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MUSICIAN
AND RECORDING WORLD

UK/NOVEMBER 1976 30p International/December 1976 £1.50

**3 COMBOS
TO BE WON**

LOL CREME

John McLaughlin

TESTS: Tama Drums
Harptone Acoustic
Badass bass bridge
Pearl Combo amp
Elgam Talisman Organ

Build a Loudspeaker Cab. Peavey Market Report



SEE PAGE 11

WELSON

These Two New Stars In The "Welson" Galaxy Have Taken Off Like "Meteorites"

'SYNTEX' Synthesizer

KEYBOARD 37 Keys C - C. Oscillator 1: 4 footages with individual volume control (32' - 16' - 8' - 4') PITCH controls, plus or minus one semi-tone VIBRATO AMOUNT control. Modulation monitoring with flashing red light.

Oscillator 2: 4 footages with individual volume control (16' - 8' - 4' - 2') TUNE control, more than one full octave, VIBRATO AMOUNT control. Modulation monitoring with flashing red light.

1 SUB-AUDIO MODULATING OSCILLATOR. Oscillator 3: Waveform switch triangle and square. Frequency control 1 - 50 Hz. Modulation switch (push button) OSCILLATOR 1. Modulation switch (push button) OSCILLATOR 2. Modulation switch (push button) VCF (Filter). Modulation switch (push button) VCA (Amplifier).

ENVELOPE GENERATOR Four slide controls: Attack, Decay, Sustain, Release.

VOLTAGE CONTROLLED FILTER-RESONATOR (VCF). Two slide controls: Cut-off frequency (Fc) and resonance factor (Q). OSCILLATOR 3 Amount Control. ADRS Amount Control. Modulation monitoring with flashing red light.

VOLTAGE CONTROLLED AMPLIFIER (VCA). OSCILLATOR 3 Amount Control. ADSR Amount Control. General Volume control. Initial Volume push-button switch with Pilot Light. Modulation monitoring with flashing red light.

PORTAMENTO (GLIDE) GLIDE ON Push-button switch with Pilot Light. GLIDE SPEED Control.

MUSIC RANDOM. Push-button switch with flashing light.

PRESETS: PRESETS ON push-button switch with Pilot red light 15 Preset push-button switches: FLUTE, TROMBONE, HORN, OBOE, BASS CLARINET, JAW HARP, WHA-WHA, ACCORDION, STRINGS, XYLOPHONE BASS GUITAR SPINET, SPACE, RUIZZ, MUSICAL SAW.

NOISE GENERATOR. Noise colour switch, white and pink. Volume Control.



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UPPER MANUAL. 49 Keys from C to C. Seven drawbars: Flute 16', 5 1/3', 8', 4', 2 2/3', 2', 1 1/3', each with 6 positions. Three drawbars for percussion: 5 1/3', 2 2/3', 1 1/3'. One drawbar for Percussion decay control. On/Off Push button for sustain on Flute 16', 8', 4', 2'. Seven Push-buttons with lights for modulating the Flutes separately or all together and creating the "Organ Concerto." Two drawbars for controlling the modulation amount and the modulation speed.

LOWER MANUAL 41 Keys from C to C. Four drawbars each with 6 positions Flute 8', 4', 2', 1'.

UPPER TO LOWER MANUAL. STRINGS SYNTHESIZER. Three tabs: Cellos, Violins, Upper to Lower Strings Coupler. Slide Control for Strings Sustain.

SPECIAL EFFECTS Three tabs: Piano, Harpsichord, Upper to Lower Special Effects coupler Slide Control for Piano and Harpsichord decay.

GRAPHIC VOLUME CONTROLS Six Slide Potentiometers for controlling the volume of the various organ sections. 1 - Upper Manual Flutes Volume. 2 - Lower Manual Flutes Volume. 3 - Upper Manual Flute Percussion Volume. 4 - Upper Manual Concert Volume. 5 - Piano and Harpsichord Volume. 6 - Cellos and Violins Volume.

STEREO OUTPUTS For tremendous stereophonic effects. Twelve coupled Push-buttons to allow you to place any or all of the organ sections, i.e. Upper Manual Flutes, Lower Manual Flutes, Percussion, Piano and Harpsichord, Cellos and Violins to the left or right channel.

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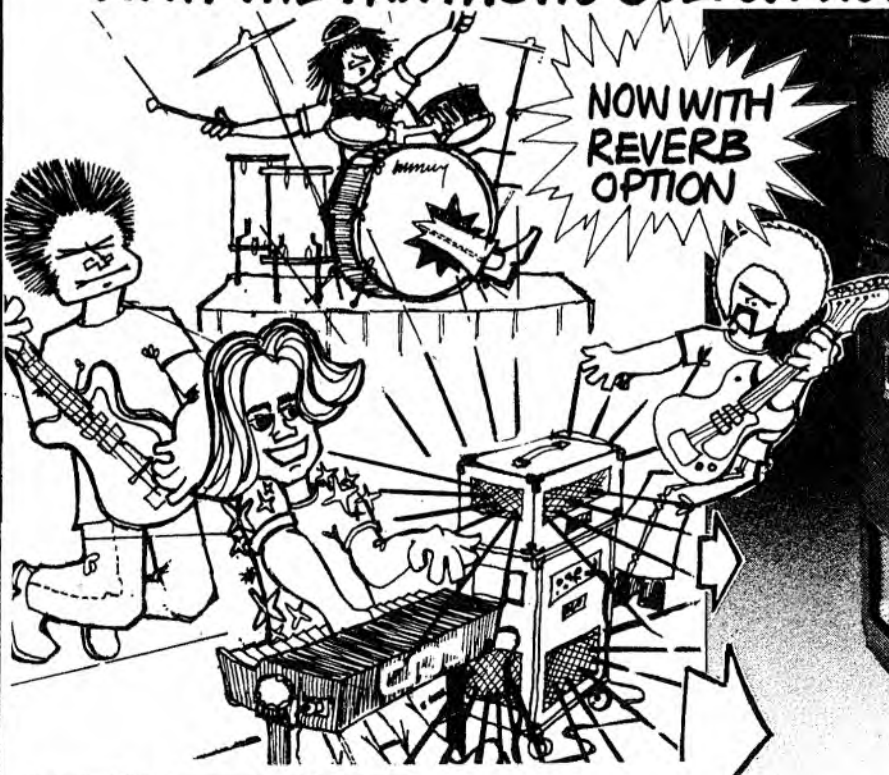


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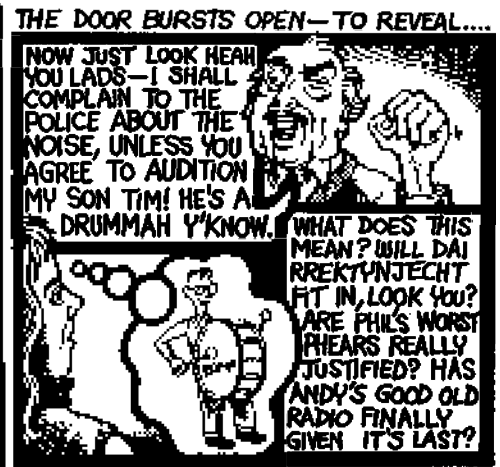
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BY
DANIEL
BONNYER
★

The story so far: Would-be rock star Andy has met up with guitarist Phil and they have decided to form a band. From an ad in a local music shop the pair learn of a Welsh bass player looking for work and they go round to sus things out...



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 Features on Home Recording, types of distortion
 and Practical Articles
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Contents Contents

WE'VE MOVED

Our success has forced us to move our head office in London. As you must have noticed, the magazine has been expanding at a phenomenal rate and we've had to move to our own office building in central London.

We're very grateful to every single reader wherever he or she is in the world and we hope that our new facilities will help us improve the magazine even more.

Please write to us if you've got any suggestions (or criticisms) about this magazine; the only way we can get it right is through you.

Please make a note of our new address:

INTERNATIONAL MUSICIAN & RECORDING WORLD,
COVER HOUSE, 7a BAYHAM STREET, LONDON NW1 0EY
TEL: 01-388 2011

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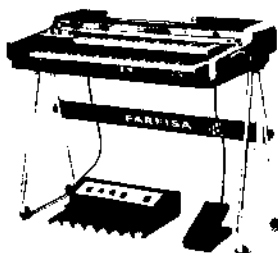
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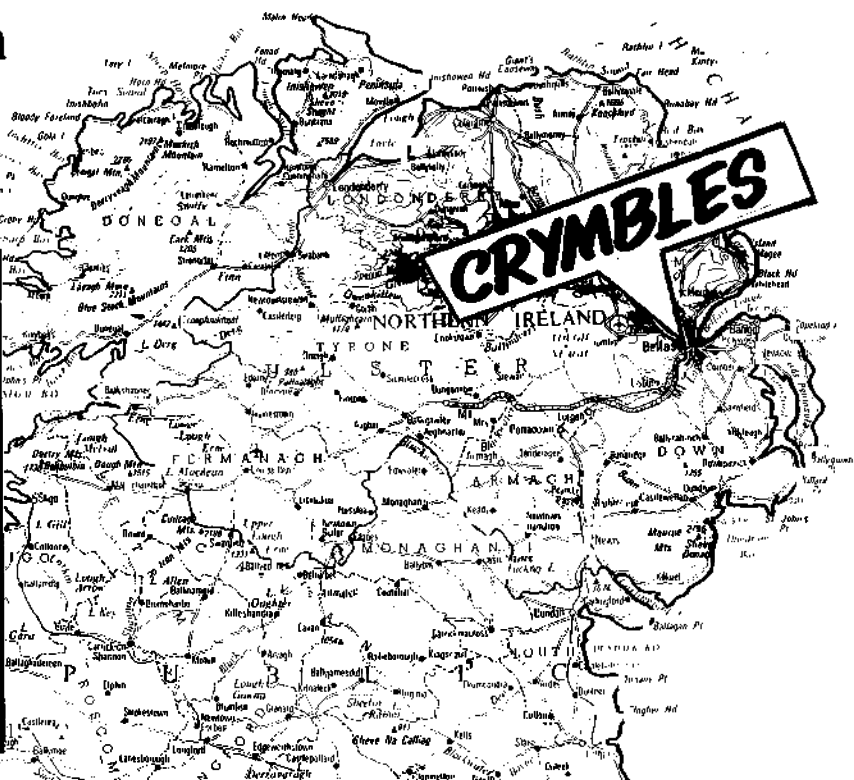
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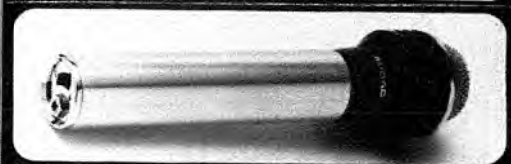
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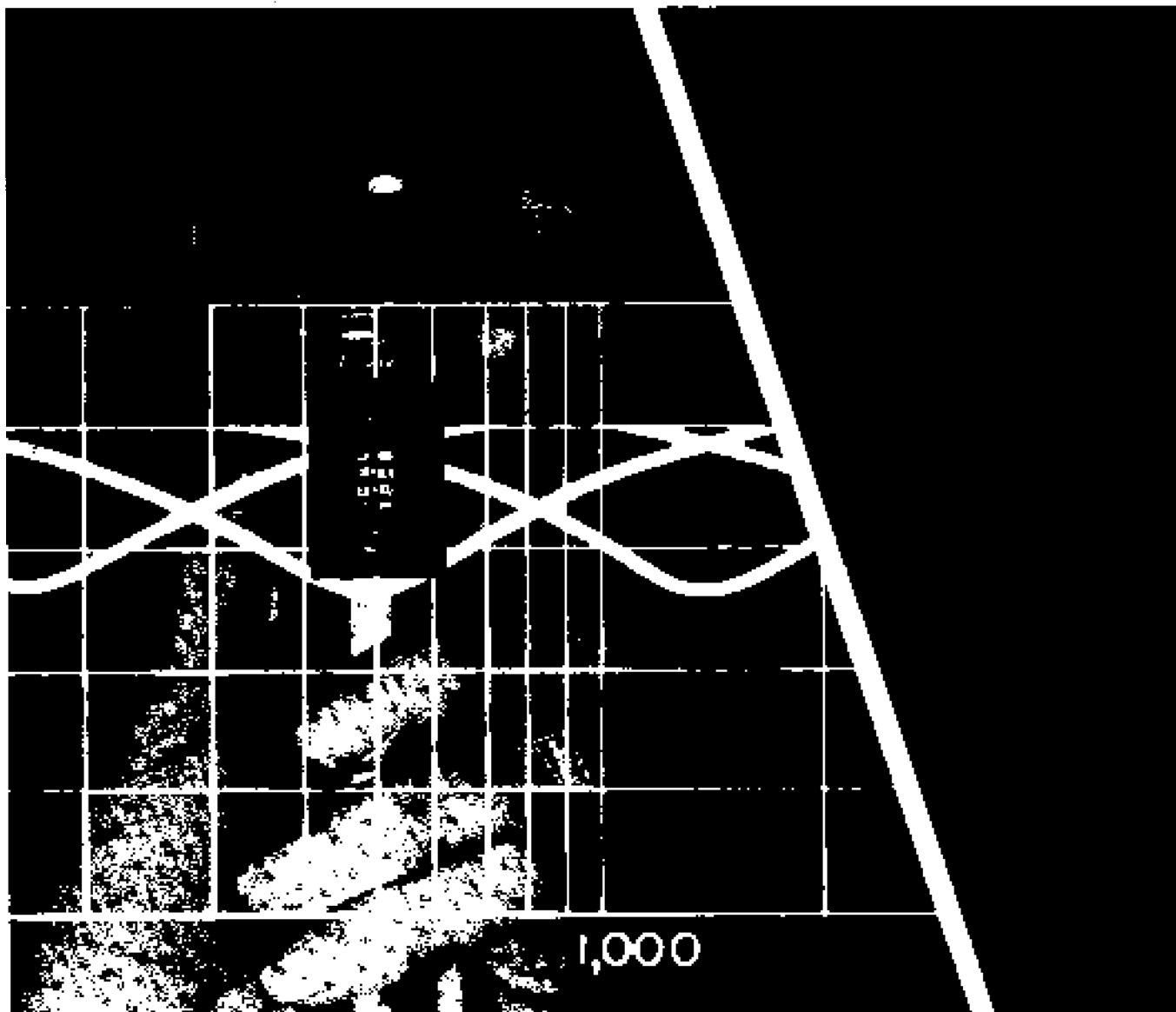


