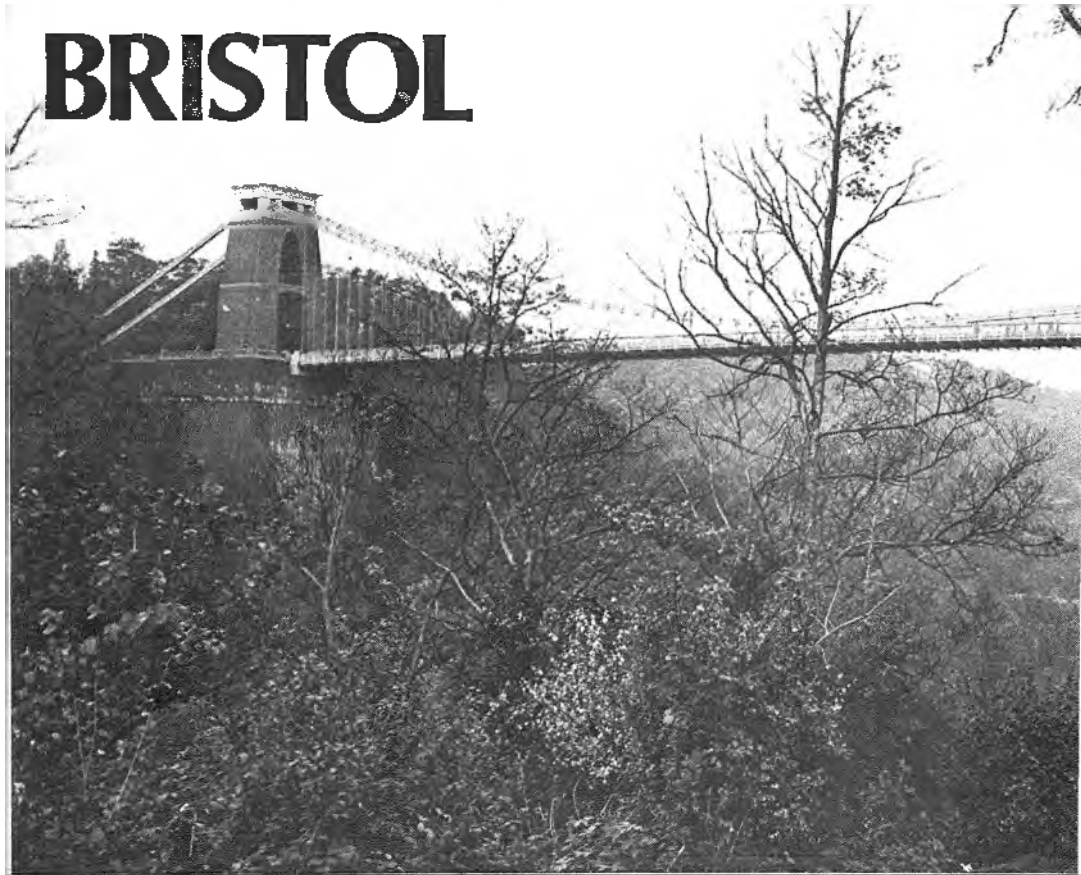
For some unknown reason, Bristol is a musical centre. There are more bands, music shops, recording studios and the like per square mile of the city than any other in Britain, with the exception of London. Historically, Bristol didn't have much to offer until the 12th Century and it's only mentioned in the Domesday book as being part of a greater manor.

In the last two centuries, the city has sprung to prominence first as a spa resort in the late 18th century, and then in turn as an important engineering centre in the 19th century (the Clifton Suspension bridge, The S.S. Great Western) and now as host to Concorde and the M4, M5 and M32 motorway complex.

Perhaps it's for this last reason that Bristol is popular with bands. There's not a great deal of work in the area, but it's a popular centre for bands to live in and the result is that the town manages to support 14 music instrument shops, three or four recording studios and several agencies and associated offices.

There's definitely a buzz coming from Bristol and here we've looked at some of the shops, a couple of studios and a couple of bands locals are likely to know. Our conclusion is that Bristol is a good place to be, geographically and musically.

BRISTOL



Like most cities, Bristol has its posh end. It's called Clifton (the suspension bridge took its name from the area) and it's reminiscent of the older parts of Bath. There wasn't a large enough move to the spa area in the 1780's to allow architects to build sweeping crescents, but the same Georgian elegance is visible in the long lines of white houses. In the basement of one of these houses is Mushroom Studio.

Mushroom (aptly named) grew almost overnight. One day a band leader called Dennis Mann moved to the area to play a residency at the Grand Spa Hotel. The next day he'd bought a house and was setting up a studio.

Dennis is one of these rare combinations — a practical musician. He's been into recording since the 'fifties and his musical career was greatly aided by his ability with tape machines.

To walk the quiet avenue that is West Mall, Clifton, is sheer pleasure and the pedestrian could saunter past the imposing facade of no. 18 without realising that just a few feet below there lies a fully equipped 8-track studio with such sophistications as a 16 channel mixing desk, Moog, and Mellotron. Mushroom is a monument to the hard work and endurance of Dennis and a few friends. Particularly important to the development of the studio was Danish technician Yens Languard who was working with Radford Electronics in Bristol until

"I've always been interested in recording," admits Dennis. "Even



when I was busy playing in bands. I was messing about with recording machines."

Mushroom is the only eight-track studio in the area. It's the perfect studio for local bands — and there's lots of them — to make either masters or demos and the studio is already very busy with work that ranges from voice-overs for Peter Scott's naturalist lectures to heavy rock sessions for hairy Welsh bands who charge over the Severn suspension bridge to lay down a few tracks.

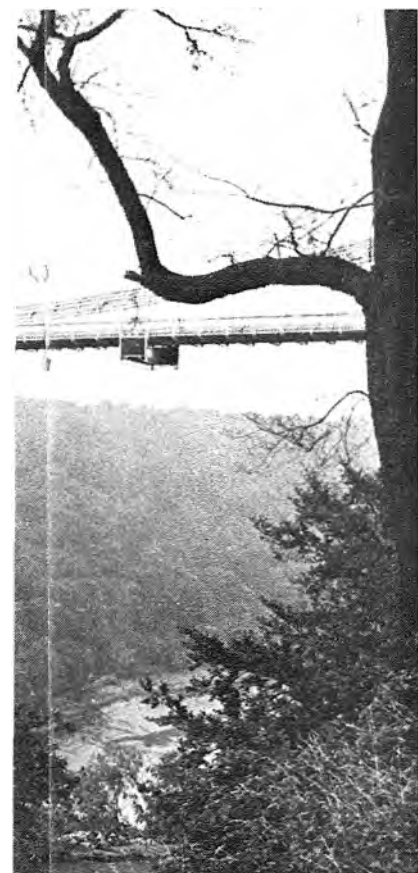
When Dennis moved into his house, the basement was a remnant of the "below stairs" kitchen and pantry.

"It wasn't very good acoustically when I arrived. We had to take some stairs out, put in a false floor, line the studio with acoustic absorption material and generally re-work out the acoustics. It's ended up with a really good sound — a little bass heavy maybe — but it's a sound that a lot of bands are looking for

and it's very easily controllable for other things."

Eight-track studios cost a few bob and — as with most things not financed with bought money — time has to substitute for hard cash. Today the studio has almost every facility the musician needs, but it wasn't always like that.

"I built the first mixing desk myself," says Dennis deprecating his action with a modest laugh. "It was from a circuit *Studio Sound* published and, within its limitations, it worked really well. The big step for me was buying the Lander desk. The desk cost £15,500 new and I got it third-hand. I then discovered it was noisier than the old desk I had built myself. I've been very particular about noise on all my equipment and Yens went over the Lander desk for me and re-designed the circuit using the old components to make it absolutely quiet. It's really amazing now, I reckon it's quieter than a Neve.



Left: Rick of Cabin, Above: Dennis Mann of Mushroom, Far right top: SMI, Far right below: Bristol Musical.



SMI only opened six weeks ago and it's already getting ready to brave the Christmas rush. "Just letting people know we're here is our main task," says manager Alfie Havvock, who has just returned to his home town of Bristol to head the new venture after a period of intensive training in Charing Cross Road.

First and foremost he's a player. He's well known on the Bristol Country and Western scene and he and SMI assistant Phil French are putting together a C & W act to take out to the people of the area.

Despite its brief existence, the shop is fully stocked and there's a mouth watering array of Gibsons, Fenders, the better copies, and Saxon guitars. Interestingly, there is also a wide range of percussion, keyboards and brass on show. Naturally, there's a fair amount of well-known amp names on display and the shop is slowly building up a second-hand selection.

Second-hand stock is naturally something of a problem for a new shop. "Most of our second-hand stuff will come as people part-exchange their old stuff for our new stuff. We've already got quite a lot of second-hand stuff in already and in a few weeks we should be well stocked.

Upstairs at SMI is a large, well designed shop where it's quiet enough to look at sheet music or try out a home organ. Downstairs is loud and heavy -- the place where the big amps are tried. Construction of a sound-proof room is under way and by this intelligent use of space SMI have found it possible to conduct a nice, gentle sort of "buy a recorder, Madam" passing trade, superimposed on a professional shop which can do a great deal on a 100 watt stack or a powerful P.A. system.

SMI's is in a highly competitive market. There's an awful lot of shops competing for Bristol's trade, but if SMI continue to work in the forceful way they have started, they're sure to carve themselves a large chunk of the action.

You've got to admire people who have a go. Alan Habgood and John Cannon, both well known on the Bristol Group scene, have recently set up their own independent recording studio in Backfields Lane, Bristol.

Tapestry Recording Studio is the brain child of John and Alan and offers the struggling musicians of Bristol a budget recording studio to get demos down at a price they can afford. The studio has a four-track facility and every item of equipment that could be expected for high quality demo recording.

The studio has only been open for four months and the opening followed months of frenzied activity on the part of John and Alan to transform an old suite of offices into an acoustically acceptable studio.

"When we first came here, the decay time went on for ever," recalled Alan. "We worked and worked and relined the walls, the ceiling and the floor but we were careful not to make the main studio completely dead. We wanted to keep enough life for brass and strings and that sort of thing, but we really made the drum booth dead."

There's room enough for around a dozen musicians in Tapestry Studios. Given enough notice, the Studio can arrange hire of almost any instrument and can easily lay on session musicians.

Both Alan and John have a long history of involvement with bands. John's been a musician in many of the local bands and Alan has looked after the technical side of things and they discovered they both shared a love of recording.

The two lads both worked on building sites for a long period to get their starting capital together. Today, their equipment includes a Teac four-track machine, a Hill mixer which has been specially prepared and modified for recording, echo machines, mikes and all the usual accessories.

Because foldback is one of the most common problems in a studio, Alan and John have taken



an adventurous step in having a ten channel foldback amp specially built for them. In this way, up to ten separate musicians can have foldback in their cans at whatever level they require.

Most of the sessions at Tapestry are evening and night jobs and between Alan and John they are able to offer a 24 hour recording service. Rates at Tapestry are £3 per single hour or £8 per day.

The success of Cabin's London shop tempted the company to open a similar operation in the South-West. After careful consideration, they chose Bristol. They believe it's the heart of the music scene in the area.

Cabin is very much the professional's shop. Situated in West Street not far from the city centre, the shop is piled high with heavy bass bins, mixing desks, h-f horns, power amps like Acoustics and Fenders, and a fair smattering of professional instruments like Fender guitars and Rhodes pianos.

The shop's approach is to stock high quality pro gear even if it's second-hand and a little tatty, rather than stocking the glossier semi-pro orientated guitar copies and small amps.

Friendly Rick looks after the day-to-day running of the outfit and his time is mostly spent organising the assembly of big P.A. systems for sale and hire.

Hire is an important part of the Cabin operation in Bristol. Because Rick has a background in the professional band circuit, he knows almost everything there is to know about gig hassles and when visiting or local bands hire from Cabin, he's able to get the show on the road quickly.

"We're a Fender ship rather than a Gibson outfit," he says, referring to the guitar side of things. "That doesn't mean we don't do Gibsons of course, but we're really into the American Fender scene."

Cabin is quite a meeting place for local musicians. There's a notice board that is crammed full of the usual "bass player seeks interesting position" type ads, and the shop is obviously something of a social centre for the bands who are a little light of work.

"We've got DBX anti-noise systems on the 3M and I've also got Dolby A's in case anyone wants to do a Dolbied reduction here, so we've got no problems on the background noise."

Monitoring in the roomy Mushroom control room is by a pair of Tannoy Gold speakers that are mounted in a pair of custom-built infinite baffle enclosures originally made for Magna Carta. The studio has plenty of room for musicians not actually on sessions or for friends just visiting. With the expansion of Severnside, Mushroom looks like it will continue to live up to its name. Rates are £10.50 per single hour and £8.50 per hour on a block booking basis.

There's an exciting new musical instrument shop in College Green, in the heart of the new part of the city. The shop is labelled simply SMI, after the other shops in the rapidly expanding chain which takes its name from the main SMI shop in London's Charing Cross Road (originally the older Selmer shop). It's exciting because it's the latest event on Bristol's bustling musical scene.

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from page 57.

The shop has been open since February of this year and it's no small indication of their success that there's so much stock it's difficult to move around the shop floor. The usual accessories like strings, picks, mike stands and so forth are stocked as well as the heavy stuff.

"There are very few fully pro bands working around Bristol," says Rick. "Quite a few are based here and work around the country and quite a few visit to play Colston Hall and places like that."

The shop is an Acoustic agent and in addition they're very keen on selling Fender and Hi-Watt. Space problems prohibit extensive ranges of drums and keyboards, but percussion names stocked include Rogers and Ludwig.

Bristol Musical has become one of the "Old" shops of Bristol. It was opened in 1969 and since that time energetic Brian Coombes has been striving to make it Bristol's number one shop. The small shop is well stocked with all kinds of guitars and amps and there's an established, helpful air to the place.

"When we opened in '69 we were just selling off old Vox parts," recalls Brian. "That was about the time that Vox ran into trouble and no one could get spares. We had a load, so we did great business until they ran out. Then we had to start selling other gear."

"It took a long while for the business to build up, I started selling my old gear in the shop and then it started to gather momentum." Today Bristol Musical has about everything in guitars and amps. There's a little percussion available — the odd Pearl kit's on show — and space unfortunately precludes keyboards.

"We do an awful lot of Gibsons and the better copy guitars," says Brian. "We love Hi-Watt amps and we do a hell of a lot of Marshall amps as well, but they're mostly second-hand."

With his assistant, Roger Pomphrey, Brian looks after equipment and instruments that include Hayman guitars, Fenders, Rickenbackers, WEM, Carlsbro and and they're kept constantly busy with their accessory bar which has a fantastic stock of strings by such makers as Gibson, Fender, Londonder, Rotosound, Ernie Ball and Sumbro.

Bristol guitar maker Geoff Gale does a lot of work through the shop. He's a custom guitar maker in the Tony Zamaitis, Stephen Delft school and his hand-made guitars have already found their way into well known hands. Several of his guitars are available in the shop and he conducts a lot of business on the premises.



Wisper's Lyndon, Robert and Will

"Another factor that helps is that there are a lot of schools in the area. The kids can nip in here for a crafty fag and try out the guitars without any bother. That way they get into the habit of coming into see us."

Bristol Musical do a fair bit of hire in addition to their normal retail operation. Most items in the shop can be hired and the shop also carries out a comprehensive repair operation.

Despite its strong local flavour, the John Holmes music shop at 219 Cheltenham Road, Bristol, is, in fact, part of a small chain that originally started in nearby Swindon.

The accent, as in all the John Holmes music stores, is very much on keyboards, and John Holmes himself is a practicing organist. The big news in Bristol is the Hammond X5 portable organ readily available from John Holmes who are a Hammond dealer.

Getting the Hammond organs franchise is no easy matter, and another chapter in the Holmes success story. The operation moved into Bristol at the end of 1973 and set up the keyboard showroom and a group gear shop called "The Gear Box" in a three-shops-in-one complex.

Paul Daffun is the manager: "We're very busy in both the keyboard and the group equipment shops most of the time. In the keyboard section we stock Hammond, Thomas, Yamaha, Lowrey, Farfisa, and Gulbransen and we can do some special items, like Conn keyboards. We also stock the usual specialist items and accessories like Leslie tone cabinets, and synthesizers by Moog, ARP and Roland."

The Gear Box has an equally wide range of equipment. Amps in stock include HH and Fender as well as most general makes, and a range of 60 guitars is usually in stock. Disco equipment is heavily featured and drum kits by Pearl and Rogers can usually be found. Very little of our stock is second-hand," says Paul. "The vast majority is new items. In the Gear Box the majority of customers are professional or semi-professional, but the keyboard section is a 90 per cent

home market, with organs like the Hammond X5 and the synthesizers being the instruments of interest to the professionals." The Bristol staff are Barry Stock — who (with Paul) concentrates on keyboards, and — Pete Stokes and Andy Skirrow look after the Gear Box. An important part of the Holmes Bristol operation is an attractive tuition scheme for customers. A six week course for beginners on keyboards (customers or not) is £5 and organ buyers get a free six week course.

Returning to Bristol after a hiatus of 12 years, Duck, Son and Pinker have extended their already considerable coverage of the West of England to again include its largest city. Their new shop, 6-9 The Arcade, is managed by Miss R. Jerrin. Numbers 8 and 9, formerly Whitcomb's Music Shop, features a self-service record and pop music shop, while the upstairs is devoted to educational music and instruments.

The ground floor of recently acquired 6 and 7 will house a keyboard showroom. All in all, Duck, Son and Pinker have a frontage of more than 70 feet. The experienced staff of eight have all either worked for other branches of the firm or have recently been trained in their shops. Mr. Brian Coles, joint general manager of Duck, Son and Pinker, remarked that "It is a pleasure to return to Bristol, and we hope to offer the same services to Bristol that we always have."

Wisper is an established name on the Bristol scene, familiar enough hardened groupies groan. The band's been around for a hell of a long time. Line-ups have come and gone, but the band goes on.

Persistence has won the band the respect of agencies and promoters alike, and for that reason they're lucky enough to be working more or less regularly.

One of the reasons behind that happy state of affairs is that the band are aware of the need to entertain rather than ego trip, and a large part of their repertoire is devoted to dancing music.

Europe has opened its heart to the band, and they regularly vanish to Germany and Holland to play extended tours. The work there is still as hard as it was in the 'sixties but there's nothing like it to get a group tight musically.

Vocalist Will Westlake explains the effect German touring had on him: "I first started in Wisper quite a few years ago and I've only just rejoined after a long lay-off — everybody leaves and rejoins this band. When I first went to Germany we had real stars in our eyes. We only played our own original material and we thought

we were going to be the next big thing. Working several hours each night, six nights a week got us together musically and we returned ready to be stars. Then there was nothing — followed by nothing."

"Now we play black music, good dancing music. We still do some of our own stuff, but we know how important it is to entertain." The current line-up of Wisper is Lyndon Parry, bass, Robert Williams, guitar, Will Westlake, vocals, Dave Dunster, Drums, Andy Wills, tenor and Airon sax and John Habit, tenor and also sax. The brass line-up does enable the band to get a tremendous driving sound in their stage performance and also opens up wide possibilities in arrangements of their own material.

"We've done a bit of recording at Tapestry Studio in Bristol, but not much else."

There's a real buzz going for Toby, the Bristol band who recently achieved an abnormally high winning score on New Faces and immediately convinced Mickie Most that he should sign them to Rak Records.

In an attempt to capture their own individual sound on record, the band have already made two separate recordings of the song that is destined to be their first single release. The "B" side of the single is a song written by the entire band.

Despite the fact they may be accused of hitting a bountiful hand, Toby are anxious not to be tagged a "New Faces band," as they find they are being billed "fresh from the New Faces show at the London Palladium." They claim that they are being re-booked on the strength of their act, rather than any TV exposure.

The band specialise in keeping dance rhythms going, and through their commercial approach, they ensure a full dates sheet. The band like to be known by their Christian names and they are, in the picture, (left to right), Brian, Wade, Jon, Mike, Dick, and (in front) Krysia.



Toby

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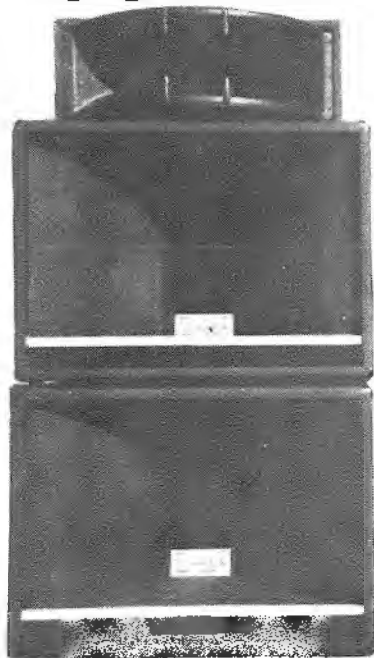
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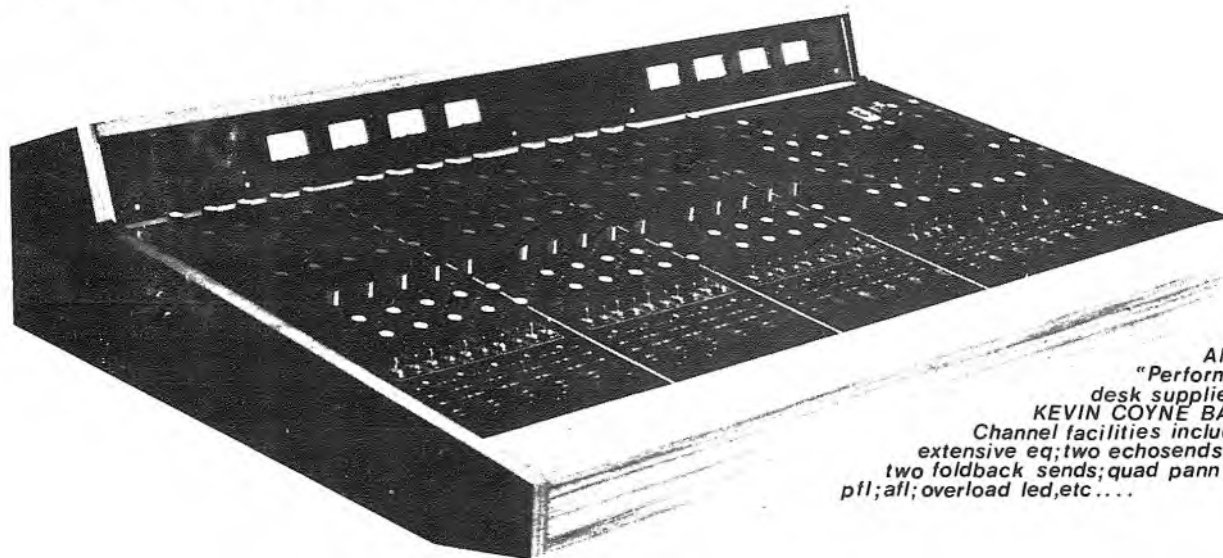
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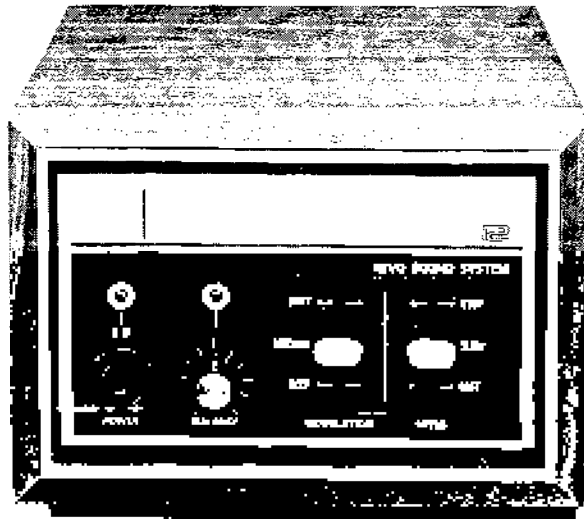
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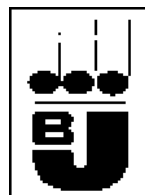
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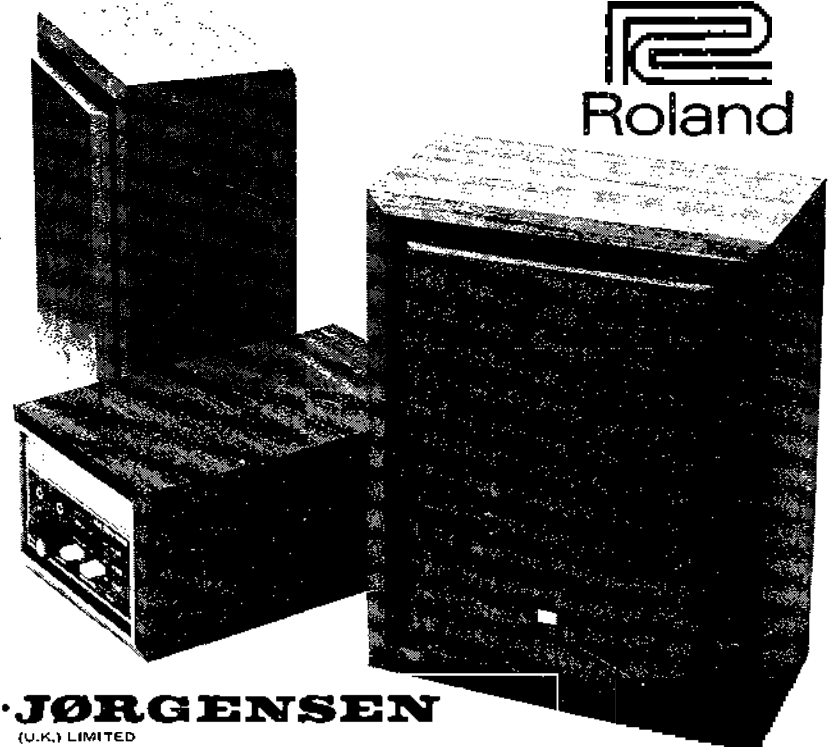
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STUDIO DIARY

ABBEY ROAD STUDIOS . . . Pink Floyd were doing a quadraphonic mix of their *Wish You Were Here* album with Brian Humphries engineering . . . Wings were recording, Paul McCartney producing and Tony Clark engineering . . . Kevin Ayers was in with engineer Peter Mew . . . Be Bop De Luxe were working on an album with John Leckie producing and engineering . . . Windsor Davies and Don Estelle were recording an album and single with Walter Ridley producing and Peter Vince engineering . . . The Spinners were recording an album with Peter Vince producing and engineering . . . Rinky Dink And The Crystal Set were in with engineer John Leckie . . . Pilot recorded a single with Alan Parsons producing and engineering . . .

BIRD SOUND STUDIOS . . . Victor Unit, (ex *Pretty Things* and *Edgar Broughton Band*) was working on an album for *Tank Records* . . . Playboys were recording an album . . .

CBS STUDIOS . . . The Sutherland Brothers And Quiver were recording an album with producers Ron and Howie Albert and engineer Mike Ross . . . Jonathan King has recorded an album for *U.K. Records* with engineer Dick Palmer . . . Sailor were working on an album for CBS with producers Jeffrey Lesser and Rupert Holmes and engineer Dick Palmer . . . Hello were recording a single with producer John Hudson and engineer Simon Humphries . . . Tammy Jones was laying tracks for an album with producer Robin Blanchflower and engineer Dick Palmer . . . Ian Orr was in for *Track Records* with producer Daniel Secunda and engineer Bernie O'Gorman . . . Juan Carlos Calderon was recording an album for CBS International with engineer Steve Taylor . . . Jeremy Neuson was recording with producer Mark London and engineer Mike Ross . . . The Vernon Girls were in for *Galaxy Records* with Mike Smith producing and Mike Ross engineering . . . The Bo'Flyers were recording for *White Dove Music Ltd* with Ivor Raymond and Ray Cane producing and Steve Taylor engineering . . . Gene Chandler was in for *Joda Enterprises* with Rabbit Bundrick producing . . .

EDEN STUDIOS . . . The Bay City Rollers were recording with producers Phil Wainman and engineer Mike Gardner . . . David Essex has been producing *The Real Thing* and Steve Collier, for the *T.V.* programme, *Supersonic* . . . Cirkus were working on a single with engineer John Etchells . . . John Reed of *Corus Music* was producing *Formula* . . . Roger Holman produced an album for a thirty piece orchestra . . .

GROSVENOR STUDIOS . . . Adrian Snow was produced and engineered by John Pantry for *Key Records* . . . The Alison Marklem Band was recording for *Pinnacle Records* . . . The Pathfinders were in with engineer John Taylor . . .

KINGSWAY STUDIOS . . . Leo Sayer was working on a single with Russ Ballard and Adam Faith producing and Louie Austin engineering . . . The Walker Brothers were doing some voice overdubbing with engineer Geoff Calver . . . The Sweet were finishing off a double album and single and doing some backing tracks for *Supersonic* with engineer Louie Austin . . . Eddie Hoydin was working on a solo single with engineer Paul Watkins . . . The Guys and Dolls were working on vocal overdubs . . . The Chosen Few were recording for *Polydor* with producer Tony Ashfield and engineer George Sloan . . . Engineer Louie Austin was in Germany for two weeks recording a new album for Ian Gillan, with Roger Glover producing . . . Louie Austin recorded the live performance of *Butterfly Ball* at the *Albert Hall* . . .

LANDSDOWNE STUDIOS . . . The Rubettes were recording a single and album with producer Wayne Bickerton and engineer John Mackswith . . . Roger Whittaker was recording for an album with producer Dennis Preston and engineer John Mackswith . . . Mac and Katie Kissoon were working on a single for *State Records* with Wayne Bickerton producing and David Baker engineering . . . Dave Clark was producing a single for John Christie with engineer John Mackswith . . . Zero were in for *Bell Records* with Mal Lucer engineering . . . Mike Batt was recording with engineer Robert Butterworth . . .

MAJESTIC STUDIOS . . . Rick Parnell, (ex *Atomic Rooster*) was recording an album with his new band Stars with Dave Hadfield producing and engineering . . . Jigsaw were recording a single with producer Chas Peate and engineer Roger Wilkinson . . . Johnny Waklin recorded a new single with producer Steve Elson and engineer Derek Chandler . . . The Lonely Blue Boys were finishing off three albums for Iceland with engineers Roger Wilkinson and Richard Austen . . .



Genesis at Trident.

ORANGE STUDIOS . . . Engineers Keith Allen and Steve Churchyard have been recording backing tracks for *Supersonic* with Arthur Brown, The Blue Jays, Paul Kinane, John Miles, T. Rex and Dean Ford . . . The Hollies were working on a single with Kenny Lynch producing and Keith Allen and Steve Churchyard engineering . . . Jimmy Haynes was laying some tracks for an album . . . Panama were recording . . . The Realistics were recording a single with Mark Worrey producing and Keith Allen engineering . . .

PHONOGRAM STUDIOS . . . Roy Wood was recording with engineer Peter Olliff . . . Dave Fanshawe was working on an album with engineer Peter Olliff . . . Carl Wayne was recording with producer Simon Mey . . .

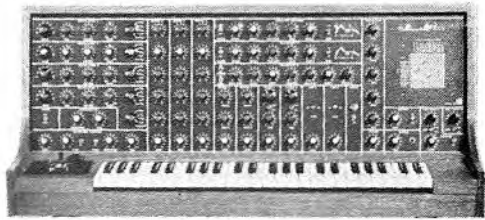
R.E.L. (EDINBURGH) . . . Cafe Jaques were recording some tracks . . . Tom Mitchell was working on an album with engineer Chris Giles . . . Pete Kerr was producing and overdubbing a Jim Pride single for *Polydor* . . . Duncan Brown was producing some demos for *Opportunity Knocks* . . .

STRAWBERRY STUDIOS . . . 10cc have been recording with Eric Stewart engineering . . . Roxy Music were working on an album with engineer Pete Tattersall . . . Geoff Gill was producing Jenny Darren with engineer Pete Tattersall . . .