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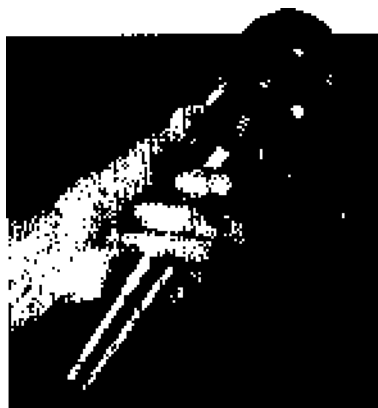
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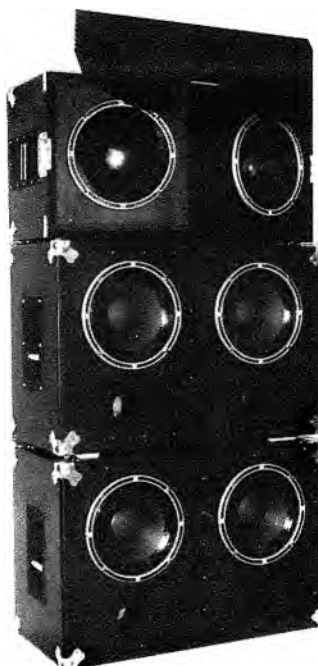
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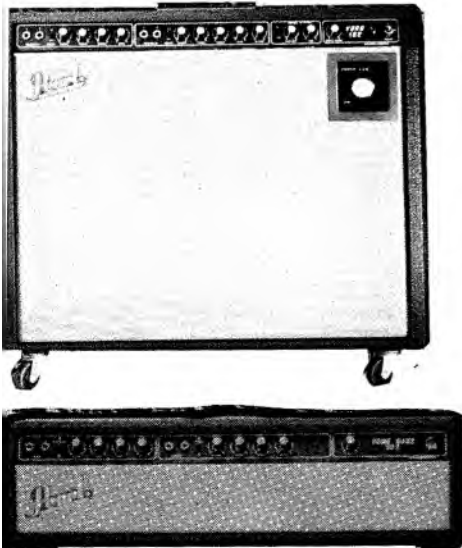
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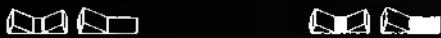


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Country Lead and Steel Guitar Sound



V-4, VT-22, V-2, VT-40



G-212, G-410, G-412

Rock Sound



V-4, V-2



VT-22, VT-40



G-412

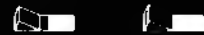


G-212, G-410

Acoustic 371 Bass Sound



V-4B

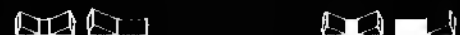


V-6B

Jazz Sound



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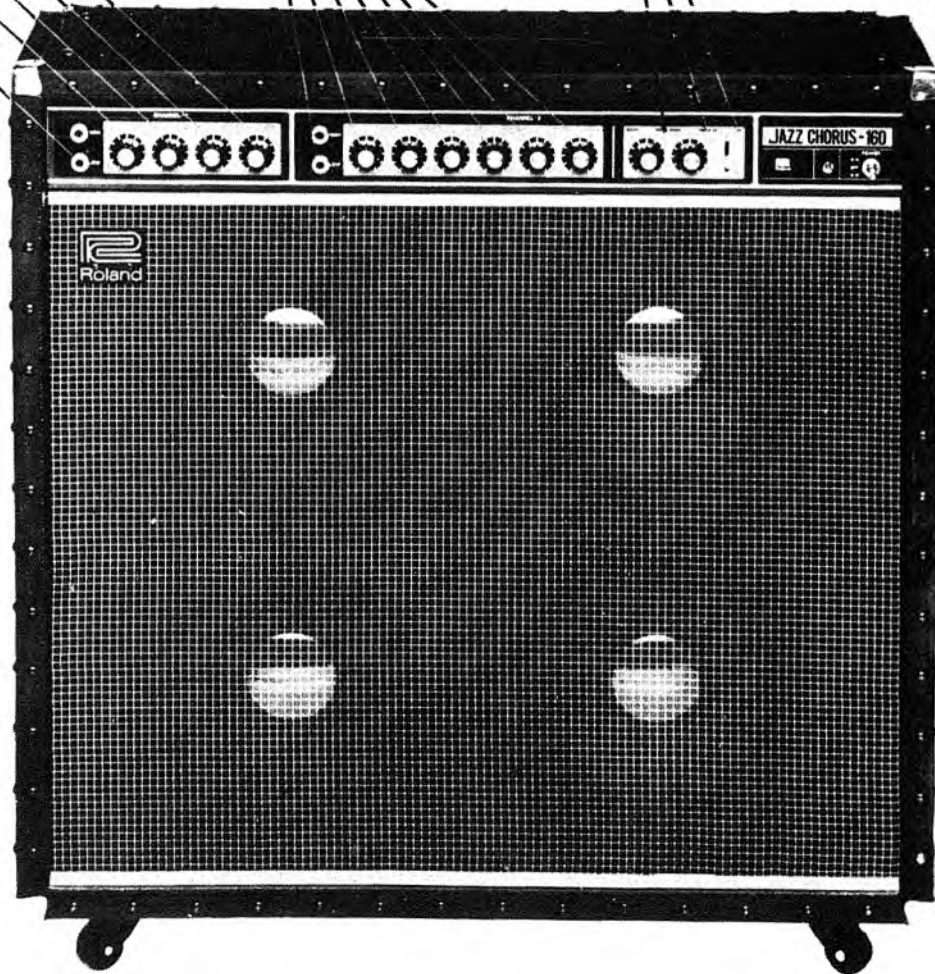
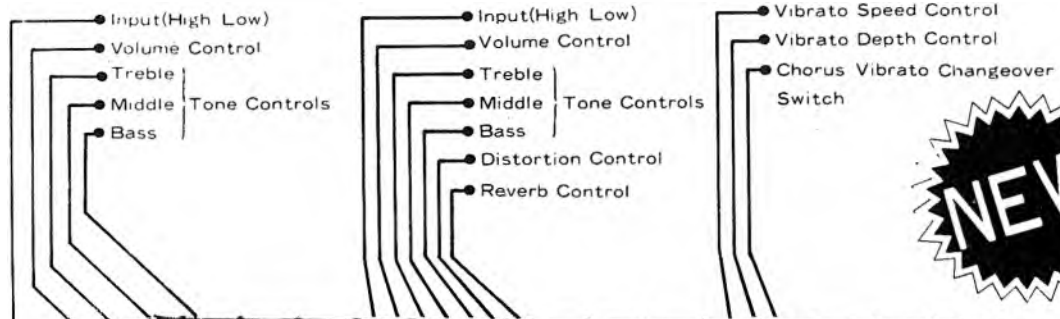
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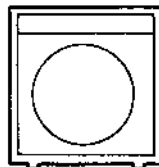
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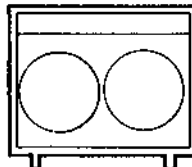
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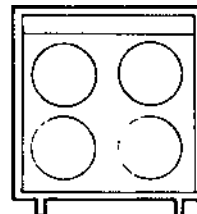
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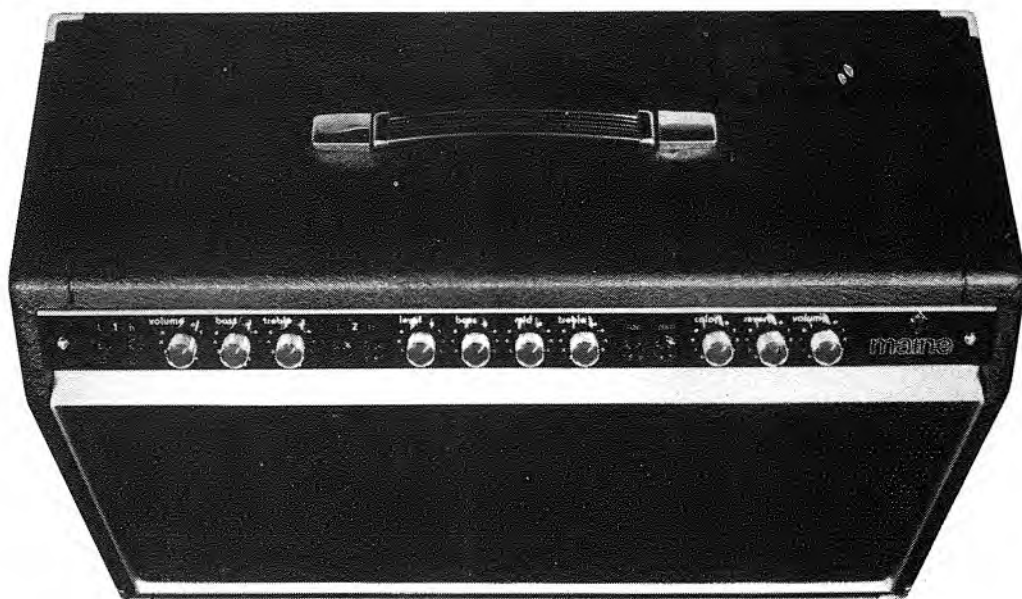