SUN RECORDING STUDIOS . . . have finished re-building and the equipment they have now includes drum and bass traps . . . This means that its feasible for an electric band and acoustics and vocals to be recorded simultaneously . . . Dave Fronsdorfe was working on an album with producer Dick Jones and engineers Martin Maynard and Rob Baughton . . . Mike Cooper was recording an album . . . The Pig Sty Hill Light Orchestra was recording tracks for Bill Oddie . . . Martin Walker was in . . . Danny Buckingham was working on an album . . . Paula's Country were recording an album . . . The Johnny Cranmer Band were recording an album . . . Clayson and the Argonauts were recording tracks for an album . . . Steve Gretswell was working on an album . . .

TRIDENT STUDIO . . . Genesis have been working on an album with Dave Hentschel producing and engineering . . . Brand X were recording with engineer Dennis McKay . . .

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PA SYSTEMS

BY KEN DIBBLE

It is often said that a good loudspeaker should be like a musical instrument, but in fact, nothing could be further from the truth. The purpose of a musical instrument is to generate or create its own sound according to the whim of the musician. Not so with a loudspeaker, however, whose one and only purpose is to reproduce sound fed into it as faithfully as possible, adding or subtracting nothing, and certainly not generating sounds of its own! If it does, for example, by creating a boom at the bass end, or by becoming tinny in the treble region, it is a poor loudspeaker indeed and should have no part to play in professional public address. As stated last month, the arrival of the 4 x 12 column was a major step forward in improving the quality of P.A.s, especially when compared to the puny little columns of 6" and 8" loudspeakers that first appeared on the scene. To non-critical ears at that time, they really did sound good. Most 4 x 12 columns contained four 12", 25 watt units in either a straight or staggered vertical array, in an open back cabinet rated at 100 watts. A number of manufacturers preferred to use a closed-back or "infinite baffle" design, and both techniques have their respective merits and disadvantages.

The prime purpose in leaving the cabinet back open is to reduce the booming and often distorted bass sound that is usually associated with closed back cabinets, and in this, some success usually results, but not without some sacrifices in other areas. An open back cabinet has, for example, very low acoustic suspension properties, and therefore offers little or no acoustic impedance to the movement of the loudspeaker cone, thereby making necessary the use of a loudspeaker drive unit with a very stiff cone system in order that the units own mechanical impedance can limit excessive cone movement at low frequencies. It is unfortunately dictated by the various laws of physics that such a cone will, of necessity, have a rather high natural resonant frequency, and this will restrict (among other things), the downward extension of the loudspeaker's response capabilities. Other drawbacks include a reduced life expectancy from the actual loudspeaker drive units due to cone fatigue, and the desirability of de-rating the units power handling capability to avoid blowing out cones under overload conditions.

The sealed box, or infinite baffle cabinet as it is generally termed, will usually need to be considerably larger than its open back counterpart if it is to have a similar bass response. It relies on a volume of air trapped inside the cabinet to control the movement of the loudspeaker cones instead of on the cones themselves, and for this reason, a greater freedom of choice of loudspeaker drive units exists, enabling softer cone units with improved low frequency characteristics to be employed. As the loudspeaker cones are driven back into the cabinet, the trapped air is compressed in a similar way to a spring under compression, and so further cone movement is restricted. As the cones are driven forward, a vacuum is formed and again, cone movement is restricted in a similar way to stretching the spring. In this type of cabinet, loudspeakers will run their normal useful life and at their full rated power levels without undue fear of damage, and overall, this would seem to be the better of the two cabinet configurations to use. When a number of loudspeaker units are mounted one over another in a vertical column, certain inter-actions take place between the units so that the response of the column is not similar to the response of a single unit. If the column is properly designed as, for example, the linesource loudspeakers used in Westminster Abbey and St. Pauls Cathedral, this can be

turned to great advantage, but if speaker units are placed in a haphazard manner in a convenient box without consideration of the rules, the overall performance of the column is likely to be considerably worse than that of a single unit working on its own. Unfortunately, the latter was generally the case with most band P.A. columns, and the reasons for this will be considered.

Sound can be expressed in two ways, either by reference to its frequency in Hz. (or cycles per second, as it was once known) or by reference to its wave length. Almost all loudspeaker design is based on wave length. Certain dimensions of a loudspeaker system are bound to coincide with the wave length of some musical notes, and this is the condition that gives rise to most of the problems. For example, the actual cone diameter of a 12" loudspeaker is about 10", and this is the approximate wave length of the E two octaves above middle C on the keyboard.

As a 12" loudspeaker reproduces music below this frequency, it will radiate the sound in a pretty uniform manner, depending upon the quality of the actual loudspeaker being used. However, if high frequency sound of wave lengths smaller than this is fed to the loudspeaker, a progressive narrowing of the radiation takes place until all the treble output of the loudspeaker is contained in a narrow, penetrating beam of very harsh sound that is only heard as an ear-shattering din by listeners standing on the central axis of the loudspeaker. The only treble heard by the majority of the audience is that which is reflected off walls or the ceiling, and this is very spasmodic and usually sounds as an echo.

In the case of loudspeakers using twin-cone or dual-concentric units, similar problems exist. With these, a mechanical crossing-over takes place due to the difference in mass, size and natural resonance of the two cones. Generally, the rate of crossover is much slower than with an electrical crossover, and takes place after the beaming of treble from the large cone has started, although it does reduce the extent of beaming by removing the higher treble frequencies from the bass cone and transferring them to the small centre cone. However, further up the treble range, we reach a point where the wave length is now similar to the diameter of the smaller cone, and beaming again starts, this time at around top C on the piano keyboard. A speaker of this type will certainly provide better quality sound than a similar single-cone unit, but will otherwise pose similar problems.

When several loudspeakers are mounted in a vertical column, the problem becomes worse. The critical factor here is the spacing distance between the loudspeakers fitted, for when the wave length of the sound reproduced is smaller than this spacing distance, further spurious beams of sound are produced in the vertical plane, and these beams move around the column, according to the wave length of the sounds being reproduced at any one instant. Usually, these spurious beams succeed in reaching the microphones on stage and feedback results, even though the overall sound level in the hall may not be particularly high. A good quality radial horn loudspeaker, however, is generally capable of spreading treble evenly over a wide area, and is not usually prone to generating these spurious beams referred to. Such a unit will have a frequency response in the order of another octave upwards of the response of a 12" cone type loudspeaker. The obvious solution is to roll off the signal fed to the column of 12" loudspeakers at a point

before the wave length is equal to the cone diameter, and to feed all the remaining middle and treble to a suitable horn unit by means of a cross-over network. This will result in a smoother, tighter sound over a wider range of frequencies that will be relatively free of unwanted beaming, thereby providing better sound quality for the audience and reducing the likelihood of feedback into the bargain. The same would apply to a single 15" or 18" bass unit, only the crossover point would have to be lower due to the larger effective cone diameter of such units. As evidence of this, take a look at the floor monitor speakers currently used for foldback in some larger P.A. rigs, and either a 12" or 15" unit will be found with a top quality horn alongside. The reason for such an expensive horn "just for foldback" as one might think, is not that the ultimate quality is needed for foldback, but that the better horns will more evenly spread the treble, and eliminate the beams that would otherwise cause certain feedback.

The favourite design concept for a P.A. loudspeaker would then seem to be an infinite baffle cabinet of fairly substantial proportions housing one or more loudspeaker drive units of 12" diameter or larger, depending on individual needs. To this is added a really good radial horn assembly, fed via a crossover network that not only prevents any bass from reaching the horn and destroying it but — and of equal importance it must also remove the treble from the bass loudspeaker at a frequency where wave length is greater than either the effective cone diameter, or the spacing distance between speaker units, whichever is the larger dimension. Such a loudspeaker system, if properly built using good quality components, would be capable of providing good quality sound over a wide frequency band and at fairly high power levels, and is still a relatively simple piece of equipment, but surprisingly few manufacturers seem to market such an item. In fact, every conceivable shape and variety of loudspeaker seems to be readily available, except the obvious simple solution to good quality P.A. I wonder why this should be?

There are, of course, other types of cabinets besides infinite baffle and openback, some of which are probably better from an acoustic point of view than either of the two types discussed. One such type is known as a vented or distributed port enclosure, and is somewhere half way between the two mentioned, as the vent is only large enough to partially relieve the compression of air in an otherwise closed cabinet. The Shure Vocalmaster column is probably an example of this type of system at its best. The rear vents not only regulate the loudspeaker cones within the cabinet, but also have a significant effect on the directional characteristic of the loudspeaker. One major drawback with this type of design is that the response of the loudspeaker varies depending on the physical position of the loudspeaker relative to the nearest wall, and can often cause otherwise inexplicable feedback.

When really high power levels are required for a large auditorium or outside stadium, the answer is not to stack columns, infinite baffle or reflex cabinets to the ceiling and drive them with as many 100 watts amps as can be found. All that will be achieved in most cases is acute distortion and deterioration of quality due to phase differences between the multiple amplifiers and loudspeaker units. In order to achieve high quality sound at very high power levels, a different approach to the problem is necessary, and explaining this will provide more than enough material for next month's article.

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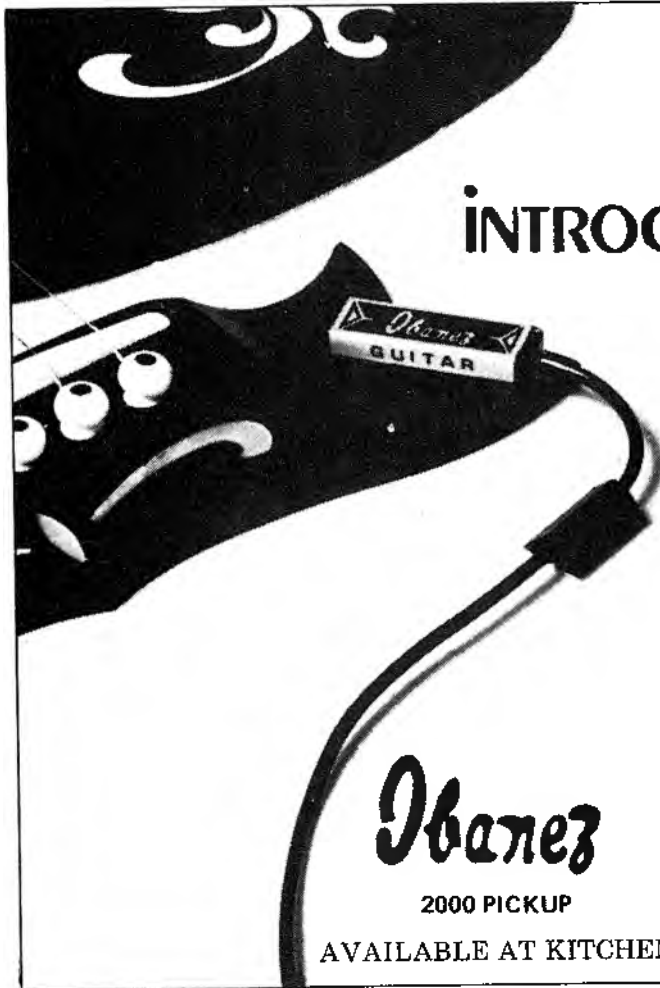
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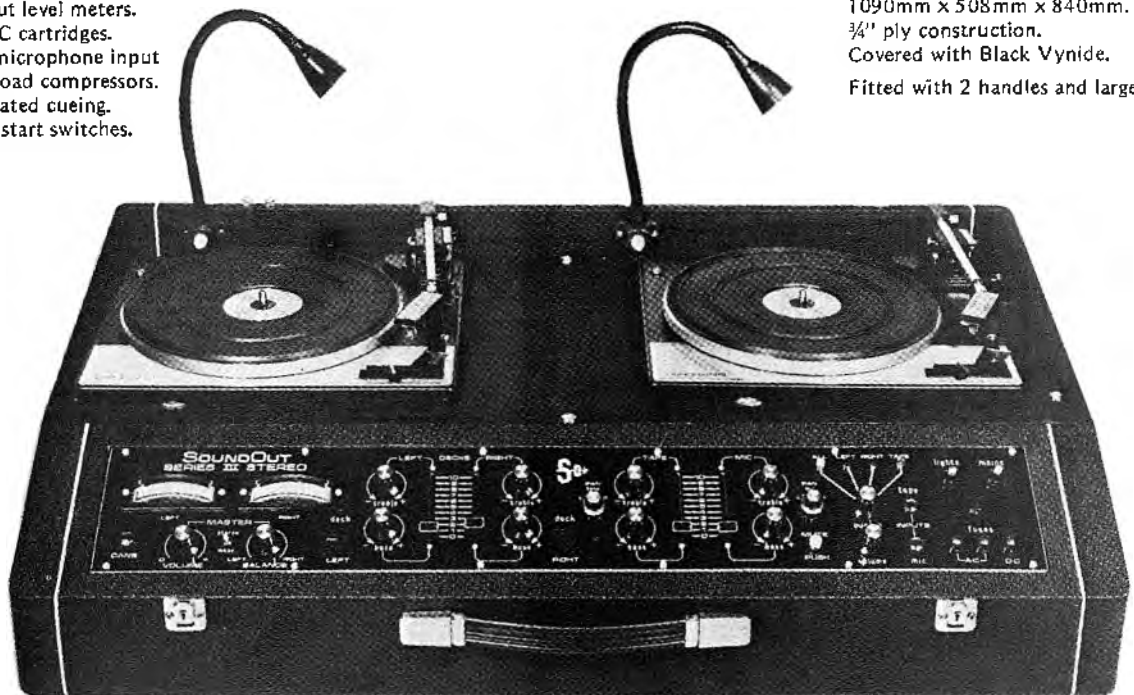
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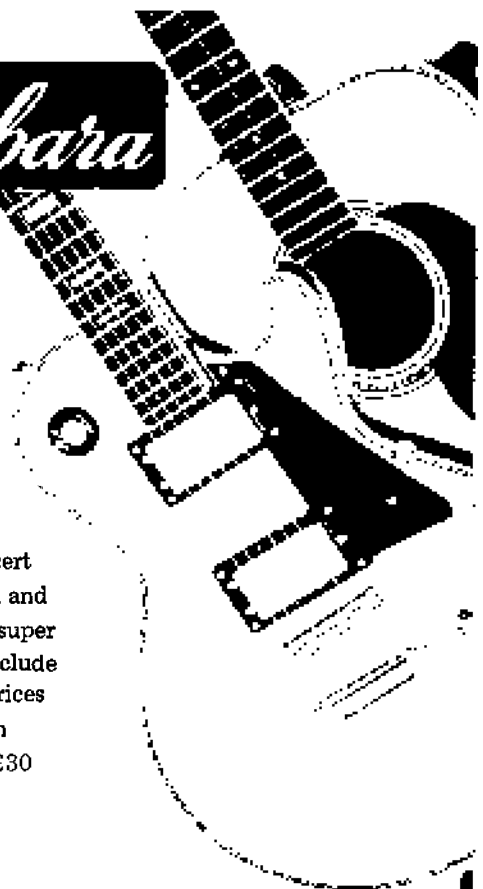


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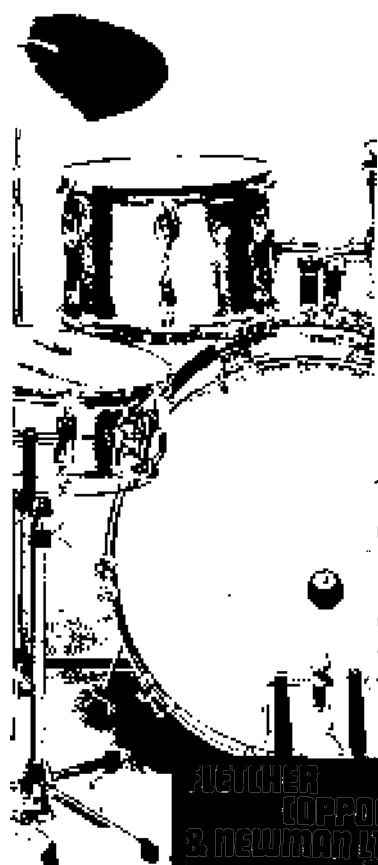
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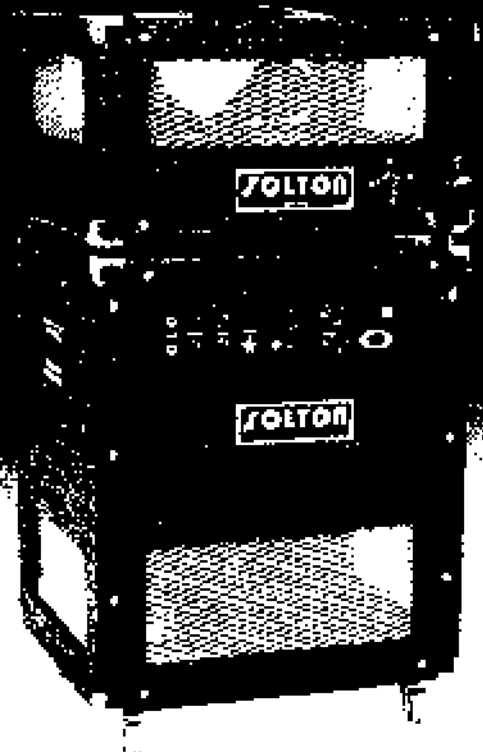
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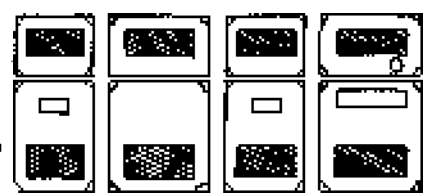
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RECORDING
STUDIOS

Pye Studios are situated in a fairly quiet road just off Marble Arch in London's West End. Originally consisting of just one cutting room and two studios, it now houses a reduction room, two studios, two cutting rooms, four copy rooms and a large tape library.