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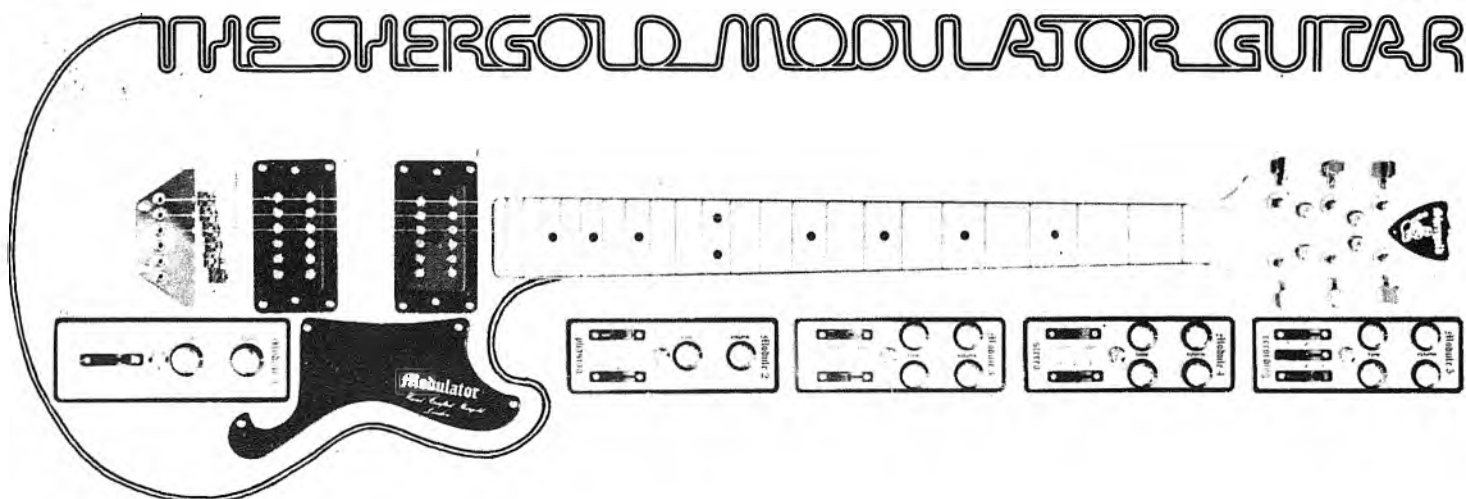
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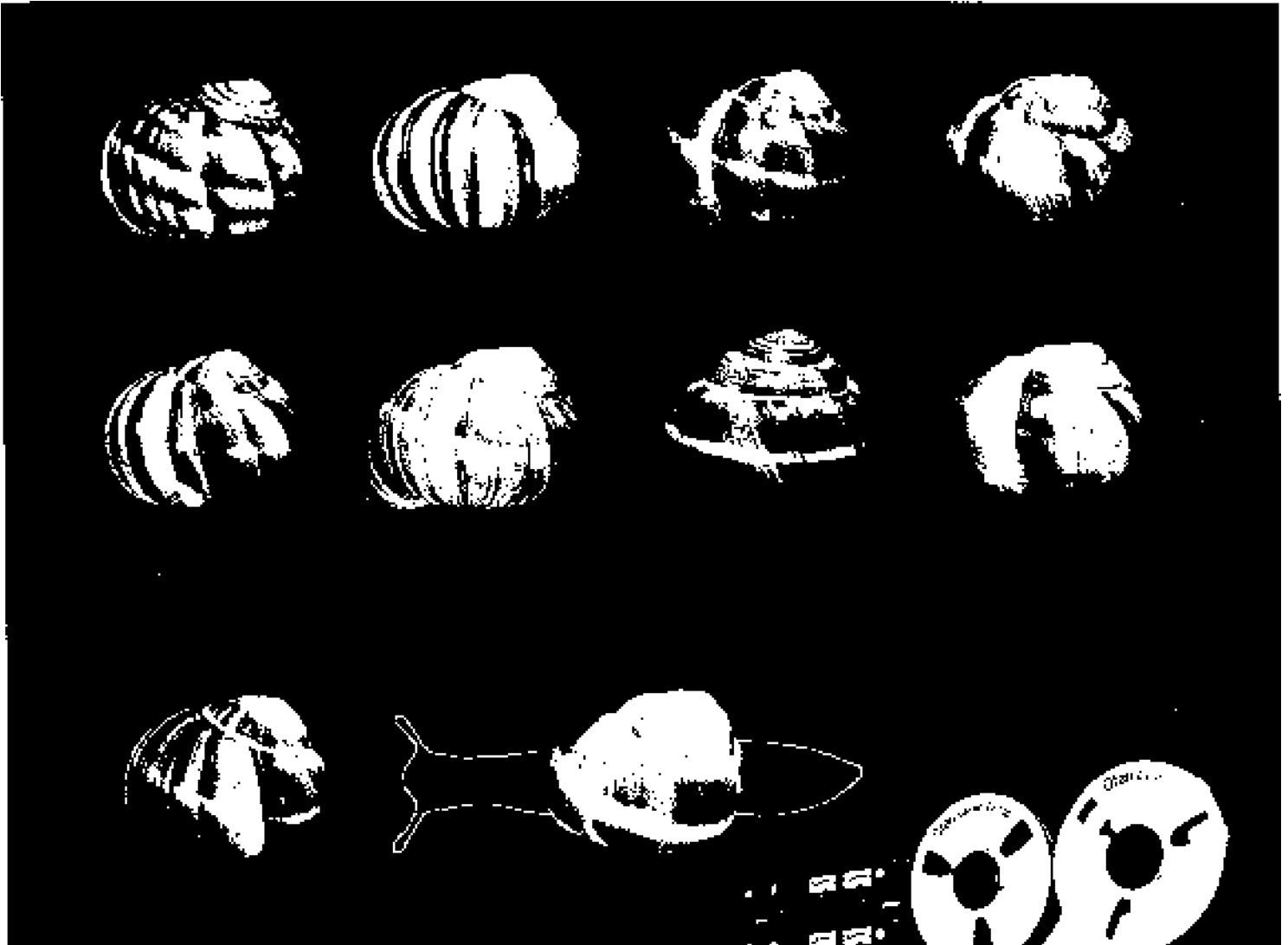
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COMMUNISM JAILS ROCK MUSICIANS

A TOTAL of seventeen young people, most of whom were members of two Prague groups "Plastic People of the Universe" and "DG 307", have been sent to jail in Czechoslovakia.

They were given jail sentences ranging from eight to eighteen months, after being charged with "anarchism, anti-social behaviour, rowdiness and decadence" One of the musicians, Ivan Jirous, was sentenced to eighteen months in jail after being arrested in March of this year as part of the Prague "cultural underground"

Mountain Sign Krazy Kat



KRAZY KAT, a five-piece band which includes three ex-members of the now-defunct Capability Brown, signed a long-term contract for recording, publishing and management with Mountain Records. The band, consisting of Tony Ferguson (guitar), Ray Lewis (bass), Grahame White (guitar), Harry MacDonald (keyboards) and Roger Bradley-Willis (drums), write all their own material and specialise in five-part vocal harmony.

A debut single, "Thirty Love", was recently released and an album

has just been completed at Air Studios, produced by Chris Thomas, already known for his work with Roxy Music and Procol Harum. Mountain hope to announce a release date and tour schedule shortly.

EDITOR FOR RECORD MIRROR

FOLLOWING THE recent departure of Sue Byrom from Record Mirror, Alf Martin has been appointed Editor. Formerly Deputy Editor of Sounds, Alf takes up his new

CHART FIXERS COULD BE CRIMINALS!

IF YOU have a new band with a single in the shops, watch out if you're thinking of sending all your relations in to buy three and four copies at a time - you could end up in court.

This warning comes from the British Phonographic Industry Ltd. - the industry association for producers and manufacturers of gramophone records and pre-recorded tapes. To further improve chart security, the BPI has decided to double the size of record retail outlets making returns to the British Market Research Bureau, which compiles the record charts.

The BPI's Research Manager, Peter Scaping, told I.M. "Plans are only tentative at the moment, but it is the firm intention of the BPI to increase this number from 300 to 600". From this 600, a random sample of 300 will probably be the basis on which the charts are compiled. The new system should be fully operational by the early part of next year.

Explaining the reason for this decision, Peter said "It is rumoured that one or two unscrupulous people have attempted to enhance the position of certain singles in the charts. However, it's not a serious problem. The practice is dying out as dealers tend to be very loyal to the BRMB".

New UA A&R

MARTIN RUSHENT has joined the A&R department at United Artists Records. For the past three years he has been a freelance recording engineer. Prior to that, he was an engineer at Advision Studios for five years. His track record includes work with Yes, Led Zeppelin, ELP, Bill Withers and T. Rex. Initially, he will be working closely with U.A.'s head of A&R, Andrew Lauder, and later developing his own area of responsibilities.

New Label

WEA RECENTLY announced the formation of a new label called International, formed for use only on important projects involving compilation albums from several of the labels under WEA's corporate banner. These labels include Warner Brothers, Atlantic, Asylum, Reprise and Elektra.

International's first release - scheduled for November 5th - will be an album called "Twenty United Stars of America", part of WEA's contribution to mark the American Bicentennial. This album features The Eagles among its artists - the first time any Eagles material has appeared on a compilation album.

position at the end of October. Miss Byrom is due to leave for New York in November to undertake freelance work for several U.K. publications.

Senate Beats Pirates - Pays Musicians

THE ONMIBUS Copyright Bill, passed by the House and Senate and awaiting the President's signature, makes law a statutory mechanical royalty at a fully recognised rate in the U.S.A.

This follows a lot of trouble in the U.S.A. over what would be called needle-time in the U.K., and this has at last been improved, offering musicians and composers greater protection in that

they will get paid, and paid more, for records that are played on U.S. radio.

The RIAA, the Recording Industry Association of America, point out that of the provisions included in the law, one of the most important is that the new law will now permit seizure and forfeiture of equipment used in the manufacture of pirated recordings. The whole problem of record and tape piracy throughout the world is extremely serious, the long-term survival of the record industry depending on the control and elimination of this problem. It's interesting to note that 25% of the whole Italian record market consists of pirated material - that's the extent of the malaise.

Another key provision included in the bill is the creation of a Royalty Commission, which will review the mechanical royalty rate in 1980, 1987 and then every ten years, the new rates becoming effective on January 1st, 1978. The actual rate was finalised at 2¾ cents, or ½ cent per minute, whichever is greater. This is lower than the original House-passed royalty, and this reduction was encouraged by the RIAA, effectively enabling more records to be played on the air.

Harrison Sued Again

A&M RECORDS have levelled a \$10 million lawsuit against George Harrison for allegedly not producing a solo album on his "Dark Horse" label. Harrison claims the problems were being sorted out at meetings with A&M executives recently, but it seems A&M are now seeking the dissolution of the label.

Apparently the album was due for completion on July 26th this year, but was put off because of Harrison's illness at that time. The production neared completion in mid-September, but since then matters seem to have deteriorated.

Derek Green, Managing Director of A&M in London, would make no comment on the lawsuit, and a spokesman for Harrison has been quoted as saying the situation arose "because of some sophisticated financial arrangements in the original contract..."

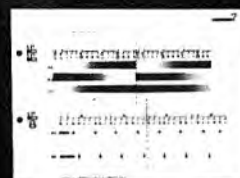
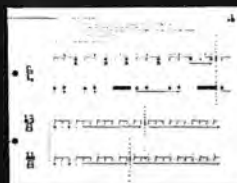


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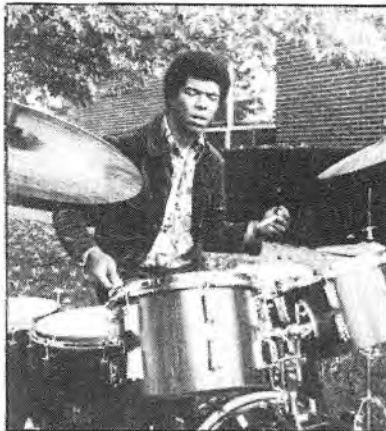
Tommy Aldridge

relies on Sonor drums and accessories for consistent performance in the recording studio and on tour. Listen to Tommy and Black Oak Arkansas, and hear the quality of Sonor drums.



Frank Gant

whose performance with Ahmad Jamal ranks him among outstanding contemporary drummers, insists on Sonor drums and accessories to deliver his unique sounds.



Jack De Johnette

is known to his many fans as "The Wizard" because of the exciting music he creates. His choice of drums is Sonor, an instrument versatile enough to respond perfectly to the vibrant, original sounds. "The Wizard" is famous for.



Bernard "Pretty" Purdie

whose featured performance with Aretha Franklin and other stars in person and on records make him one of the most talked-about percussionists of the day, delivers his message on Sonor drums.



Bobby Gien

Ronnie Scott Band



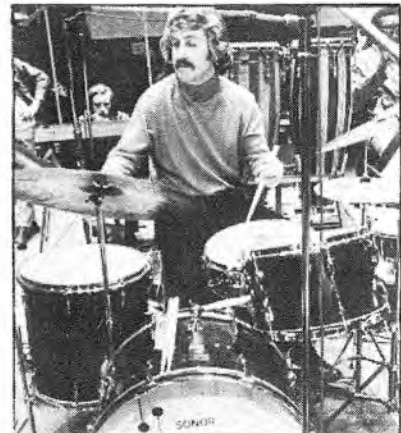
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Letters

Edited by Tony Bacon

Sir: Please could you tell me if the American company "Alembic" have a distribution outlet, or somewhere I could write for information on their bass guitars. If not, please could you let me have their address in the States.

Richard Ford,
Aldridge, Staffs.

Alembic do not have a distributor as such in Great Britain, although they can be contacted at the following address:— 60, Brady Street, San Francisco, California, U.S.A. Telephone (415) 864 3800.

Sir: Top marks for a fine mag. I have been a guitarist for thirty years but still learn a great deal from various articles. I went on a guitar binge recently, trying out a Fender Jaguar, a Hofner President and a Hayman 3030 and finally settled for a Grant 335 copy—a really excellent guitar. A recent article in your mag shows a Grant Telecaster copy and this prompted me to ask how much was mine new and is it still made?

Mervyn Cherrington,
Southall, Middx.

We had a tremendous response to our review of the Grant Telecaster copy, and prospective owners of this and other Grant guitars can get more information as to their availability from the importers, James Grant Musical Instruments Ltd., 53 Home Street, Edinburgh. The 335 copy is indeed still available, the model number is ES62, and the current retail price is £49.78 excluding VAT, although James Grant warn that the next batch in are likely to be more expensive.

Sir: May I first of all say that I have enjoyed reading your magazine for some months now, and I particularly like your 'test bench reports' on instruments and your features on recording studios. It is my intention, in the near future, to buy a new instrument, and I wonder if I might ask for your comments and opinion on the quality and playability of various makes of bass guitar. I am a professional bass guitarist playing with a "big band" and we play standard "big band" music, jazz and pop. I therefore need a good-quality, versatile instrument, which will give me a big swing sound for jazz and a crispy sound for pop. Although I have not yet tried out any particular instruments, I am thinking along the lines of a Fender Jazz Bass, a Yamaha SB75 or a Gibson EB3. Perhaps you could recommend any others you consider worthwhile up to a maximum retail price of, say, £350. Also, perhaps you would kindly advise me if you intend to do a test bench report on a good-quality bass guitar in the near future.

Paul R. McNaught,
Harwich, Essex.

We intend to carry tests on more bass guitars in the future, along with bass-allied amplification. In

the past, I.M. has carried out tests on quite a few basses, including the Music Man Stingray bass, the Gibson Grabber, the Kimbara Ricky copy and the Gherson Jazz bass. Perhaps the best thing you can do is find a local dealer who has a wide stock of basses and spend an afternoon trying out various makes and models. At the price range you mention, you might even consider having a guitar built for you by any of the excellent craftsmen who specialise in this area, some of whom were covered in our "Guitar Makers" series.

Sir: Are Bigsby tremelo arms still available? If so, where could I obtain one and would it be possible to fit one onto my Columbus Les Paul copy?

R. Harding,
Stechford, Birmingham.

Bigsby tremelo arms are still available and are distributed by Strings and Things. There's no reason why you shouldn't fit one to your Columbus Les Paul copy, but you should make sure you get a suitable model—the trouble with Les Pauls and their copies is the arched top, but Strings and Things recommend either the V5 or the B3. If you have any problems locating these at local dealers, Strings and Things' address is 20, Chartwell Road, Churchill Industrial Estate, Lancing, Sussex.

Dear Stephen Delft: Thank you very much for your article in the September issue titled "Stephen Delft looks at DiMarzio pickups". We felt that it dealt with the pickups most objectively and fairly. I was a bit surprised at your comment on the Fat Strat Pickup as it has been an extremely popular item here in the States. I was curious—did you have it in the treble position for which it is recommended? Also, the reason for the pickups not having covers is not only in terms of aesthetics but for performance as well. We have found that the closer the humbucking pickup can be placed to the strings, the higher the output. A cover would thus interfere from bringing the pickup pole pieces to the maximum closeness to the strings, while still keeping as much of their mass inside the actual electrical field. We have found that many guitars that have a big degree of neck angle, such as Les Pauls, do not allow the dummy coil to be placed close enough to the strings. It is true that whereas the dummy pickup does not generate audio signal, the signal it receives should be as high as that of the other coil to still fully allow for the most efficient humbucking effect.

Steve Kaufman,
DiMarzio Pickups, Staten Island, New York.

Stephen Delft replies, "It is unlikely, but possible, that the Fat Strat was slightly outside its spec. I cannot be more accurate than to

say I would place the one I tried closer to a new Strat than to an old one, considering the average of both types. As for the covers, I agree with all your points but feel that a few thou' of some tough modern plastic would not seriously alter the situation and would keep the nickel dust out; there's no reason why it shouldn't be clear plastic. As to dummy coils—with respect I've never considered the second coil to be a dummy, as some cancellation of harmonics takes place. I suspect we're using different words to describe the same thing from two directions. Lastly, can I say that I'm always delighted when a manufacturer replies to reviews. I wish more would. It's good to hear what they think of what we think."

Sir: On behalf of Music Man, Inc and Mr Leo Fender of C.L.F. Research Co., I wish to thank you for the excellent review given to our new instruments by Mr Stephen Delft in your September issue. If I may, I would like to

tonal characteristics as possible.

While these additional bass and treble controls (which are active boost and cut circuits) make the many different sounds possible, they can also be very confusing until the user becomes properly accustomed to their functions. In our extensive bandstand testing of the Sting Ray, we have found that nearly every guitarist needs an evening or two to get the "feel" of the controls so as to not overuse the extra bass and treble boost which is available.

Mr Delft's comments on the sequence of the selector switch functions are well taken. Much consideration was given the problem and the following logic seemed most appropriate and the least confusing: The number one position is the lead position and only the bridge pickup is connected. The number two position is rhythm and only the neck pickup is engaged. The number three position connects both pickups while the fourth position reverses the phase of the third position. By making the number one position lead it may be reached instantly without requiring forethought as to its location. When leaving the lead position it follows that the rhythm mode would be the most likely one required. Since the other two positions are for special effects, they were relegated to the third and fourth positions. While a separate phase reversal switch would have made an ordinary three-position lever switch useable, Mr Fender opted in favour of the single four-position rotary switch for reasons of simplicity. We have found most guitarists adapted to it very quickly without encountering undue difficulty.

I wish to congratulate Mr Delft on an extraordinary insight into the many fine points of design that contribute to a truly professional instrument. Comments by your magazine or readers will be most welcome.

Tom Walker,
President, Music Man, Inc.
Anaheim, California.

Sir: I believe Hohner have a new model Pianet electric piano. Can you give me any details?

Bob Godfrey,
Watford

Hohner's new Pianet, the Model "T", should be available in December and will retail at £277.55 (excl. VAT). It will have a similar sound to the old model, perhaps a little mellower, with a different striking system, though still utilising reeds. It will not have to be plugged into the mains like the old model, and will feature a 61 note keyboard instead of the previous 60.

comment on several points regarding the guitar design and possibly clear up certain questions Mr Delft felt needed explanation.

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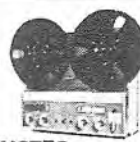
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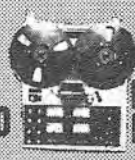
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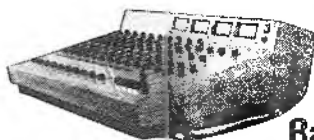
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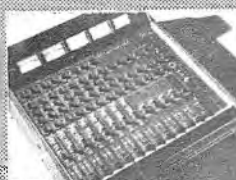


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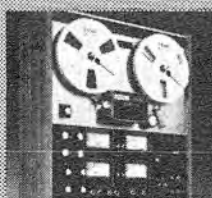
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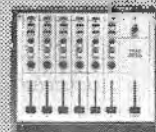
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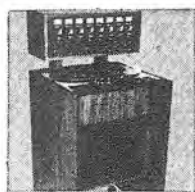
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10CC are, for many people, the ultimate band. They have achieved a cohesion in the recording studio ahead of any other current group of musicians and manage to reproduce much of their work on stage. In an exclusive I.M. interview, Ray Hammond spoke to Lol Creme and Kevin Godley at Strawberry Recording Studios in Manchester as the two were preparing their first duo project — an album based on the sounds produced by the Gizmo, a device invented by Lol and Kevin and soon to be on the general market.

Lol did most of the explaining with a little help from Kevin and wherever possible, we have tried to note the remarks made by Kevin. If an occasional sentence of Lol's is attributed to Kev, or vice versa, we offer our apologies.

Could you explain the background of the album to me?

It's a sort of experiment that Kev and I are doing. As you probably know, we've invented the Gizmo, which will be coming out on the market, in either June or July. It was originally invented just for ourselves, but we now want to get it on the market. Kev and I wanted to do the first definitive Gizmo album, and we thought that if there is a best time to do it, it was now, so we set a few weeks aside and started experimenting to see the different sounds we could get out of it. I suppose we are at an advantage, of being the ones to do the first Gizmo album, as we are the only ones who know how to play it.

Could you explain what a Gizmo is and how it works?

Originally, because we are very into orchestration, we wanted to use an orchestra, but you cannot manipulate an orchestra in the studio just like that and you could end up losing a lot of time and money, so we wanted something that was at our finger tips, that would provide us with the service, but that we could play ourselves. There was the Mellotron and Moog but they were bulky and although they did the job, it was not quite right.

We decided to see if we could get that sound out of a guitar and we spent about a year or so developing the idea, which is a little box that goes over the guitar and you play the box instead of the strings. You can play the guitar as a guitar, play the strings, put it through a fuzz box and all that. All it is, is a box that bows the strings. It's not electronic, it's mechanical and it will bow any string on the guitar when you want it to.



You mentioned that the Gizmo will be coming out on the market sometime next year, have you any idea what it will cost?

Around £75.00 to £100.00, we want it to be accessible so we are trying to produce it as cheaply as possible.

Can a player effectively play his guitar and bring in the Gizmo and then fade the Gizmo out again?

Oh yes, once the Gizmo is on the guitar, it's on there and you can play it or not, as required. The Gizmo doesn't change the guitar into an orchestra, it's

still a guitar.

What about the left hand technique?