Studio Manager Howard Barrow explained "The studios were originally designed as a service for the (Pye) record company. In fact, we were one of the first of the company studios to encourage 'outside' artists in. This was about ten years ago and, at that time, we were three-track heading towards four. We had artists like the Stones, Sammy Davis and Trini Lopez in regularly. Now, about 50% of our work is with outside artists."

Howard has been with Pye on and off for nine years, having spent two years in Spain where he worked on the "Mozart 40" hit by Waldo de Los Rios, and also worked in the film and television industry where he was involved in films and adverts. He returned to Pye last April and immediately set to work updating the equipment and thereby Pye's image.

"One of the first things I did was to sell the mobile. It's not really financially viable to run a mobile if it's not working all the time. You've got to have five guys with it, and if it's not booked, then they're all sitting about doing nothing."

Howard has plans to upgrade both studios by converting them from 16 to 24 track. "We will still have 16 track facilities in Studio One," Howard emphasised, "because some people don't want the aggro of 24 track. Most of our middle-of-the-road stuff is done on 16. As well as converting Studio Two to 24 track, we're also going to re-do the decor so it will be ideal for groups."

"Pye went through a bit of a slack period for a while," he continued, "mainly because of a lack of investment in equipment. Things have changed now, of course, but in the past people were totally unrealistic in planning a studio. They were happy just to make the paperwork balance, so they never made a profit, and therefore they couldn't renew and improve the equipment."

On the subject of equipment, Pye Studios are currently

using a Neve 24 into 16 desk with Studer 16 and 24-track tape machines in Studio One, and a Neve 16 into 16 desk with an Ampex 1100 16-track machine in Studio Two, although they are in the process of getting new equipment in. All monitor speakers are Lockwoods with Tannoys driven by Crown 300's, and the microphones are a combination of Neumann, AKG, Sennheiser and Beyer.

Neumann equipment is well to the fore in the cutting rooms, where there is a staff of three cutting engineers. "In the cutting rooms, we handle even more outside material," Howard explained, "usually about 70% of the total, depending on the number of Pye releases."

"We can also cut DBX as well as Dolby, and the cutting rooms are fitted with Parametric equalisation and a spectrum analyser. By the way, all rooms except Two have Dolby third octave

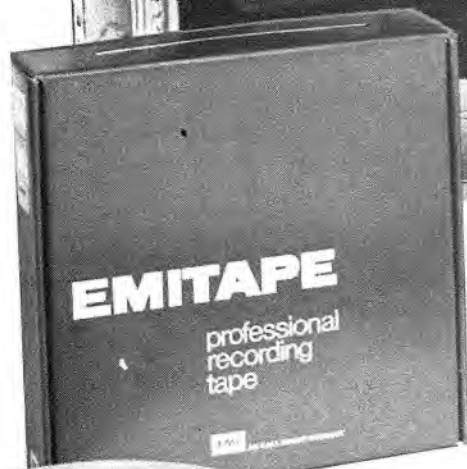
Pye Studios

continued on page 73

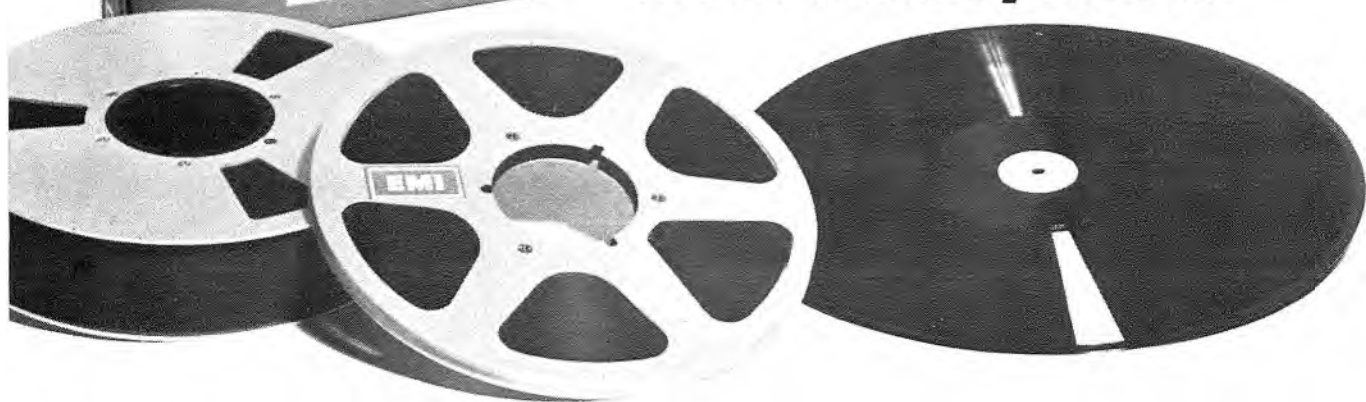


*Left: Pye's reduction suite
Below: Studio Two uses a Neve desk*





The Master Sound from Abbey Road.

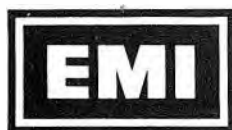


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Pye Studios from page 71

equalisation, so at a reasonable volume, you can hear the same curve at a certain point in each room. This means we don't get people saying 'I don't like this room, it's not as good as the other one.' It's a gamble that's paid off because we can get a reasonable sound without too much aggro."

Pye Studios also make up all the interims for Precision Tapes. "We've got a guy called Kim Shaw who's really into programming and mastering cassette and cartridge duplication," Howard explained.

"I'd also like to emphasise the fact that we have a very good maintenance department," he added. "It's so important. Machinery is so complicated now, you've got to have somebody who knows the ins and outs of it. I can't remember the last time we had a breakdown. I insist that all the machines are lined up every morning and if there's something wrong with

one of them, then it's got to be fixed fast. We have a technical staff that can handle it, so we don't have to call the distributor out to mend it."

Pye have always been thought of as a middle-of-the-road studio, but things should soon change when the new plans are completed. "We're going to aim to please everybody. One of the problems is that we are too often identified with the record company. I think also that outside people have been a little nervous about using us, but the fact is that we guard other people's product even more jealously, because a mistake can only happen once and you're finished. We all work hard and so I've no qualms about the future. We can, I feel, always offer a good product at a reasonable price without aggravation.

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Studer two-track machine

about. It's got to be taken very seriously."

According to Howard, the most important thing in the success of a recording studio is professionalism. "It is so important," he stresses. "The main thing is to be in a situation where the customer can walk out happy with what you've done, and happy to have worked here. It's like when you go to a restaurant, you want good food, good service and you want to walk out satisfied. Basically, we are a service industry."



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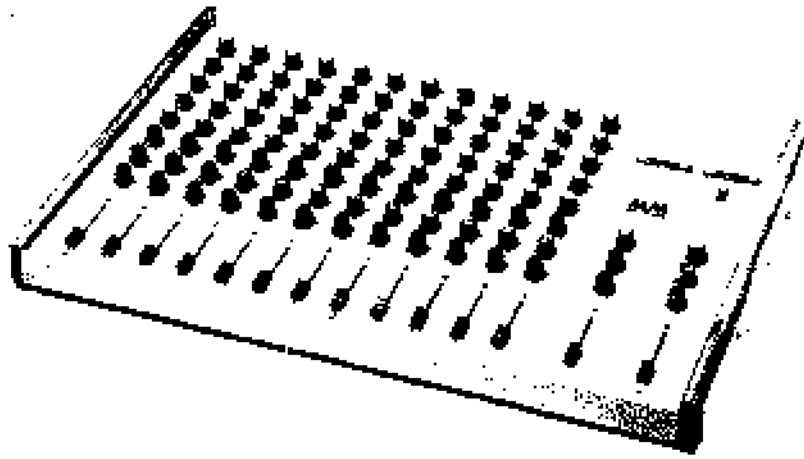


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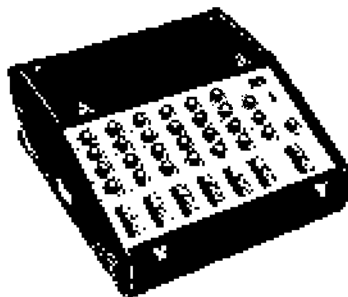
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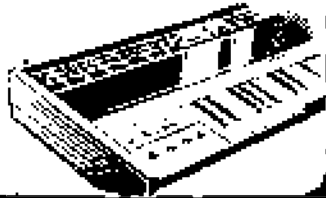
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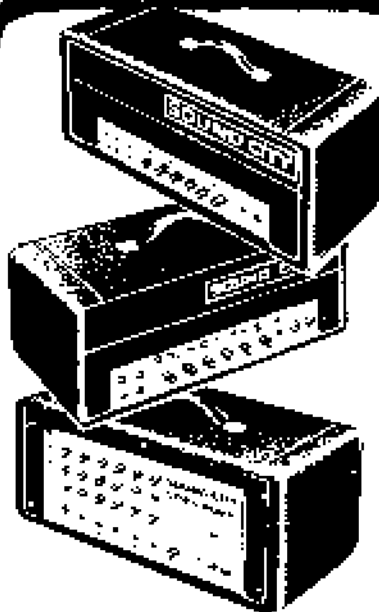


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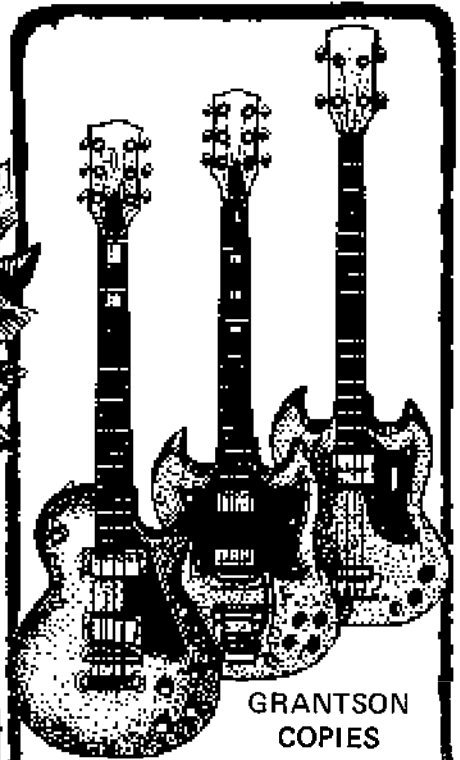
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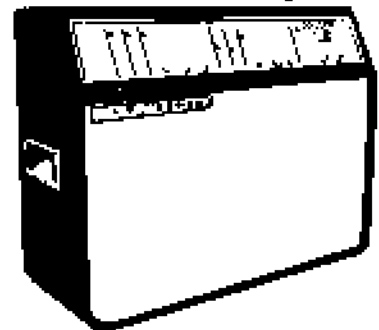
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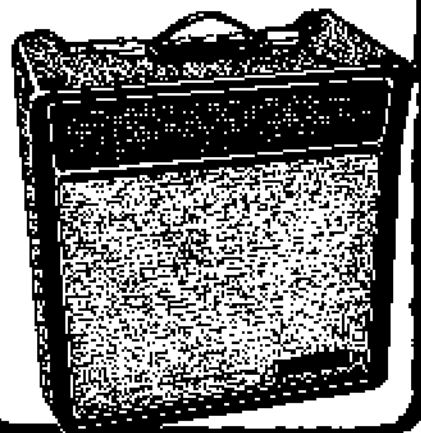
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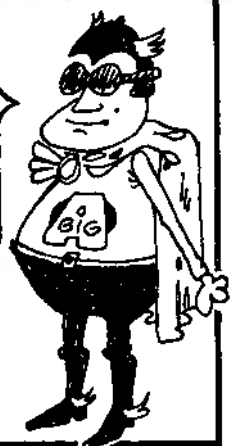
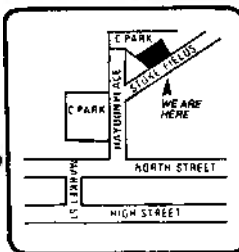
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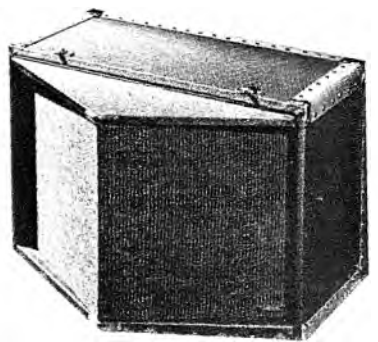
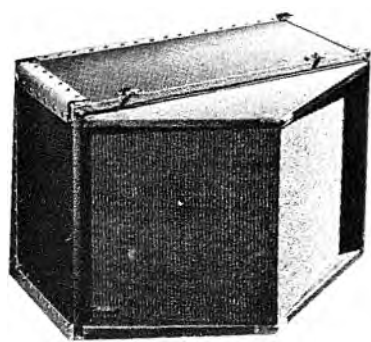
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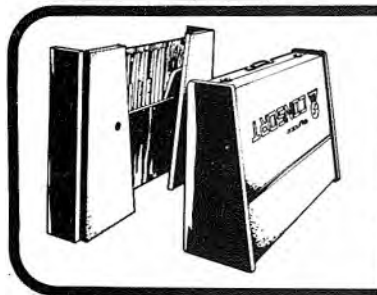
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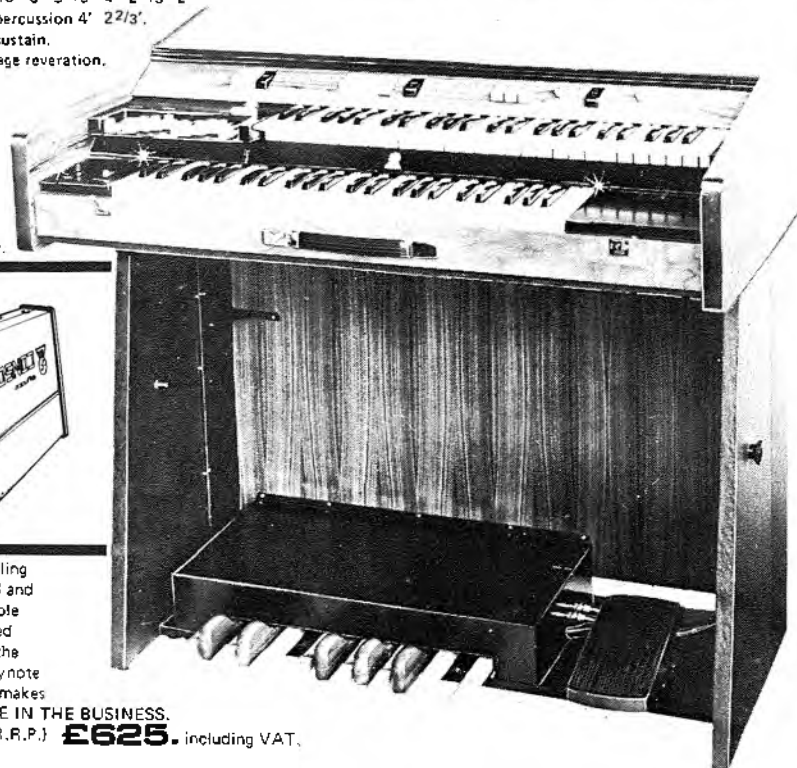
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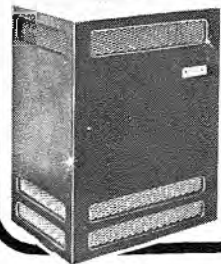
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By midnight, the bar had closed and everybody left for the North Stafford Hotel. The hotel boasted 24-hour service, and so the staff were kept busy ferrying drinks in and out of the lounge, where various roadies, soundmen, and journalists sat around discussing the show. Daltrey and Entwistle were also there, laughing and joking with the road crew and wondering where Keith Moon had disappeared to. At 2 a.m., The Who's drummer turned up with four young ladies he'd met at a local discotheque. Wearing a floral smoking jacket, tapered Levi's and knee-length boots, Moon wandered round the lounge talking to anyone and everyone, while constantly sipping from a glass of brandy. Things started to warm up when he decided to do his Tarzan impression with the aid of a rather expensive-looking chandelier. The normally placid Entwistle also entered into the spirit of the occasion by tipping a vase of water over Bob Pridden, who retaliated by aiming the fire extinguisher at him. They encored by lifting a glass coffee table three feet into the air and dropping it, spilling glasses and bottles everywhere, and smashing the table to pieces. The fun over, everyone drifted off to their respective rooms to sleep for what was left of the night.