You have to adapt really, you find that if the string is being bowed and you actually want the sound of a string being bowed, you have to do a different kind of vibrato. Like, you do an upward movement for blues and downward movement for string instruments such as the violin, you should really vib the Gizmo the same way as you would a cello (downwards) but, if you vibed it like you do in blues, you would get that sort of sound.

The choral singing on your album,

who did you get in to sing that. I didn't think anybody sang like that?

That was in fact bottle neck on the Gizmo and it is again basically how you vib. As you play, you find different sounds can be got using different techniques but that's how you play anyway.

How long ago did you get that idea?

In fact we got the idea about three years ago, but we didn't get the time to develop it. We have used it in 10cc on certain tracks to get certain sounds, but what happened was that we didn't spend a great deal of time finding it on stage for about two years, but only really during five minute pieces, and when you are on the road you really don't get much time to experiment. In fact, people have been hearing the Gizmo in use for the last two years and not really known what it was.

Who engineered the unit in the beginning?

We did that side of it ourselves. Neither of us knows the first thing about mechanics or engineering and I suppose we did it in a very naive, ignorant sort of way, but I reckon that's really the best way, as you aren't hampered by knowing what should work. There is a faculty at Manchester University, which is I suppose an Industrial Liason, and we got together with an incredible guy from there who was a qualified mechanics professor, or whatever, and he got involved with the project. We took the principle as far as we could and he is building the thing for us. He has got together a test-range and he's tried it out with different materials to find out what works. Now the Americans are doing their side of it and will be mass producing it for the market. Musitronics are the company manufacturing it.

How is the Gizmo fixed to the guitar?

In fact, the fixing of the Gizmo is still being developed and I can't define the facility, but it will be very simple — a case of five seconds to get it onto the guitar and five seconds to get it off.

To what extent has it helped with your writing?

It's an expanding thing. We wanted to write with an orchestra, but it was just too expensive, and with a Mellotron there are also many limitations; like, you are stuck to seven seconds. We've actually been writing as we go along.

What about other tunings, like guitars?

Oh yes, we've done that. In fact, the bass notes on the album are just a string tuned down.

What about problems like electrical interference?

We got rid of that sort of problem a couple of years ago, they're the sort of problems you get when you're developing the thing. Now it's pretty much together.

We took it to Musitronics and they've got guys who demonstrate guitars on their product range and they couldn't believe it, they just played and played. I think every guitar player is a frustrated violinist and cellist as well and they're always looking for the infinite sustain which is why you have all the massive stacks.

(Kevin) You've got Jimmy Page bowing his strings and it's obvious that people want the facility to play that sort of thing. We wanted to bend that note up there and sustain it for two weeks if necessary. It changes the limits of the instrument altogether.

(Lol) Yes, it becomes a different instrument, doesn't it?

I've always felt that when you come to write on a guitar, it's very limited. In some ways the limitation seems very good because it forces you to explore within restrictions, but in many ways it's just frustrating. Do you find the Gizmo breaks down these barriers?

(Kevin) We're writing in a completely different way now. We used to sit down at a piano, write a few words and get a song. Since having this thing, everything we're recording has virtually been made up as we go along because we hear something good and say 'let's put that down'.

(Lol) You hear one line on it and you immediately want to try out another line to go with it. So you can lay it straight away.

(Kevin) At the moment, we're working on a song which we wrote on piano and this is a particular experiment to orchestrate a piano concerto and the writing on that track is specifically there to back that piano. We've always fancied hearing what strings would be like on certain songs, without hiring a complete section. We haven't been able to do that before but with the Gizmo, you can find out instantly. On other parts of the album there are things which are just purely Gizmo, and the Gizmo inspired the actual melody and it inspired the arrangement and everything.

(Lol) I'll tell you what else it means. It means that one guy, one guitar player, can go into a studio and come out with something that's complete. It sounds like voices, it sounds like strings and if you add a bit of fuzz, it even sounds like brass. It means one guitarist can come out of a studio with a complete album that would normally take a hundred string musicians.

Despite the fact that you've had three years with the Gizmo, I should imagine you're only just beginning to find the possibilities?

(Kevin) Of the three years we've spent with it, two were just static. We didn't really get much opportunity to expand it within the group.

(Lol) We've been playing it seriously for two weeks on this album and it's really expanding. It'll probably end up as more than one album.

What's ahead for 10cc. A States visit soon?

(Lol) I bloody well hope so, we've got a lot of work to do there. The last album ('How Dare You') wasn't as successful as it should have been. We've been a cult band in the States for about two years, but cult bands don't sell very many records and really we're in the business of communications, not art for art's sake. We don't really want to be a cult band in the USA, we want to break through.

I think we lost a lot of ground in America because 'How Dare You' wasn't as good as it could have been, or should have been. Everybody asked how we could follow 'Original Soundtrack' but we should have been able to improve on it easily, and we've only ourselves to blame.

I understand 10cc have built a new studio in Dorking, Surrey. Can you tell me something about it?

(Lol) Yes, it's a Westlake room like this (waves around the control room at Strawberry) but it's bigger. Westlake only did this control room. In the new studio they've done the control room and studio.

Why Westlake?

What we did was gather together a whole pile of albums we've really dug the sound on and we found out they were nearly all recorded in Westlake studios, so you can't beat that.

(Kevin) We had this place done and it is fabulous. We're really pleased with it.

(Lol) Tom Headly, who is Westlake, or to be correct he's now Eastlake because he's moved over to Europe, came to see the old cinema we've bought. We have just used the cinema as a shell and he's designed the studio to be suspended inside the main building. It's a very cosy little studio, not very big, and so we designed it so that the isolation booth has a height of about 18 ft. and it can be used for string, rhythm section or an echo chamber for natural echo. It's a very bright room but it's got drapes you can pull down and alter the sound entirely. Most of the time we record direct rather than acoustically, but we have taken trouble to make it

very cosy.

Why have you felt the need to build another studio when you have Strawberry?

Well we don't live here (Manchester) any more, also the studio's so booked up we can't get in. Since 'Sheet Music' we've had to book our own studio like three months in advance and use ridiculous hours to fit in with people who have already made bookings. That's why the new studio is not going to be run like a commercial studio, it will be available for hire when we're out of the country, but it isn't designed to be hired out really. The idea is that if at five o'clock on a Tuesday morning I feel like dropping in to put something down I can do so. We want it to be like a fucking huge Revox we can use whenever we want to. 10cc started like that when we had this studio and we just fell into it and experimented and our records used to be more experiments than anything else and that was because we had studio time and equipment to play around with and that's what we're getting back to in the new studio. We're taking stock and going back to square one because that was the most exciting period for 10cc. I think we're in a little bit of a rut at the moment and we want to get back to that exciting period that was almost an art school period.

What about the equipment in the new studio?

It's 24 track with an Automated Processed automated mix-down desk but the components have been fitted into our new design and it's a wrap around desk like this built by Tony Coppul of Formula Sound (who built all our stuff, PA, etc). Eric and Tony designed the desk and we all went over to the States and picked out bits we wanted and it's got all the latest gadgets like the Eventide Harmonizer, all the crap, everything you could want. The machines are 3M's. The studio's ready now, they're just wiring it up, and we've done it all very quickly; we've only had the cinema nine months. Part of the Eastlake thing is that he just comes in and does it and it takes about six weeks.

So you all live fairly close to the new studio?

(Lol) We all live pretty close, Graham's continuing to live here but he's getting a flat in London so he's got a place to fall into when we're recording.

What's going to happen to Strawberry?

It'll continue to be a full time commercial studio. It's very busy now and I think it'll go on like that.

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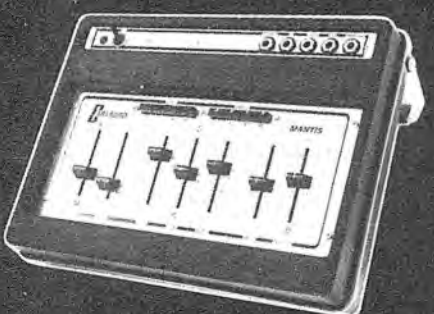
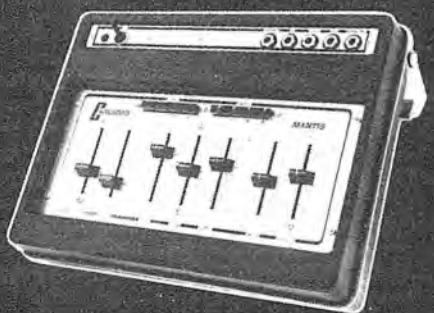
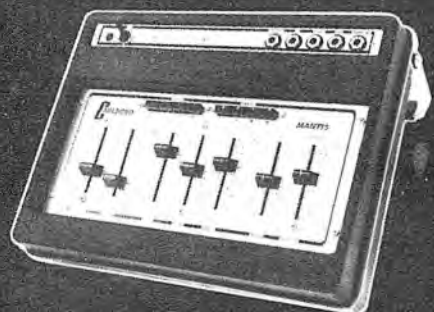
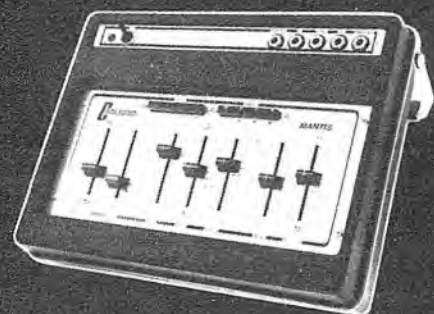


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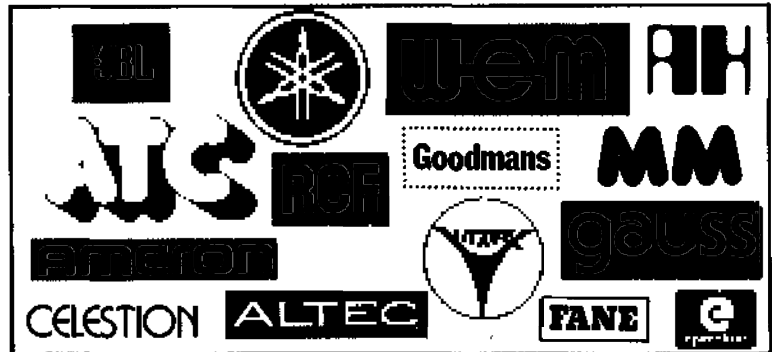
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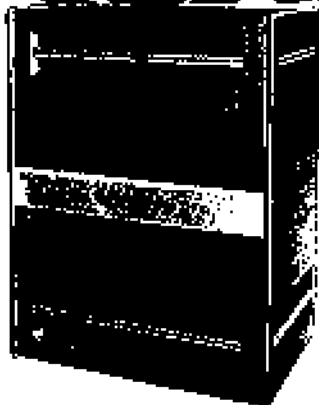


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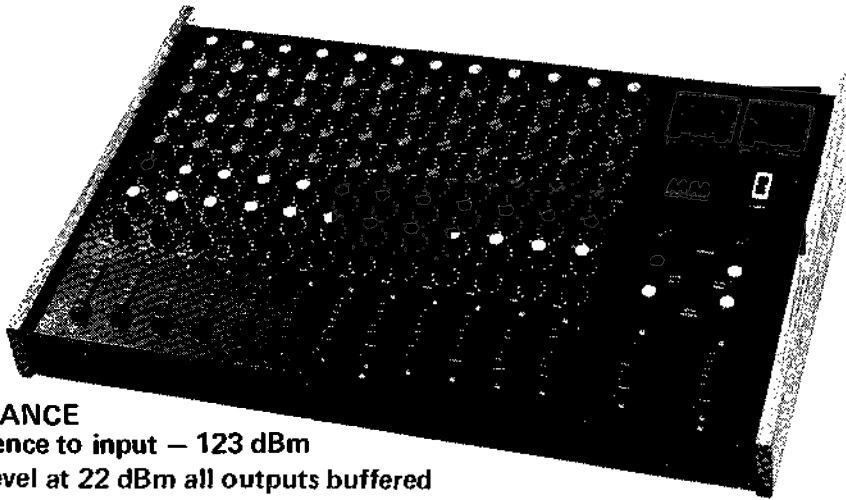
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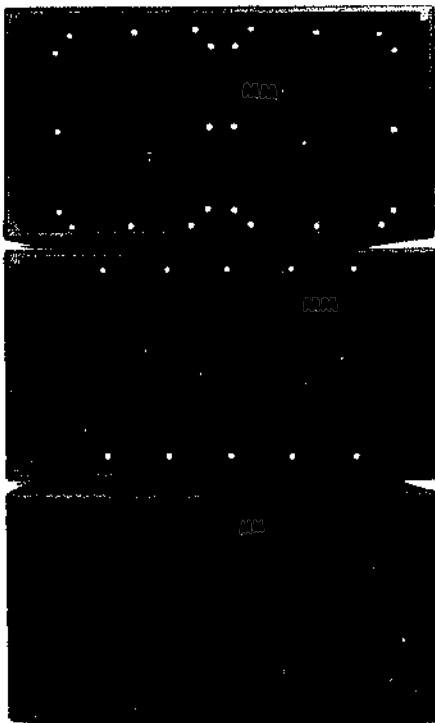
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Jack sockets are fitted as standard. Cannons are available at an additional cost of £50 per stack. Each stack of three cabinets retails at £450 and will be available from August

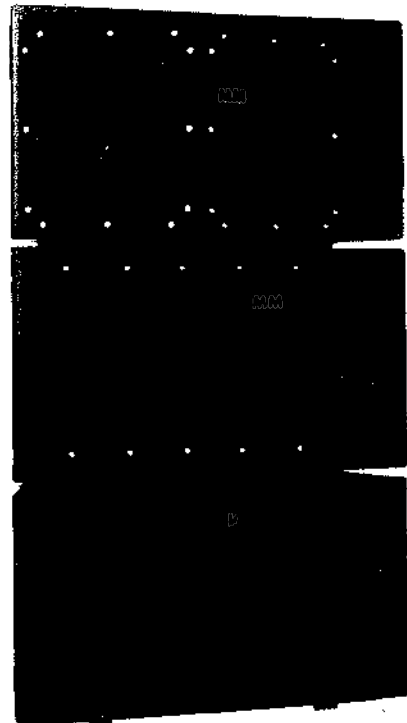


Illustration shows two complete stacks

Soundcheck Soundcheck

TEST ON *Pearl VORG 102 Guitar Combo Amp*

DATE *October 1976*

PRICE *£276 Ex VAT*

TEST BY *Mark Sawicki M.Sc. (Eng.) AMIEE*

INTRODUCTION

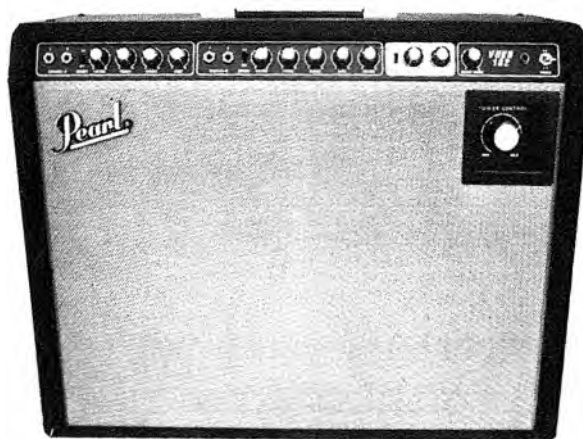
The Pearl Musical Instrument Company is a Japanese organisation solely represented for electronics by Nexus Music in the UK. The VORG 102 amplifier is one model from a new and wide range of combination amplifiers which includes the VORG 052, VORG 051, VORG 101, VORG 102, VORG 101GX, and VORG 102GX, models. A bass guitar amplifier version the VORG 101A and the VORG 101S bass speaker cabinet are also in the range. As the manufacturer's leaflet explains, this new series of equipment is especially designed to cover a power range of 50 to 100 watts r.m.s. and having special features such as power control devices, reverberation facilities, and phase shifters, creates a wide range of sound effects — 'Jet' and 'Rotary', to name just a couple.

The VORG 102 Combination Amplifier is a 100 watt R.M.S. general purpose amplifier recommended for the professional musician playing keyboard, synthesiser or guitar, and it is at the top of the Pearl range. The unit is an attractive twin channel solid state package incorporating two 12" speakers in a compact enclosure measuring 560mm x 680mm x 268mm. With a total weight of 30Kg. it is also reasonably convenient to transport.

CONSTRUCTION & APPLICATION

The enclosure for the amplifier and speakers is made of plywood covered in a smart black vinyl material. The amplifier front and rear panels are finished in black and contrast effectively with grey speaker-grill material. The top part of the cabinet contains the solid state amplifier unit and the lower section houses the two 12" Japanese speakers (type P30-50L). A spring type Reverb unit is mounted in the base of the speaker cabinet section and is covered in an acoustic sleeve for efficient damping or anti-vibration purposes. A strong handle is provided at the top of the unit for transportation.

The sloping control panel is very comprehensive and the controls for each one of the two channels are clearly marked. Each channel has two input sockets and the following rotary controls, Volume,



Treble, Middle and Bass. Each channel also incorporates an On/Off switch for Brightness, and Channel Two has a Reverb level control. The Phase Shifter section which is common to both channels is laid out to the right of channel two and has controls for both Envelope (marked 0 — 10) and Time (marked Jet — Fast). On the extreme right hand side of the front panel are the master volume and On/Off power controls; the power switch has an additional illuminated red light.

The back panel of the speaker cabinet section is open leaving room for the various accessories provided, such as the reverb footswitch, and a set of castors that you can screw individually into the threaded sockets provided underneath the speaker cabinet. This is an excellent idea as the unit is provided with four strong rubber feet for stage use and the castors can be fitted when required.

The amplifier rear panel contains a 4 ohm speaker output jack socket, a —20 db|50K.ohm line output jack socket, one double banana type reverb connection socket and two anti-surge fuses — 3A Speaker fuse and 6A Power fuse. The factory-built-in power lead conforms to our present I.E.E. regulations.

The general layout of the electronic components is good and all are mounted on five P.C.B.'s which are clearly annotated. The wiring is neat and well laid out. The power amplifier section is easily replaceable and electronically protected against open/short circuit conditions with two extra anti-surge 4 amp fuses.

The two power transistors type 2SB-541 and 2SD388 are mounted in the

centre of the chassis on a large black anodised heatsink. The power supply section containing the well screened mains transformer and smoothing capacitors is also located centrally.

One interesting point about the amplifier's controls is that the manufacturer has provided a special power overload control which enables you to obtain a distorted valve sound at any level of output. This control is simply a large wire-wound ceramic potentiometer connected in parallel with the loudspeakers which we investigated and found to have no load damaging effect to the amplifier.

For the musician's convenience, a double push button footswitch for the Reverb/Phase Shifter operation is provided and the unit is connected for 100 — 240 volts, 50/60Hz. mains operation. The approximate power consumption is 250 V.A.

CONCLUSION

The amplifier is versatile and ideal for musicians requiring a wide range of facilities on their amplifier. The price of £298 includes V.A.T., a double footswitch, add-on castors, a built-in mains lead and a waterproof cover, and for my money (considering the extra Phase Shifter facility) this must be a good buy by any standards. This is also the first product that I have reviewed from Pearl and I was extremely curious to see if the Japanese had made any significant improvements on the vast range of combination amplifier products on the UK market. The answer is in fact that I am impressed and it is no wonder that the Japanese have an export boom with attractive modern products such as this unit.

PERFORMANCE

Parameter	Result	Test Condition	Comment
Specific Power Output /RMS/	a) 132.25W 108.16W	@ 10% THD; 4 ohms; 1KHz @ Onset of clipping; 4 ohms; 1KHz	Better than manufacturer's specification as the rated power level is 100 W r.m.s..
	b) 86.88W 74.98W	@ 10% THD; 8ohms; 1KHz @ Onset of clipping; 8 ohms; 1KHz	These figures are related to a speaker load of 8 ohms - if required.
Total Harmonic Distortion /THD/	0.47%	@ 100W r.m.s.	Good; Mainly the second harmonic
	0.67%	@ 80W r.m.s.	
	0.28%	@ 60W r.m.s. ret. 1Kz	
	0.27%	40W r.m.s.	
	0.28%	20W r.m.s.	
	0.26%	10W r.m.s.	
	0.30%	1.0W r.m.s.	
Sensitivity	Both Channels l.p.1 15.0 mV r.m.s. l.p.2 39 mV r.m.s	To give rated 100 W r.m.s. 100 W r.m.s. (1KHz) with tone controls set for the best response Channel vol. -- max. Bright switch -- OFF	Satisfactory
Signal Noise Ratio	better than 68 db	Related to rated o/p conditions; with tone controls set in that position	Good
Tone Control Range	31.8 db 26.8 db 38.5 db	bass at 80Hz middle at 1KHz treble at 15 KHz	Very Good
Frequency Response	20Hz - 20KHz	- 0.5 db into 10 W r.m.s. ref. 1KHz (4.0 ohms)	Very Good with figures considered for Hi-Fi amps.
Phase Shifter Modulation	f 0.1 Hz - 5.0 Hz	With op. made ref. repeating cycles at 0.1 to 5 Hz	Both time/envelope controls are extremely effective and allow wide range of sound obtained.
Line Output Signal Level	approx. - 20.0 db	Ret. 50K ohms /1KHz	
Reverb Unit	Subjective test only		Very pleasant sound when used with electric guitar. As the spring unit is coated in acoustical sleeve - good damping, anti-vibration properties
Power Control Unit	logarithmically variable resistance of 150 ohms in parallel to speakers		Interesting innovations, very simple, but the power pot (ceramic unit of approx. 150 W), should be of very high standard and well balanced - mechanically.
Capacitive load test	OK	2 uF into 4.0 ohms dummy load	Very good, no detectable overshoot with square wave test.
Short Circuit test	OK	1 min short circuit	No ill effects
Open Circuit Stability Test	OK	Motor gains controls max. tone controls - mid. pos. dummy based reversed	Very good stability margin
Specific Power Consumption	approx. 250 (VA)	240V, 50Hz	

What our listening panel thought. (The more stars the better)

Pearl 100W Combo	Volume (Compared to other similar amps)	Quality of Basic Sound Low Level	Quality of High Level Sound	Portability	Special Effects	Control Layout	Appearance	Reverb	Value for Money
Music Shop Dealer	*****	***	****	****	****	*****	****	***	****
Guitarist	***	***	***	**	****	**	****	***	***
Keyboards	****	***	***	**	***	**	****	****	***
Studio Engineer	****	***	****	***	****	**	***	****	****

REMARKS

MUSIC SHOP DEALER

To obtain a high or low level sound with a mild or heavy fuzz we found that the Ibanez Artist 6 string guitar's volume controls had to be set to maximum. The balance of channel volume, master volume and the power control min and max setting could then be adjusted for the desired fuzz effect.

KEYBOARDS

Speaker inefficiently limits final volume, but it's a really good amp for the money.

GUITARIST

Detachable castors a good idea. Middle and bass controls not as effective as they should be.

STUDIO ENGINEER

Need for "Power Control" somewhat dubious, tone controls could be more efficient, On/Off switch rather unusual.