Everyone surfaced at midday for lunch in the hotel dining room and, after a hearty meal, left for Bingley Hall. While the crew set up the equipment, I decided to have a look at the amazing Gelf mixing console. MEH's Derek Dickinson explained "It's a 30 channel desk and you can record out from each channel. You can either send it before or after the Eq section, so you can get 30 in and 30 out. Then there's four effects send and returns on each channel, so you can put things in like a phaser or, as The Who are doing, a Wem Copicat, or a limiter, or a digital delay line. It's got ten sub-groups, of which 9 and 10 are quadrophonic, and there's a five-way crossover. Most desks have built-in reverb, but it's not really needed on this one. With the sends and returns, you can put anything in. Each channel has got full parametric equalisation (you can pick a frequency and either cut or boost that frequency,) and there's a high pass filter and a low pass filter as well.

"All the faders on the desk are Penny and Giles which are the best you can buy. They're used on the Neve desks. Obviously, each chan-

nel can be switched into whatever sub-group you want, and you can record out from the masters, which is after the sub-groups but before the masters."

The desk is the same one that was used for Frank Sinatra at the Albert Hall earlier this year, when the sound system was highly praised by both Sinatra and the press. It was designed by Joe Brown and Martin Birch, and put together by Ken Fleg. "It certainly is a very good desk," added Derek. "I do all the mixing for Bad Company when they're on the road, so I've used desks all around the world, and it's definitely the best desk I've ever used."

From my vantage point atop the scaffolding, I could see the full layout of the stage. The P.A. stacks at either side of the stage were split into two separate sections — one half was on a platform beside the stage, while another section was stacked on a Flying Carpet scissor-lift. The reason for this was to throw the sound out to the back of the auditorium, without deafening those at the front. The crew had almost finished checking the gear, so I decided to ask Bob Pridden about The Who's monitor system, and his role as sound engineer.

"With The Who," Bob explained, "I used to always have to mix the sound onstage, because the act relies on a lot of lip-reading between Pete and I or Roger and I. I've done masses of tours and gigs with other people when I've been out front mixing, and it's great. I did it once with The Who and I felt almost selfish. I like to be onstage beside the band because there's that much more contact.

"What I usually do is use two 4560 bins in a stack with a 2440 lens horn on the top of each one. We have two stacks on each side of the stage, so that's eight bins and four horns just for vocals. We also use three-way stacks for tapes. I feed them through their own separate system on stage, so it's almost as if there was someone up there playing. It gets a bit confusing at times but it's a lot easier than it was. Now we're using someone out front so I can concentrate more on what I'm doing. I used to have two Mavis mixers, a tape mixer, echo units on both systems and I really had to be like an octopus. It was getting a bit out of hand for me, and I felt as though I was cheating The Who, because someone must go out front. This is the first tour we've had someone out front, and it's working out really well, because I can concentrate on my own mixing.

"The desk I use is a Mavis 15 channel four out board. Groups 1 and 2 power stage left and right stacks on a stereo three-way crossover, and I cut it off at 6k, so we don't really get into the feedback problem. Groups 3 and 4 are for Pete and John's slant-back monitors respectively. You can't use a slant-back for Roger because of the way he swings the mike about. It would be smashing into the monitors or feeding back all the time. Also, we have two monitor outputs on the board, one of which I use for a slant-back behind Keith, so he can have bass drums and snare through it. For the tapes, we use a mixer, which was built by Alice for us. It's got six main outputs, and I can cue up on cans without anyone hearing it. Two of the outputs go to the P.A., two go to the stacks either side and the last two go to Keith's cans. The machine is a four-track Scully and there's a Revox for backup, in case the Scully goes out."

Bob was interrupted by the arrival of John Entwistle, who wanted to check his bass set-up, so I wandered over to the stage to get a close look at the P.A. system. It's very tempting to just stack all the cabinets and horns together, but things have progressed since the days when two Marshall 4 x 12 columns would be enough to fill the Marquee. MEH had obviously put a lot of thought and planning into the system, and the bins and horns were positioned in such a way as to get the best possible sound reproduction.

The second gig was much better. The Who had obviously gotten into their stride and were much happier without the risers. They dropped some numbers like "Bell Boy", "Punk" and "5.15" and substituted them with a prolonged version of "Magic Bus", giving them all a chance to improvise over the basic Bo Diddley riff. Dick Hayes, the man out front slaving over a hot Gelf desk, was working hard on this number. Each time Townshend went into a lead break, the level of the guitar had to be brought up via the desk. It was miked up from one of Townshend's bottom cabinets, and cut through as clear as crystal.

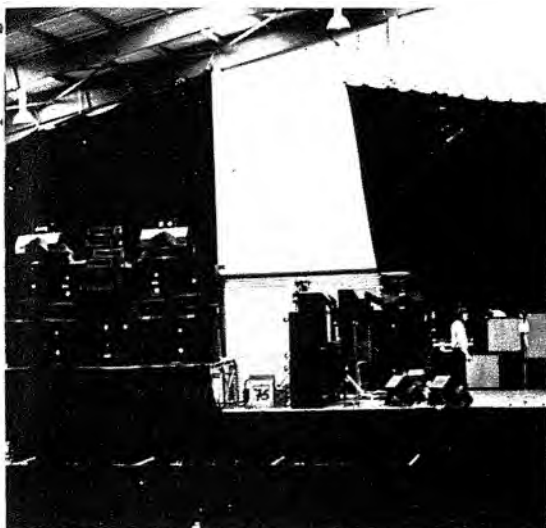
With the absence of "5.15", the last number was "Won't Get Fooled Again" — an ideal choice for a closer. With the dramatic blackout halfway through, it brought the show to a stunning climax. At the end of the number, Moon leaped over his kit and joined the rest of the band for an old-fashioned theatrical bow, before bouncing off stage to the relative calm of the dressing room.

While the band, press, security guards and police relaxed in the bar, the road crews set to work dismantling the gear. It was a gargantuan task. The scissor lifts had to be lowered and the equipment unloaded, the lighting gantrys had to be taken down and packed away, and the mixing consoles had to be lifted down on a fork-lift truck from the scaffolding. All the bins, horns, and monitors were numbered and were packed very carefully into heavy-duty flight cases.

By 2 a.m., the stage had been cleared and the gear loaded into two trucks. The crew headed back to the hotel, happy with the two gigs. A meal awaited the workers when we arrived back at the hotel, and eight of us sat up until 6 a.m. discussing the gigs, the excellent sound system and The Who. As the sun came up, everyone headed for bed looking forward to a day off before travelling on to Manchester for the next two gigs. The general feeling was one of complete satisfaction in a job well done. The crew were pleased, the audience were pleased and, perhaps most important, The Who were pleased with the first part of their 1975 British Tour.

Details of the Marshall Equipment Hire sound system employed by The Who at Stafford:

- 4 x Showco long-throw bass bins
- 8 x JBL 4560 1 x 15" bass bins
- 4 x Roy Clair 2 x 12" mid-range cabs
- 8 x JBL 4550 2 x 15" bass bins
- 12 x JBL 2350/2482 mid-range radial horns
- 8 x JBL 2395/2482 mid-range lens units
- 4 x JBL 2356/2440 mid-range/long range radial horns
- 12 x JBL 2345/2420 high-range radial horns
- 24 x JBL 075 high frequency transducers
- 25 x Crown DC300A power amplifiers



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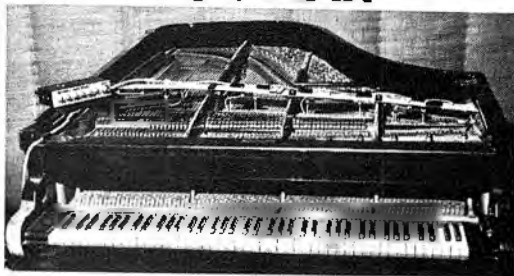


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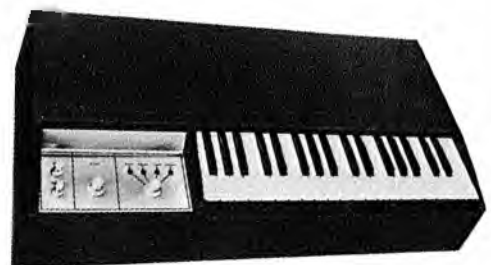
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MUSIC NEWS

First Instrument Auction

BONHAM'S, LONDON auctioneers since 1793, recently held the first auction of modern acoustic and electric instruments, among them instruments from the collections of Steve Howe and I.M.'s Stephen Delft. Held at their Old Chelsea Galleries near the King's Road, the auction was well attended by a mixed crowd of musicians, roadies, dealers and private collectors.

Bonham's spokesman Ronald Terrill was pleased with this first event. "We are holding another musical instrument auction in the second week in January". When asked if this would become a regular feature, he replied that "it of course depends on the interest, but if the press is any indication, it certainly should be."

"We are not trying to cut out the dealers, but I think that an auction is a fair indication of what the market will bear. It should also serve to 'up' the appreciation of recent instruments and make the public aware of their quality."



This '54 Les Paul sold for £500

Neve Sale

RUPERT NEVE have announced the sale of the first 16 track desk in Pakistan. The Shalimar Recording Company, Ltd. recently ordered a Neve 8034 16-track console. This will be an essential part of the government owned recording company's new Lahore Studio.

Alan Foster of Rupert Neve stated that "This is a significant order. At the present, there is

no console in Pakistan with a greater capability than four tracks."

Neve also announced the sale of an 8030 32 channel 16 bus music recording console to Electroimpex, on behalf of RTV Bulgaria. The most recent in a series of Neve consoles sold to RTV Bulgaria, the console was exhibited at the International Fair in Plodiv, Bulgaria, last September.

Moving Assembly

ASSEMBLY MUSIC of Bath are planning a move to larger premises. The new shop will feature additional parking facilities, and will be located on the Bath ring road.

Assembly Music is owned and operated by Steve Gardner, formerly P.R.O. for Hohner. Open since 1969, the shop provides a wide spectrum of equipment, including brass and woodwinds, as well as Gibson (they are a Star dealer), SG, Ibanez, Antoria and CSL guitars, Traynor and Carlsbro amps and Tama, Sonor and Premier percussion.

The staff, which includes Howard Richardson, Stuart Sully and Keith Wheeler, are all experienced musicians, as is Steve Gardner.

Bose Show

BOSE U.K. recently held an exhibition of their sound equipment which has borne considerable fruit. The exhibition, held at London's Royal Garden Hotel, was well attended by members of the Trade.

Nick Pierce of Bose U.K. stated that "We have been emphasising the domestic market, but the exhibition included professional equipment as well. The Bose 800 speakers attracted considerable attention."

Pierce went on to add that Tangerine Dream, who have previously hired Bose systems in Europe, have approached Bose U.K. with regard to buying a complete system.

Wing Products

FOLLOWING THE success of cabinets produced under their own name, Wing Music of Bromley in Kent, will market a wide range of Wing Products.

Barry Mitchell, M.D. of Wing told I.M.: "Our first product is going to be a special pedal for guitarists which offers echo and ADT facilities. We've got a working title of Resounder for the pedal. The amount of echo available on the pedal is highly variable as we're using an electronic method of digital delay to get the effect and the automatic double track is something many guitarists want. We're confident that the pedal will sell for less than £50."

Wing anticipate that the Resounder will be generally available within a few weeks. As well as selling the pedal through their own Wing outlet, (a new, larger, Wing shop is soon opening in Bromley), Wing are also wholesaling their own products. Future items joining the Wing range include amplifiers, more cabinets and effects pedals.

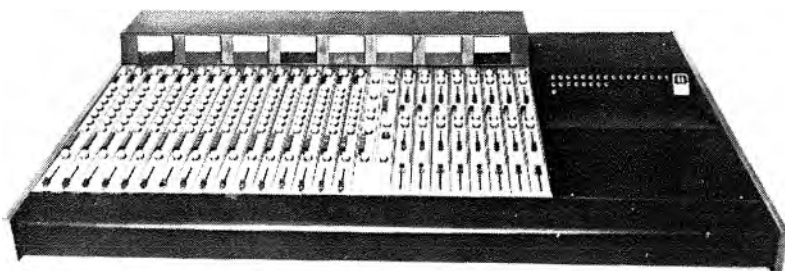
RCF In UK

RCF P.A. equipment is now available in the U.K. from Covemain, Ltd. The Rugby-based company are sole U.K. agents for the complete RCF range, which includes loudspeakers, mid-range horns, compression drivers, acoustic lens and ultra high frequency units.

Also available are the RCF microphones, amplifiers and accessories.

continued on page 85

Dependable

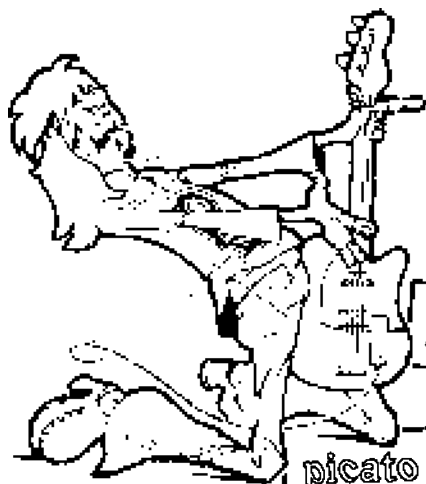


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Custom Denial

CUSTOM SOUND Equipment, who recently launched a new range of amplification, have denied rumours that they are the subject of a take over bid.

The company say that rumours have been circulating for some time that a local chain of music shops have acquired a controlling interest in the Custom Sound operation. The company deny this suggestion emphatically and maintain they are an entirely independent organisation.

Name Change

FARMERS, the well known music shop in Luton's town centre, have undergone a change of identity. To bring it in line with other interests belonging to music business mogul Jim Marshall, the shop is now called Marshall.

This gives the Marshall chain shops in London, Bedfordshire and Buckinghamshire.

Big Bean

SO GREAT is the demand for the new, denim covered, Jimmy Bean transistorised amplifier, announced a spokesman for Jimmy Bean, that they "can't cope". In preparation for a year, the new 150 watt amp is the subject of high hopes for Jimmy Bean.