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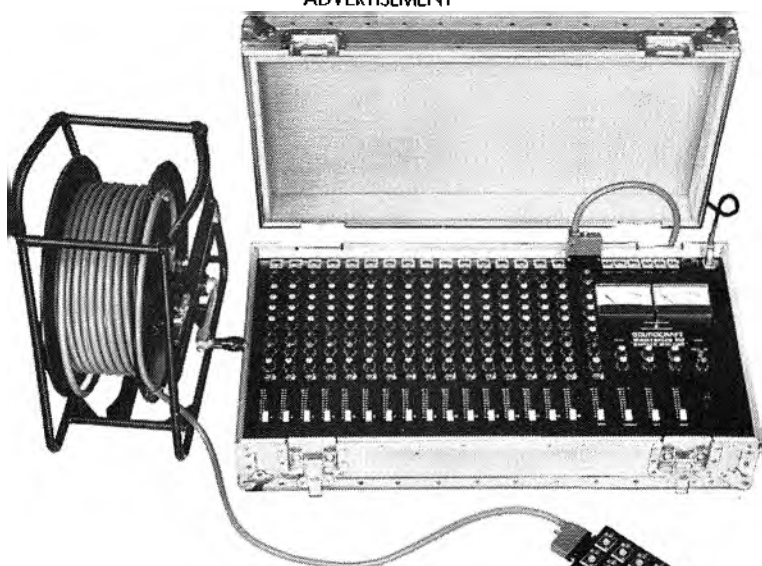
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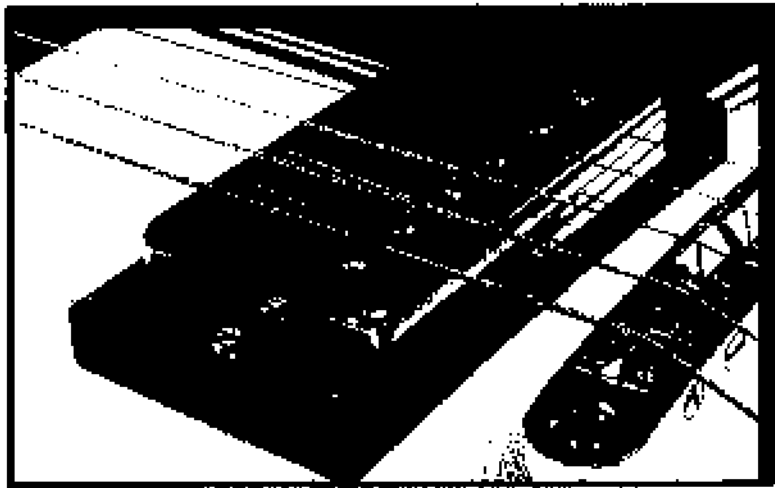
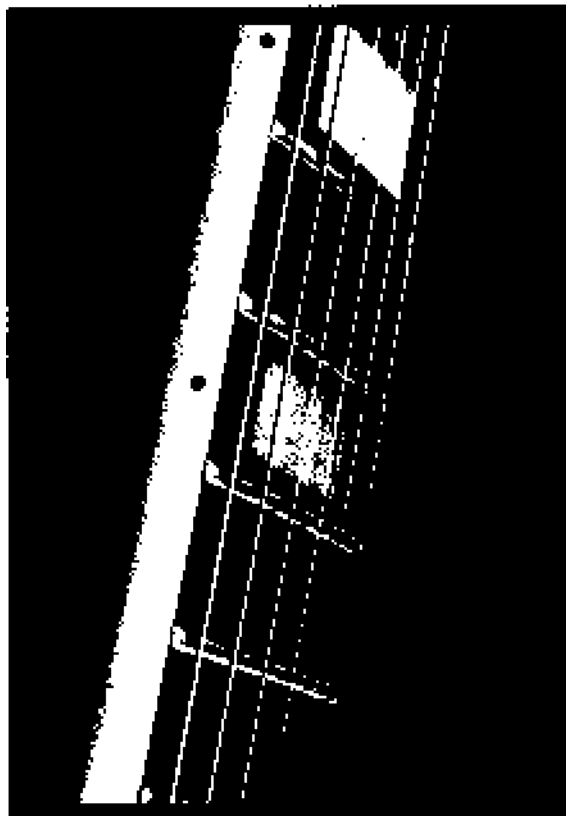
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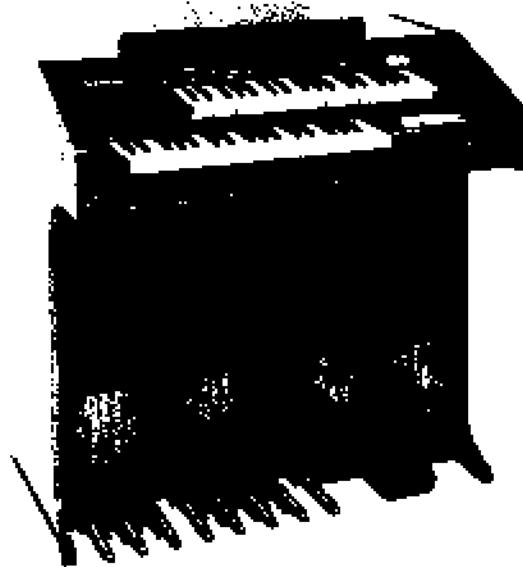
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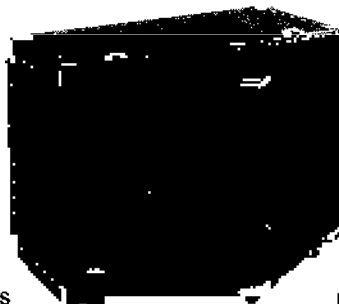
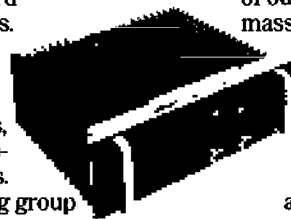
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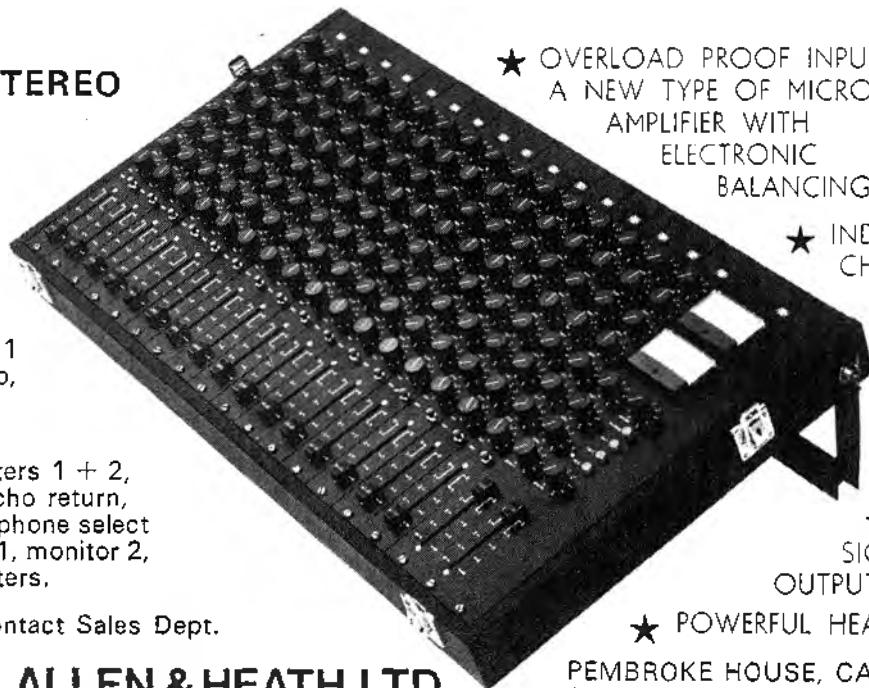
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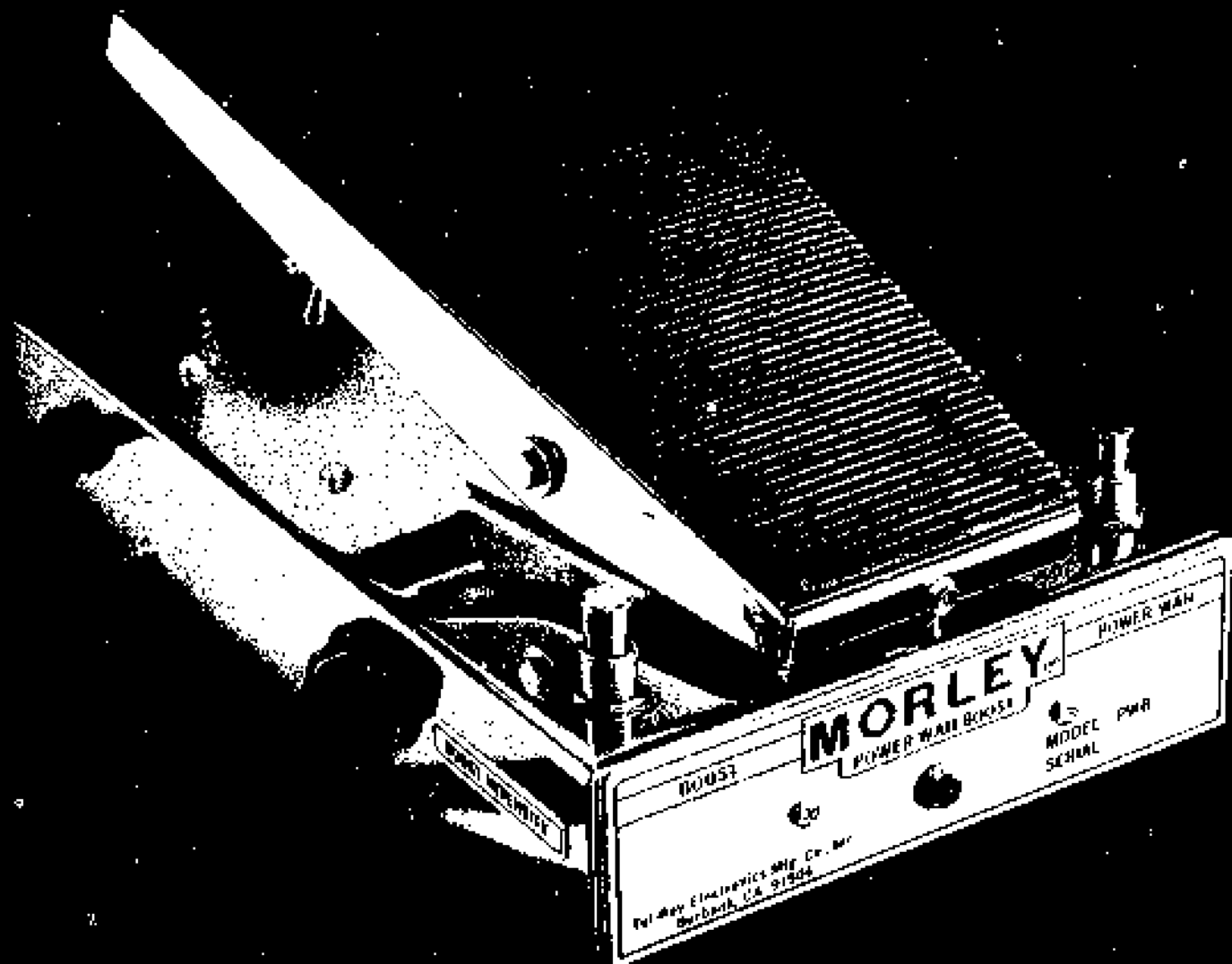
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Stephen Delft M.I.M.I.T.

Harptone E — 6NC

Jumbo.

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In this country, Harptone always seem to have been relegated to the fringe of what are considered to be "Famous Name" guitars. This is not entirely just, as their guitars are basically well-made, and the materials and workmanship are often better than those found in some better-known instruments. There are however two fundamental problems with many Harptone instruments: first, standards of both accuracy and finish have at times been so variable as to embarrass importers and retailers alike.