"I think it will be the biggest selling amp in the world this year," stated Cliff Cooper. "It has four separate channels, stereo outputs, four transistors— not two—, integrated circuitry and Trevoid transformers. Quite simply," Cooper added, "it's the best amplifier in the world."

Hire

OWING TO an unfortunate oversight, last month's hire feature omitted two of the country's leading hire firms. They are included herewith.

ESE of Maidstone have been established for two years, and offer a full range of services which include tour and personal management as well as sound systems and instruments. Their systems are comprised of JBL and Gauss bass bins, JBL mid-range and HF horns, Crown DC 300A amps, with a possible output ranging anywhere from 1,000 to 12,000 watts. Their mics are all AKG and Shure studio models, and the mixing desks are from Soundcraft and Turner, while the monitors are JBL floor units. They claim to be able to meet the needs of anything from a one man band to a 34 piece orchestra, and their tour experience runs the gamut from Glen Campbell to the Bay City Rollers.

SOUNDCRAFT aim to provide good personal service and expertise and top quality gear in one service, and have supplied a hire system to this year's Pink Pop festival. The equipment which they are prepared to supply falls neatly into two schemes, A and B. A is basically a 5,000 W (2,500 r.m.s.) system, comprised of components from JBL, Crown and Soundcraft's own Mark IV mixer. Any number of Shure and AKG mics can be included, and a sound engineer and crew are included.

System B is basically a 600 W P.A. system and any kind of Soundcraft mixer may be specified, although the 16 into 2 is the conventional choice.

AKG Anniversary

AKG ARE celebrating their thirtieth anniversary. The company has a dual anniversary which includes a 20 year U.K. history. Managing Director Peter Eardley's family have been involved with the AKG U.K. operation since the beginning.

AKG started immediately after the war in Vienna. The two main movers of the operation were Mr. E. Pless and Dr. Gorike. In the beginning, AKG stood for Acoustic and Cinema Products (in German) and the company rapidly gained a good market for their products. Pless did the selling and Gorike did the development.



Peter Eardley

Hitchcock Travels

KEITH HITCHCOCK, Managing Director of Sharma, has completed an exhaustive (and exhausting) European tour. In six days, Hitchcock managed to call personally on most of the continental agents for Sharma's range of professional organ speakers.

Ranging from Helsinki to Zurich and Amsterdam to Vienna, Hitchcock often found himself catching four aeroplanes a day as part of his policy to establish and maintain personal contact.

Today AKG principally market microphones and the specialisation occurred in the 1950's. The big breakthrough happened when the company launched the D12 cardioid microphone. The C12, a condenser version of this mike, was the first with a switchable pick-up pattern. The mikes are still in use in broadcast applications the world over.

AKG U.K. are now situated in a large office and warehouse building in London's Notting Hill Gate. Managing Director Peter Eardley "The last few years have been very good for us indeed. We've long been established as producers of high-quality studio microphones and ancillary equipment, but in the last few years we've also made a real inroad into the live music market.

"As groups improve their overall sound systems they become conscious of the need for high-quality mics and with our range now starting with reasonably priced dynamic models, they're easily able to find a microphone to suit their need. Perhaps our most popular mic in this field is the D190 with the D1200 in second place."

Kitchen Dinner

OVER 300 guests, including the directors of *International Musician*, recently attended a celebration dinner in Leeds to mark the centenary of Kitchens of Leeds.

The dinner, held at the Hotel Metropole, Leeds, marked the highspot of the year's celebrations. In the chair was Ron Cooper with his wife Dora. Mike Cooper, joint Managing Director, also thanked guests for attending

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Versatile

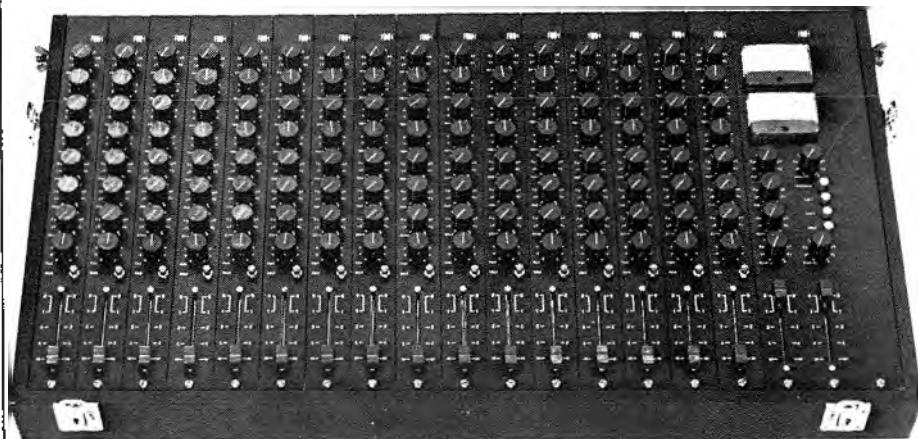
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Keynote Progress

KEYNOTE MUSICAL Instruments, Ltd., have received wide acceptance for their new two-manual portable. Designed for the semi-professional musician, the acclaim following Keynote's re-

cent promotions, which featured session organist Harry Stoneham, led to a marked increase in sales.

Keynote have also announced the design of a new tone cabinet, the Vortex. Equally useful when connected to a portable or a console, the new cabinet is believed to be among the more inexpensive on the market, and is covered in a durable black finish.

Bellson Clinic

SELMER, U.K. distributors for Pearl drums, featured Louis Bellson in a recent drum clinic at London's Horseshoe Hotel, Tottenham Court Road. An audience of over 300 watched Duke Ellington's drummer demonstrate and explain his theories on finger, wrist and arm control. Bellson utilised two long solos, incorporating almost every conceivable sound and rhythm pattern, to further demonstrate his ideas, as well as his skills.

Among the audience were many members of the Inter-

national Drummers Association, of which Bellson is Vice President.



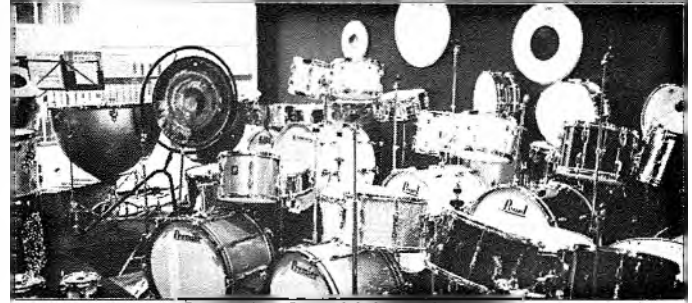
Notts Shop

JUST OUTSIDE Nottingham City centre is a shop sufficiently specialist in its approach to enjoy a national, if not international clientele.

Mike Jackson only opened Percussion Sounds this February but the shop's already enjoying the result of specialisation. The spacious shop area is packed with all types of percussive instruments. Pearl, Ludwig, Maxwin, Rogers — all the main kit names can be found and there's also a wide range of more exotic instruments like vibraphones and glockenspiels.

"We make a point of stocking all the little items a drummer can't find," says Mike. "A band who were playing at college here recently broke a Slingerland drum spur just before they were going on. They called us and we took one off a new kit because we'd just sold two spares we held in stock. We think that kind of service is going to pay off. We want a drummer to feel that if he decides to come to Percussion Sounds he's going to get exactly what he needs."

Percussion Sounds are open six days a week, usually till 6.30 pm or later.



Percussion Sounds' drum showroom

TVRS

THE NAME THAT FLASHES TO MIND...

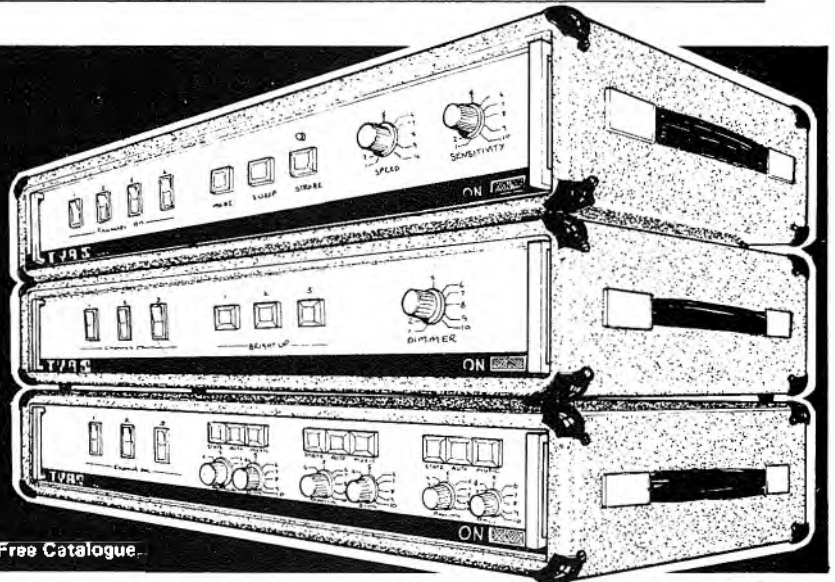
with our new range of exciting and versatile units designed and manufactured to the highest standards of electronic engineering. We offer a complete range of equipment, embracing every conceivable need, from the smallest disco unit, to the demanding requirements of the touring band.

Although custom built equipment is of course readily available, most requirements can be fulfilled by our standard units. For instance, our SEQUENTIAL FLASHER available from stock, in three and four channel versions, cover most types of flashing effects; Sequential, Random, Strobe and Sound to Light, etc. Another unit, the TRIPHASER, is available for more subtle changes in lighting. Acting as three automatic dimmers, it accomplishes slow or fast colour changes, colour blends and pulsating lighting effects. Both local and remote manual dimmer control being of course fitted.

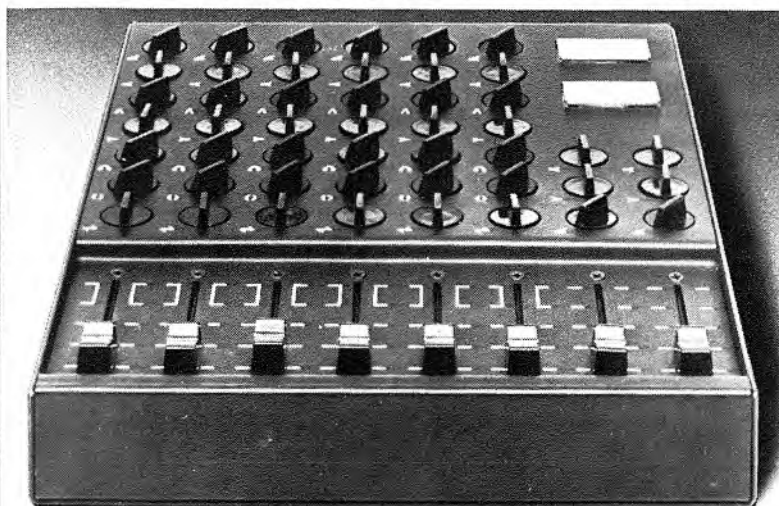
In addition, multi channel lighting units are available with automatic, music or keyboard programming with and without memories.

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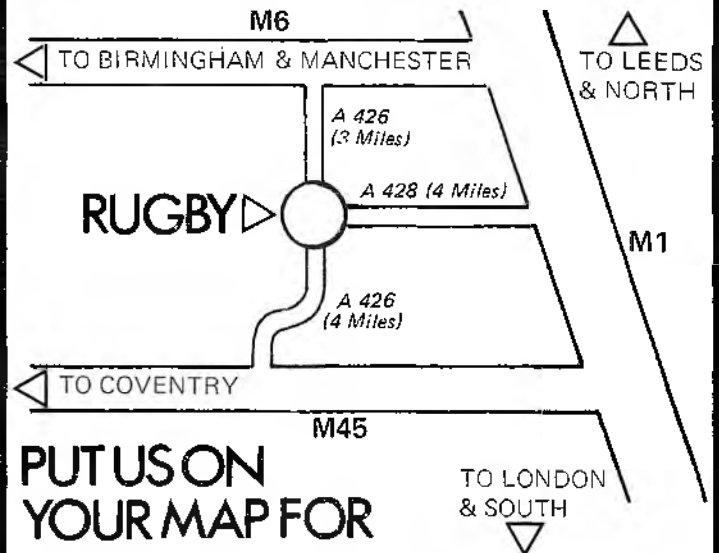
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DEALER NEWS

Loughborough Lessons To Expand

THE LOUGHBOROUGH MUSIC CENTRE opened on the main Derby road in Loughborough three years ago. It's a large and roomy shop and the only one in a densely populated area which includes several villages, as well as the town of Loughborough. The ground floor displays everything that one would expect to find in a music shop.

It has a wide range of equipment and instruments, as well as accessories and a selection of second-hand gear. Owner Trevor Pratt and his assistants Ray Longand and Andy Carvell deal with more than a thousand customers a week and they find that the second-hand equipment sells as fast as it arrives in stock.

Upstairs Trevor has built up an expansive hire section, which aims to supply bands with their every need, from an echo unit to a complete P.A. system. The hire side of the Loughborough Music Centre is becoming increasingly popular and they often lend equipment to local musicians like

Pete Gibson, The Celebrated Artist Band and The Mike Miller Band.

Trevor is also responsible for teaching 300 people a week to play a variety of instruments. He employs two full time and eight part time teachers to give organ, drum, guitar, saxophone, piano, and accordion lessons. Both group and individual instruction is available. The shop is open late most evenings, and lessons are held four nights a week till 8.30 and all day Saturdays. The teaching school has been approved by the local educational authorities and Trevor hopes to expand the course to take up to 500 pupils by April of 1976.

Dias Foremost in Cumbria

J.P. DIAS LTD of Carlisle was established almost one hundred years ago by the present owner's father. The shop still stands on its original site on what used to be the main road to Scotland from the South. Botchergate is no longer the busiest road in Carlisle but the reputation which J.P. Dias has built up over the years attracts customers from all over Cumbria and has helped to make it one of the most successful shops in the area.

Their stock is spread over two floors. The ground floor carries a wide range of equipment including drum kits and percussion, brass and woodwind, P.A. equipment, Arp, Moog and Syntorchestra synthesizers and many different makes of guitar. On the first floor there is a large selection of keyboards including Hammond, Farfisa and Phillips organs. Mr. Dias has eight assistants helping him as well as three full time engineers who will attempt to repair anything, but are particularly good at working on electronic amps and organs. The shop has a Hammond organ Society and also organises a popular group teach-in two or three times a week for would-be organists.

Midland Sound Success

MIDLAND SOUNDS started in business about ten years ago by supplying P.A. systems for commercial and industrial application. They became involved in the music trade because there were no adequate music dealers in the area to cater for the equipment needs of bands. A few years ago Midland Sound began to apply their experience and knowledge to meeting this demand and now operate a busy corner shop adjoining their Rugby offices and workshops in Albert Street. The shop has a wide range of amplification, disco and lighting equipment in stock controlled by retail manager John Grindle. More sophisticated desks, multiways and bins are not in stock but they can be quickly supplied either separately or as part of a custom system.

Four of the staff play in bands but they only claim to be specialists in the electronics field. Many gigs have been saved by their immediate repairs done in the service department or actually on the concert hall platform.

In the autumn Midland Sound held a mini-exhibition of amplification and lighting equipment which was a great success.

Vane opts for Education

THE DAVID VANE MUSIC CENTRE is only five minutes from the Devon coast in Exmouth. The owner David Vane has recently been receiving quite a lot of local publicity as a result of his success in establishing the shop as a musical education centre. David and his large staff of teachers have been involved in teaching handicapped children as well as many hundreds of pupils from all over Devon. The teaching staff are self-employed but David contracts work for them and the majority of the instruction is done on the premises.

Most of the musicians teaching also work in the shop during the week, so the customers are assured of professional advice whenever they need it. David found that the demand for electrical equipment was fairly small and although there is always some electrical equipment in the shop, he has concentrated on building up an extensive stock of new and second-hand instruments.

Salisbury's Bottleneck

BOTTLENECK is a shop in the beautiful historic centre of Salisbury. The building which houses Bottleneck has a preservation order on it and in the ground floor showroom the most modern musical instruments and equipment are displayed beneath oak beams which have supported the building for hundreds of years. The owners Richard Canning and Richard Pickett have succeeded in making Bottleneck into an ideal shop for professional musicians. They are helped by four assistants who aim to be able to help anyone with advice on equipment problems.

Bottleneck is part of Mitchell Electronics and their repair shop reflects their experience. They believe that they can get any band with broken equipment back on the road the same day. The engineers also build customised equipment on request and the second-hand gear in stock is always checked by them. Bottleneck is a Fender Soundhouse.



Recent visitors to Down Under include Burglar Bill, pictured above

Down Under Second Hand

DOWN UNDER is a busy shop in Redhill, Surrey. The shop is split into two levels with most of the equipment and instruments displayed on the first floor. The ground floor is divided up into different sections with a teaching lab, a servicing/repair bay and a large display area for organs and keyboards.

Andy Simmons and Jim MacDonald, the directors of Down Under, are very happy with the success of the teaching section. They have employed a full time organ teacher, Billy Shewring, and lessons have become increasingly popular. The number of pupils attending the guitar and organ courses average about 40 a week,

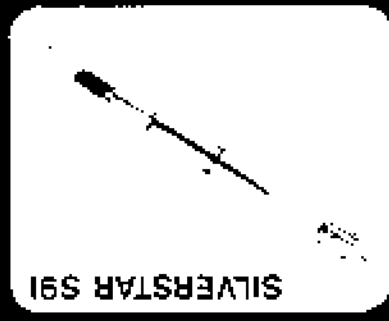
with lessons available most days, including Saturdays and Tuesday night. Two other assistants are Mike Sachs and Steve Baylis, who is Down Under's percussion specialist.

There is a large stock of second-hand equipment in stock and Down Under hire lights, organs and amplification. Traynor amps have proved the most popular. They also run a 24 hour repair service for guitars and amps. Local bands visiting Down Under include Limerick, Joanne Pop Group, Fire, Toby and Rivendell. The roadies for Burglar Bill and Screamer have been in to look at drum kits.

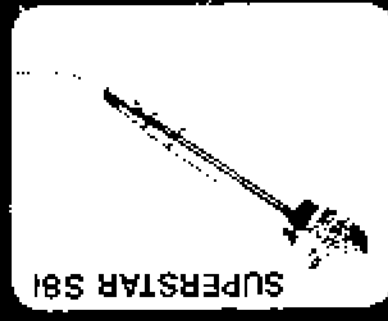
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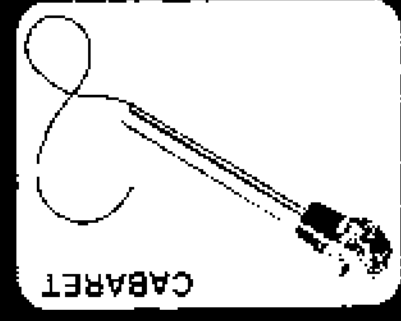
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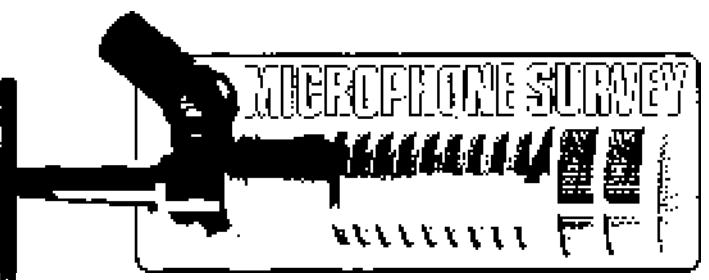
SILVERSTAR S91



SUPERSTAR S81



CABARET



The sheer quantity of microphones on the market is often enough to dismay even the most serious inquirer. While this is by no means a survey of every mic, it does include most of the better known models available for both live and studio applications. The facts and figures speak for themselves, and in some instances we've made an attempt to further clarify the picture with some general comments.



Shure



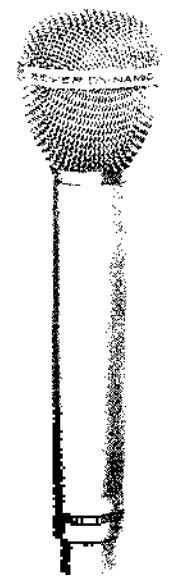
Reslo



Electro-Voice



Sennheiser



Beyer

Manufacturer	Model Number	Condenser	Dynamic	Ribbon	Impedance	Hi	Lo	Dual	Directional Capability	Omni	Uni	Cardioid	On/Off Switch	Cable length	Hand Held	Stand	Adaptable	Case	Frequency range (in Hz.)	Price	Comments
AKG	D190C	✓					✓				✓			5m			✓	✓	30 - 16,000	£29.00	Low price general purpose
	D1200		✓				✓				✓			5m			✓	✓	25 - 17,000	£37.00	Most popular all mic
	C451	✓					✓					✓		5m			✓	✓	05 - 30,000	£63.00	Broadcast/stageshow mic
	C414	✓					✓				✓			20m			✓		20 - 20,000	£176.00	Studio MCC
	D202		✓				✓						✓	5m			✓		20 - 18,000	£50.50	
Neumann	U87	✓					✓			✓	✓	✓					✓		30 - 20,000	£192.87	Ultimate studio Mic: handle with care
(Bauch)	KM84	✓					✓					✓					✓		40 - 20,000	£77.00	
	U47	✓					✓					✓					✓		40 - 16,000	£181.58	
	KM86	✓					✓			✓	✓	✓					✓		40 - 20,000	£192.07	Switchable pattern
	SM69	✓					✓			✓	✓	✓					✓		40 - 16,000	£426.00	- Two independant capsules in one
Beyer	M260N		✓				✓				✓		✓				✓		40 - 18,000	£42.15	
	M500		✓				✓				✓		✓				✓		40 - 18,000	£53.25	
	M69		✓				✓					✓					✓		50 - 16,000	£33.85	Budget price but high quality
	M111		✓				✓			✓				1m			✓		60 - 15,000	£56.82	
	M201		✓				✓				✓						✓		40 - 18,000	£47.62	
	M88		✓				✓					✓					✓		30 - 20,000	£81.04	
Cafrec	CM602D	✓					✓			✓									20 - 20,000	£27.89	Extremely wide dynamic range
	CM652D	✓					✓					✓							40 - 20,000	£27.89	Unusually cheap condenser mic.
	CM656D	✓					✓					✓							40 - 20,000	£34.32	
	CM754D	✓					✓					✓							40 - 20,000	£44.83	
	CM2051C	✓					✓					✓							30 - 20,000	£58.24	
Davoli	K695		✓				✓					✓	✓	4.5m				✓	40 - 17,000	£40.00	Good general purpose mic.
	K700		✓				✓					✓	✓	4.5m				✓	38 - 18,000	£45.00	
Electrovoice	RE20		✓				✓					✓	✓	5.2m			✓	✓	45 - 18,000	£169.00	
	RE15		✓				✓					✓	✓	5.2m			✓	✓	80 - 15,000	£104.00	
	RE10		✓				✓					✓	✓	5.2m			✓	✓	80 - 13,000	£61.00	
	667A		✓					✓				✓		5m			✓	✓	40 - 10,000	£139.00	
	670		✓					✓				✓	✓	5m			✓	✓	60 - 14,000	£37.00	
Hohner	TM17N		✓					✓				✓	✓	5m			✓	✓	40 - 16,000	£64.81	Pricy - but dual impedance
(Peiker)	TM40N		✓					✓				✓	✓	5m			✓	✓	35 - 18,000 Hz	£51.20	
	TM41N		✓					✓				✓	✓	5m			✓	✓	40 - 16,000	£64.81	

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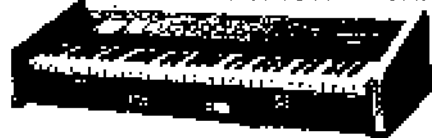


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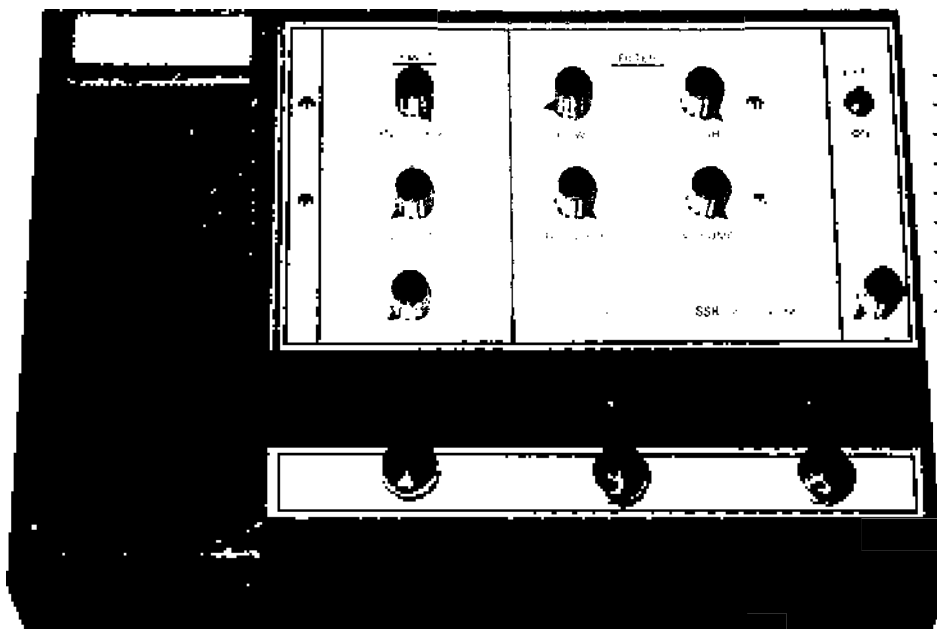
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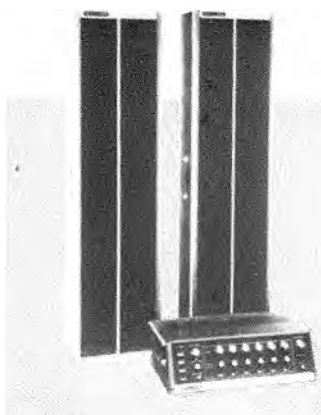
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Kenny Ball with arm on shoulder of soundman Pickstock outside London Hilton.

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Manufacturer	Model Number	Condenser	Dynamic	Ribbon	Impedance	Hi	Lo	Dual	Directional Capability	Omni	Uni	Cardioid	On/Off Switch	Cable length	Hand Held	Stand	Adaptable	Case	Frequency range (in Hz.)	Price	Comments
Peavey	Low Impedance	✓					✓				✓	✓	✓	5m			✓	✓	50 - 15,000Hz	£39.00	
	High Impedance	✓				✓					✓	✓	✓	5m			✓	✓	50 - 15,000Hz	£39.00	Take your pick
RCF	MD1641	✓					✓				✓	✓	✓	5m			✓		40 - 15,000	£28.20	
	MD1720	✓					✓				✓	✓	✓	5m			✓		30 - 15,000	£45.40	Tone control
	MD1750	✓						✓			✓	✓	✓	5m			✓		30 - 16,000	£56.76	Live or studio use
	MD3000	✓					✓				✓	✓	✓	5m			✓		50 - 15,000	£31.32	
Reslosound	S91	✓				✓					✓	✓	✓	5m			✓		40 - 20,000Hz	£43.40	General purpose mic.
	S81	✓					✓				✓	✓	✓	5m			✓		100 - 15,000Hz	£42.55	
	PD3	✓						✓		✓				5m		✓			50 - 19,000Hz	£23.35	
	RGP71	✓					✓				✓	✓	✓	5m			✓		100 - 15,000Hz	£24.00	
Sennheiser	MD211	✓					✓			✓							✓		40 - 20,000	£53.80	Good professional mic.
(Hayden)	MD441	✓					✓				✓								40 - 20,000	£85.60	
	MD421	✓					✓				✓						✓		30 - 17,000	£59.95	Good range
	MD416	✓					✓				✓						✓		50 - 15,000	£49.00	
	MD413	✓					✓				✓						✓		50 - 15,000	£39.00	
	409	✓					✓				✓						✓		50 - 15,000	£42.00	
	MKE201	✓					✓			✓							✓		50 - 15,000	£40.55	
Shure	545	✓						✓			✓	✓	✓	4.5m			✓		50 - 15,000	£37.20	Long standing favourite
	565	✓						✓			✓			4.5m			✓	✓	50 - 15,000	£42.00	Slightly better ?
	515SA	✓				✓					✓			4.5m			✓	✓	80 - 13,000	£17.40	Cheap
	SM54	✓					✓				✓			5m			✓		70 - 16,000	£105.00	
	SM57	✓						✓			✓			5m			✓		40 - 15,000	£48.60	
Simms-Watts	LM300	✓				✓					✓			4.5m			✓	✓	200 - 15,000	£16.57	Economy but reliable
	SW5000	✓						✓			✓			12ft			✓	✓	200 - 10,000	£18.14	
	SW5000L	✓					✓				✓			12ft			✓	✓	200 - 10,000	£18.14	
Vitavox	B50	✓					✓			✓				6ft					60 - 8,000	£19.76	
	B54	✓				✓				✓				6ft					60 - 8,000	£24.39	Deserves more exposure
Vox	High Impedance	✓				✓				✓		✓	✓	3yds			✓			£27.89	
WMI (Kay)	KTM1	✓				✓				✓		✓	✓	20ft			✓		100 - 10,000	£07.15	Fantastic value.
	KTM2	✓						✓				✓	✓	20ft			✓		100 - 10,000	£10.13	Likewise
	KTM3	✓				✓						✓	✓	20ft			✓		100 - 10,000	£09.21	
	KTM4	✓						✓		✓		✓	✓	20ft			✓			£11.99	

Speaking to the professionals at **EMISON**

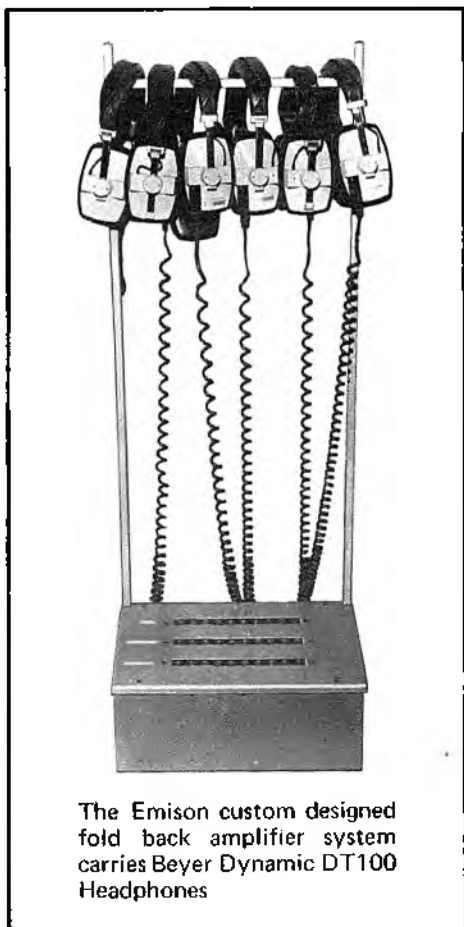


John Andrews said: "I have used Beyer Dynamic from the very start because we work to Broadcast standards."

M201 Dynamic Moving Coil Microphone

The M201 is a high quality product for the most demanding professional users. It will find its application as hand held or standmounted microphone particularly in recording and broadcast use. By its excellent hypercardioid characteristics the M201 is immune to unwanted noise even under extreme acoustical conditions.

Frequency Response:	40 - 18 000 Hz
Polar Pattern:	Hypercardioid
Output Level:	1.4 mV/Pa @ -56 dbm
EIA Sensitivity Rating:	-149 dbm
Electrical Impedance:	200 ohms
Load Impedance:	> 1000 ohms
Hum Pickup Level (50 Hz):	5 μ V/5 μ Tesla



The Emison custom designed fold back amplifier system carries Beyer Dynamic DT100 Headphones

BEYER DYNAMIC

BEYER DYNAMIC (GB) LTD · 1 Clair Road · Haywards Heath · Sussex
Tel : Haywards Heath 51003

SOUND EQUIPMENT/KEYBOARDS

Table listing various sound equipment and keyboards, including models like 1207 C col 75d, 1211 A col 50w, and 1217 A col 75w, with prices ranging from 185.00 to 330.00.

J.T. COPPOCK

Table listing J.T. Coppock products, including ELGAM ELECTRONIC ORGANS, ELGAM ELECTRONIC PIANO, and DAVOLI KEYBOARD & SYNTHESISERS, with prices ranging from 149.00 to 260.00.

KEYBOARDS/PERCUSSION

Table listing various keyboards and percussion instruments, including EKO PORTABLE ELECTRONIC ORGANS, SOLA SOUND Compact Piano, THOMAS ORGANS, and JENNINGS ORGANS, with prices ranging from 212.00 to 7500.00.

PREMIER

Table listing Premier products, including TYMBALES, CYMBALS, SNARE, SUPERZYM, VOX, and BOOSEY & HAWKES, with prices ranging from 77.71 to 358.63.

PERCUSSION/GUITARS

Table listing various percussion and guitar products, including CLASSIC BASS DRUMS/SPURS, SELMER PEARL PROF. DRUM OUTFITS, W.M.I. GUITARS, and ARC GUITARS, with prices ranging from 324.07 to 625.00.

PA SYSTEM PA 120 4ch 60w x 2 2 x 10" Spkrs 247.50 PA AMPS PA 120 4ch 60w 150.00 Std. 130w 165.00 PA 400 210w 225.00 PA 600 210w 405.00 PA 900 400w 525.00 BDOM 8 ch. Mix 240.00 260 Bstr. 130w 135.00 800 Bstr. 400w 255.00 SPKR. CABS.(PA) 4 x 10" 50w col. 67.50 1 x 10" + Horn 50w 67.50 1 x 12" 1 x 12" 3 tweeters col. 97.50 4 x 12" 150w col. 97.50 2 x 10, 2 x 12 + 3 tweeters, col. 120.00 2 x 15" + Horn 150w col. 187.50 Festival Spkr Enc 225.00 Festival Projector Horn 135.00 TYAS AMPLIFICATION L.C. 60 Slave 60.00 L.C. 60 ic 75.00 P.S. 125 Slave 96.00 T 125 130.00 SPEAKERS Single 12" 30.00 Twin 12" disco pr 108.00 Twin 12" PA pr 108.00 Single 15" bs bin 120.00 Twin Horn box 65.00 VITAVOX PRESSURE UNITS Type S3 74.07 Type GP1 30.42 Type GP2 70.37 Type GP2 T 31.94 LOUDSPEAKERS AK 123 15 ohms 42.13 AK 124 15 ohms 42.13 AK 156 15 ohms 64.81 AK 157 7.5 ohms 64.81 WN 350 15 ohms 17.45 VOX VOX AMPS AC 30 Top Boost 158.10 AC 50 109.26 SPEAKERS FB 118 Cab 99.07 FB 215 Cab. 105.56 W.E.M. Copical echo 70.37 Halle cai echo 231.48 Clubman amp. 42.00 Westminster 46.40 Westminster k-brd 48.80 Westminster bc. 52.30 Dominator MkIII 78.70 Pwr. musette 78.70 Dominator bs. 87.96 Dominator 30w.v. amp. 115.74 Dominator 30 bs 125.00 Dominator 50 hd 148.15 Dominator 50 k-brd 152.78 Dominator 50 amp top 82.59 Dominator 100 rev. transistor 199.07 Dominator 100 stan. 180.56 GX40 77.78 CX100 101.85 AX40 77.78 AX100 101.85 Slave pwr stage 87.96 Bandmixer 129.63 Reverbsmr. 194.44 Audiomstr. 275.93 Pre-amp W 48.80 Super dual 12 74.07 Super 40 74.07	HORN UNITS HU(2) 60W 160.00 HU2 120W 342.00 HU3 30W 206.00 HU4 60W 332.00 HU5 120W 395.00 HU8 60W 328.00 HU7 60W 373.00 HU8 60W 215.00 ST075 40W 145.00 ST2405 60W 155.00 MONITORS FB8 75W 130.00 FB6 150W 295.00 FB7 150W 521.00 NON-MODULAR MIXER 10 into 4 395.00 16 into 4 1200.00 20 into 4 1400.00 MODULAR MIXERS(PA) 10 into 2 880.00 16 into 2 1183.00 24 into 2 1650.00 3XF 3-WAY ELECTRONIC X/over 249.50 STUDIO MIXING CONSOLES Custom built 184.47 KEYBOARDS BOOSEY & HAWKES Diamond 70 131.36 Diamond 70R 166.48 Diamond 70IR /rhy. unit 440.20 Diamond 70IR /amps x spkr. 454.15 Diamond 701 378.20 Diamond 701 /amps x spkr. 392.15 Diamond 702 654.10 Diamond 708 292.95 Diamond 708 251.10 Diamond X100 50w Space sounder 258.30 ARP SYNTH. 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120 6 str jbo.	81.02				
115 6 str jbo.	62.96				
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757 Gt Wstr. Std.	58.33				
758 Gt Wstr.					
Ari jbo.	103.70				
895 N'shvl. 6	40.28				
897 D'ngt.	69.44				
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52 B Co Fk.	32.67				
827 L/H.	47.22				
827 B'co jbo.	40.74				
827/12 B'co jbo.	48.15				
79 Calif. k.	34.72				
628 Calif. jbo.	47.22				
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684/B Sup. jbo.	50.00				
648/12 Sup. jbo.	56.94				
693 Gnt. Jm. d/1	52.70				
696 Gnt. Jm.	60.00				
696 MG/Wstr. jbo.	61.57				
684 E Sup. Elec.	56.48				
698 E. Gt. Wstr. Elec.	72.68				
2374 sem. Ac. Id.	87.04				
2371 sem. Ac. Id.	75.46				
2370 sem. Ac. Id.	79.17				
1752/45/Anstr. bs.	39.35				
1755 S/mstr. II	48.15				
1917 Twncst. bs.	47.22				
1912 Twncstr.	45.37				
2385 Clpr./boy. bs.	107.41				
2384 Clpr. d/III	109.26				
2386 L/H.	127.31				
2386 Memphis clm. d/1					
2375 Dixie f/bs. bs.	98.15				
2375 Ash	118.96				
2375 N Rock mn.					
Natural	97.22				
2375 L'st/bs k/h	89.81				
2375 W Rock mn.	90.74				
White					
2375 Rock mn.					
Muple. fb.	86.57				
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R/wd. fb.	81.02				
2366 FLB. F/tes					
Bass	75.46				
2366 BkMans.	75.46				
2365 B Dixie bs	76.85				
2365 Dmstr.	58.33				
2366 Cpr. F/bt.	64.81				
2353 LDX Clpr.					
L/bs. bk.	69.91				
2353 Clpr. l/bs	58.33				
2352 C'nom.	71.66				
2352 d/tk.	63.33				
2352 MClpr. d/1	56.48				
2352 Chopper	50.00				
2354 W/str. l/bs	80.09				
2354 BW/str. bs	70.83				
2354 W/str. nat.	77.31				
2347 W/str. jh.	96.30				
2338 W/str. std.	94.00				
2383 W/str. cm	110.19				
2378 W/str. d/1	86.11				
2377 W/str. pro	81.94				
2354 SL l/h	74.54				
2354 SW/str. std.	65.28				
2354 W/str.	67.78				
2350 B Mem bs	72.69				
2405 Mem. orig. d/1	123.61				
2381 N Mem. Nat.	77.31				
2351 MMem. orig.	86.11				
2351 DY Mem. d/1	91.67				
2351 Mem. d/1	80.09				
2350 L Mem. std. l/h	77.31				
2350 cm Cust.					
Snd. Bst.	76.85				
2350 Mem. std.	71.76				
2357 M. Strad.	77.31				
Via. bs.	47.22				
2355 Bq. Jhn.					
S. Ac. Mpl.	112.96				
2355 Bq. Jhn.					
S. Ac. S'bst	101.85				
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Les Paul 6 str.					
mahog. gld.	90.00				
Sup. Les Paul					
mahog. gld.	101.50				

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03302 5/60	137.03				
13503 AZ/10	362.95				
STEELS					
14470 D/4	69.44				
14670 FS/1000					
Single	703.70				
14570 FS/2000					
Double	924.07				
G.M.S. PICATO					
ELECTRIC					
ES77 Fine gau.	2.32				
UL77 R/N R G	2.47				
77 L.G.	2.47				
P750 Med.G.	2.78				
ELECT BASS					
735 L Rnd Long	6.97				
735 M Rnd Med	5.97				
736 L Ny. Long	8.97				
736 M Ny. Med.	6.97				
738 L Flt. Long	6.97				
738 M Flt. Med.	6.97				
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727 Flt.	2.37				
K727 C & W	2.37				
P12 12 str	3.89				
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76 Grnd. Nyl.	1.86				
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1612 N	13.56				
1612 S	13.24				
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731 class	18.15				
732 class.	22.73				
MORIDAIRA					
841 class.	20.83				
842 class.	24.86				
843 class.	27.22				
845 class	36.25				
846 class.	60.45				
847 Jbo.	41.67				
848 Jbo. d/1	54.30				
849 12 str. jbo.	53.61				
850	73.64				
855/F301 Fk.	37.04				
856/F303 Fk.	46.57				
851/W613	86.81				
852/WE1030 Jbo.	46.94				
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H150	24.95				
H155	27.13				
H160 12 str. jbo.	31.94				
H175 Jbo.	27.41				
H180 Jbo. D/L	29.35				
H200 Folk	29.44				
H210 Jbo.	31.53				
H220 12 str. jbo.	35.74				
H305 Class.	14.12				
H310 Class.	21.39				
H320 Class.	27.92				
ELECTRIC					
AT71	27.92				
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FT 2T	30.05				
JB 2 Bass	54.63				
JB 200 Bass	74.80				
LB 200 Bass	48.38				
LE 200	74.49				
LHG 23R	79.77				
LH 200 G	72.36				
LS 200 C	54.77				
LS 200 YS	54.77				
MR 200 Bass	33.61				
ME 20 TS	39.59				
PM 302	41.25				
PM 302 Bass	42.69				
SA 200	40.37				
SE 2 B Bass	36.81				
SE 2 T	26.61				
B/in. B/s.bs.	183.33				
SG 2 S	37.36				
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SA. 60	175.60				
SA. 90	221.21				
SA 75 Bass	183.84				
SOLIDS					
SG. 30	77.26				
SG. 35	93.64				
SG. 40	104.52				
SG. 45	109.10				
SG. 85	160.69				
SB. 35 Bass	93.64				
SBL. 35	136.03				
SBL. 75	159.03				
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AE. 18	263.01				
MARTIN					
D 18	231.50				
D 28	308.58				
D.35	315.47				
D.12-28	314.94				
O16NY/case	231.48				
D.41/case	509.30				
O021/case	324.10				
AROSTEGUI					
No.2	18.52				
No.4	20.37				
No.6	22.22				
OSCAR TELLER					
748	69.45				
777 case	97.23				
8P/case	166.66				
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OS	18.52				
A	20.84				
B	24.08				
C	30.56				
E	69.45				
Palosanto/case	92.60				
MITSUMA					
JW 304/12	37.04				
JW 305/12	41.67				
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JG.102	25.93				
JG.103	29.63				
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JC.45/case	44.45				
JC.46/case	37.60				
O3	74.77				
JF.201	17.59				
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JF.203	26.47				
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C132S	41.67				
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TG.10	18.52				
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Sgr. Bs.	171.11				
B/in. B/s.bs.	183.33				
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STAK 5	STAK 5	Srs. IIIa mono
BAK S.L.	BAK S.L.	Srs. IIIa stereo
BAK S.L.	BAK S.L.	Srs. IIIa ster.
BAK Cab	BAK Cab	Srs. III 170w ster.
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Disco Mix 145/S	Disco Mix 145/S	210.00
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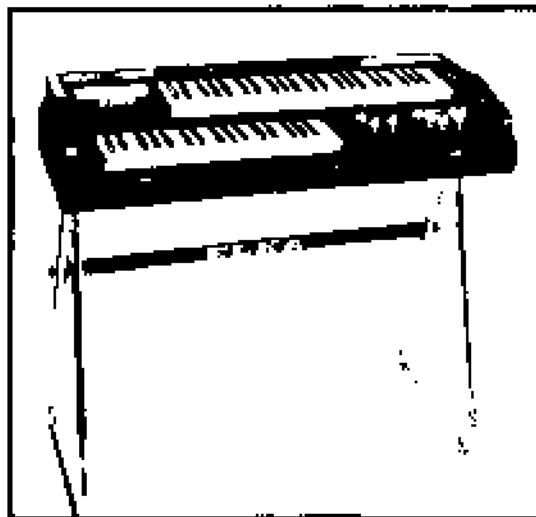


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p/h	per hour
p/d	per day
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H	Transfer facilities
R	Reel to Reel
CP	Codring
1f/b	to be advised
R-C	Keyboards aviable
R-Cr	Reel to Cassette
Cr	Reel to Cartridge
DC	Disc cutting
g-t	Disc to tape
Q	Quad
OTC	Overtime charge
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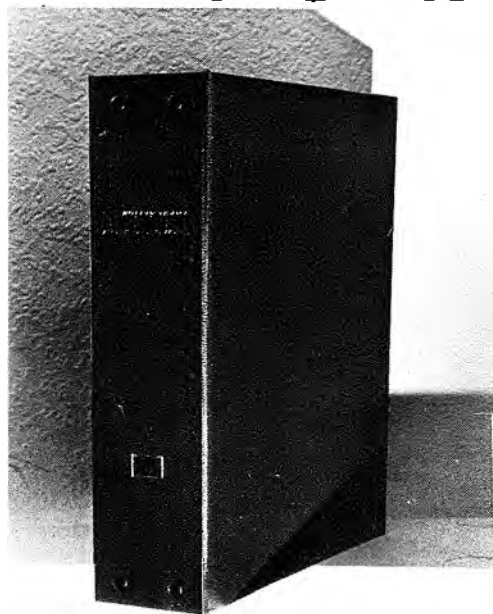
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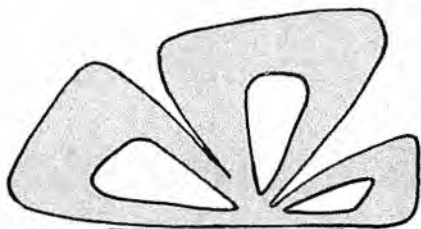
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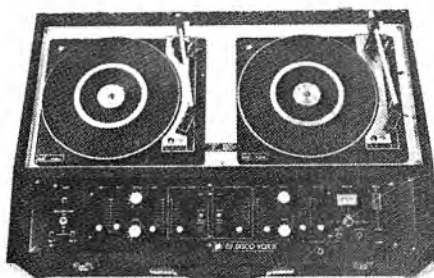
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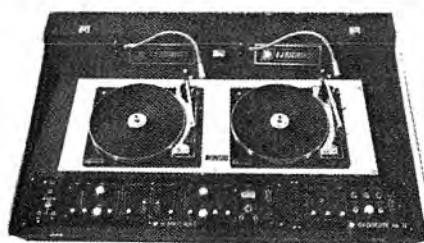
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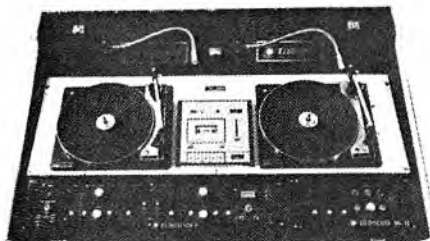
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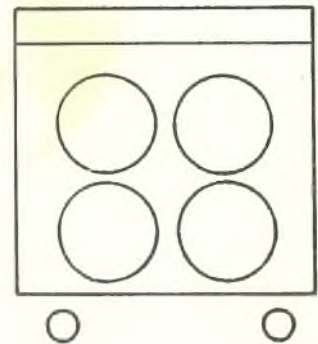


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