Harptone now have a new English agent who is confident that he can impress his own quality control on the instruments supplied, but I shall obviously have to see many more instruments before I can say how Harptone are responding to this policy, and if the instruments supplied to the shops are of consistent quality.

The second problem is that while all makes of "production" guitars have characteristic faults, Harptone's characteristic fault seems to be a disastrous combination of a high action and a very shallow bridge and saddle. Very little downward adjustment of the action is possible. Fortunately, this is a fault which you can easily assess for yourself: simply don't buy a Harptone unless the action has been adjusted low enough for you, and check that this has not been obtained by warping the neck "backwards", and that there is about 5 mm or more depth of bridge left, and a bit of saddle projecting beyond that. Also check intonation at the octave harmonic and twelfth fret carefully. Generally, the first, and fourth or fifth strings should be correct: it is normal for other strings to be slightly out in various directions.

In fact, of course, these are checks which should be applied under most circumstances of buying a steel string acoustic guitar but it is possible that a carelessly-chosen Harptone could be more difficult to put right. It is also necessary to say that while Harptone have

produced a few real "lemons", they have also produced some very good instruments. If their situation is still what it was two years ago, I feel that they should be encouraged to produce more good ones and fewer "lemons".

You can do this very effectively, by buying the good ones, at full price,

and refusing to buy the sub-standard ones (should any slip through the net) at any price, as the necessary adjustments are likely to involve large-scale and expensive repair work. This is not a guitar to buy cheap because there is something slightly wrong with the action, unless it is very cheap and you know a lot about

instrument repairs.

Because of the Pound's tendency to "float" like a lead duck against the Dollar, Harptone prices have not yet been fixed exactly, but I would expect them to be about the same as Guilds of similar materials and finish.

The other variable factor with Harptone guitars is tone: there is considerable variation of tone, both between different models and between samples of the same models. As tastes in tone vary between musicians, I feel this is no disadvantage, but it is certainly worth trying several examples of the model which interests you.

All this may seem discouraging; it is not meant to be. There are certain specific faults you should avoid, and you now know how to avoid them. Hopefully, if everyone's quality control is working properly, you will not encounter any of these faults.

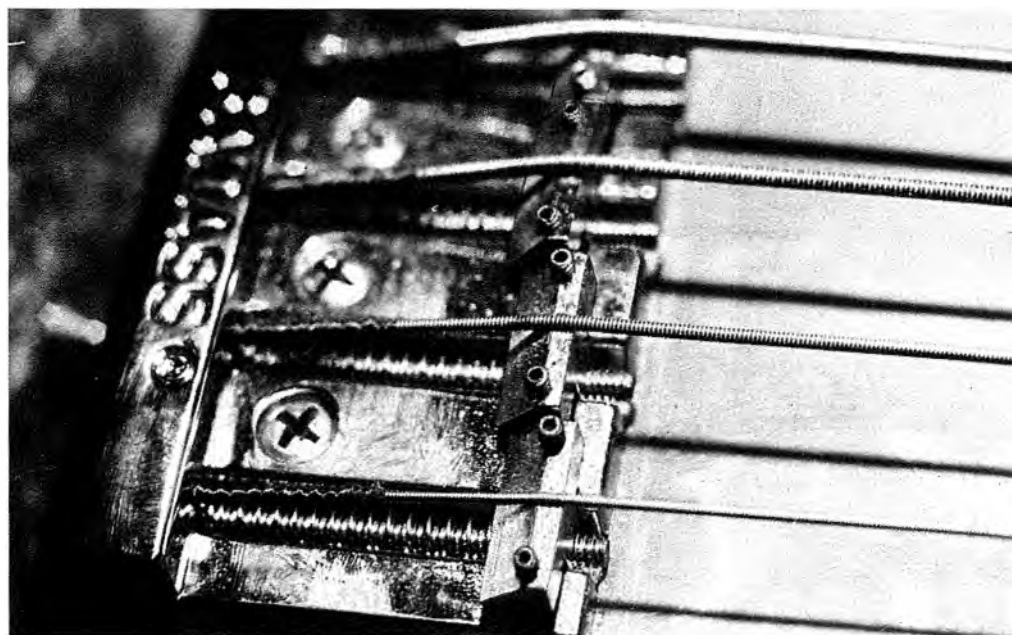
Certainly, if you find a Harptone which pleases you, it is likely to remain stable and trouble-free longer than some better-known instruments. It is also unlikely to discard its head, like a lizard's tail, at the slightest hint of impact damage. (I have found this tendency in certain "famous" makes of steel-string acoustic, and I cannot but think that it involves some weakness in design).

If the prices and quality standards are as I expect, some samples will offer less good value than similar Guilds, some about the same, and some, a little better. (Guilds make a good reference point because



(above) Harptone Harptone E — 6NC

(below) Close-up of the Badass bass bridge



their standards are so consistent.) You may find your personal preferences about tone quality outweigh these considerations.

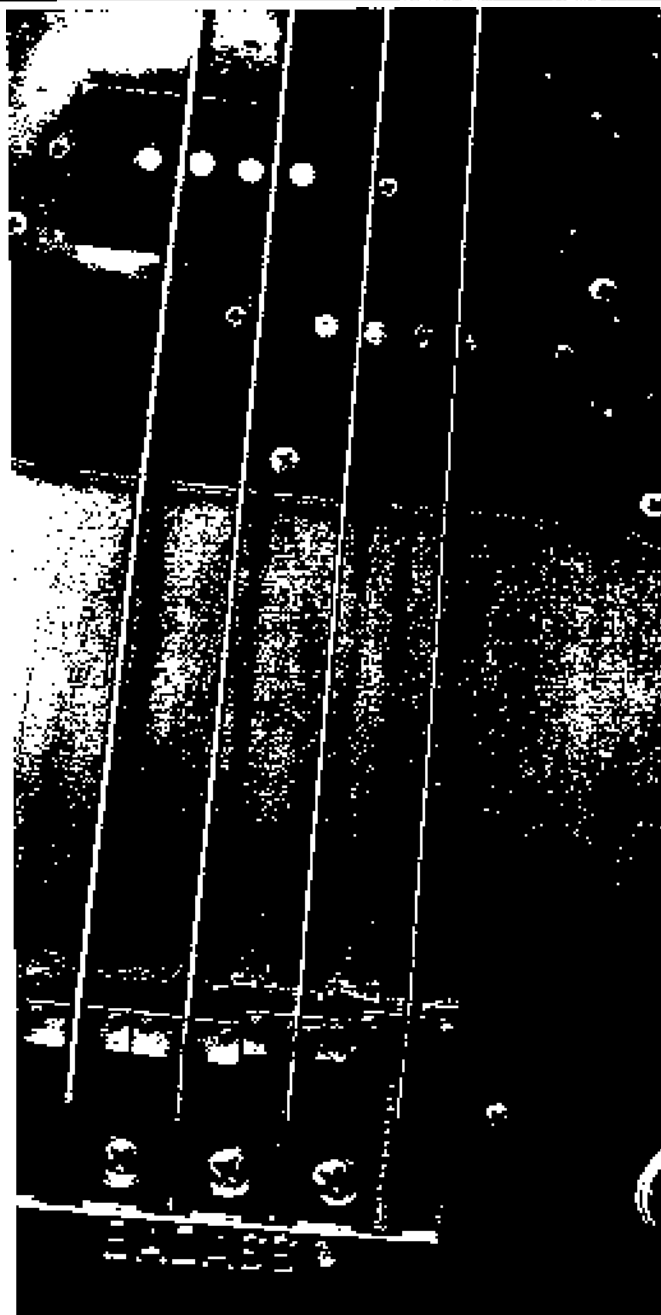
The guitar under review, is a model E-6 N.C. This is a conventional "Dreadnought" size and shape, with a spruce soundboard, rosewood fingerboard and bridge, and the body and neck of maple. All the woods are of good to very good quality, and the sides and the outer veneers of the laminated back are nicely figured. The back does not match the sides exactly, and the catalogue, in a manner which I find distinctly American, claims this as a notable feature. (I suppose necessity must also be the Mother of the Advertising Industry!) The whole guitar is nevertheless very pretty, and I do not wish to take on the entire American Ethic just at the moment.

The neck is well made, of about average thickness, somewhere between slim and bulky, and of such straight-grained wood that it is unlikely to need its sophisticated twin truss-rod system. Some of the pearl inlay dots are a little off-centre, some of the internal struts are rather roughly-finished, and I should like to see the neck angle changed to allow for a slightly higher bridge, and greater range of action adjustments.

Apart from these points, it is a well designed and decently made instrument, with no frills. The tone of this particular sample is best suited for a "lead" or melody instrument in an acoustic band, where its insistent and penetrating tone would be valuable. For a solo or accompaniment instrument; other samples of this model, with a warmer and more gentle tone, would please me better. It is a matter of taste, and you really should play several before making any decisions. I know some solo performers who would be delighted with this review sample.

Although the instrument in the photograph is finished in clear lacquer, it is possible that the first regular shipments of this model will have a sunburst finish; the blond model may be available later, or to order.

If you should be offered a Harptone guitar in a genuine Harptone case, don't be put off by the price of the case. Harptone make some of the best traditional "American Cases", and they are not imported separately.



Badass bass bridge in situ on a Precision

Badass Bass Bridge

It is a little unusual to review a "bolt-on" accessory in such detail, but this particular accessory appears to solve a basic problem which troubles many owners of bass guitars fitted with a Fender-type bridge. If the instrument is played with any sort of force or enthusiasm, the string vibration may affect the adjustments of the bridge, causing action and string spacing to change erratically, and without warning. This may not be too noticeable on stage, but it is quite common for a bass which is perfectly adjusted when it goes into the studio, to start buzzing by

the time it gets halfway through the session. At this stage, the owner is more likely to doubt his own technique than the instrument, and pithy comments about it "being alright yesterday" are unlikely to impress the producer.

There is a sort of cure for these problems, by putting "Loctite" on the height adjustment screws and tying all the bridge bits together with galvanised wire, but it still tends to come undone at the worst times.

A few weeks ago, one of my friends came in with his old Fender bass, with the usual "glue and garden wire" job on the bridge, and a small plastic box containing a Leo Quan Badass Bass Bridge, bought in the States.

I don't think these are available yet in England, but they certainly seem a good idea for a bass-player's Christmas Box.

After fitting this bridge to the Fender, I must entirely agree with the recommendation that the bridge be fitted by a qualified repairman. The average musician could do the work, but he could also make rather a mess of the instrument, even taking reasonable care. I also agree that this is not the sort of job which should be applied to vintage "museum piece" instruments which have been bought as a financial investment, as fitting the bridge requires cutting a shallow hole in the body. The instructions do not state explicitly that the bridge can not easily be fitted to hollow or semi-solid bodies: I think they should make this point more clearly.

The bridge is rather similar to the Badass guitar bridge, but larger and heavier, and as the bridge frame screws directly to the instrument, string height is adjusted individually on each string. The frame appears to be die-cast and is probably "Mazak", and all screws seem to be plated or adequately rust-proofed. There are no nicks in the string bearers, which permits your own choice of string spacing, but when this is decided, the nicks must be cut right first time (again a job for a skilled repairman). Cutting these nicks revealed that the string bearers are solid, hard brass, which seems a good feature, although I was less happy with the plating on these parts, which peeled off much too easily. This looks ugly, and could cut your fingers, but it does not affect the functioning of the bridge.

I should like to see a little more separation between the string holes in the back of the bridge frame and the heads of the string-length adjustment screws. Large ball-ends could make access to these adjustments rather difficult. Apart from this, and the plating, I can certainly recommend the Badass Bass Bridge. It is not, to my mind, perfect, but individual tastes differ, and the sample I have seen did its job neatly and efficiently. 47

SMALL THINGS

By Stephen Delft

'Small Things' began as an occasional and somewhat irregular addition to my articles in *International Musician*: I am pleased to hear that it will probably become a regular part of the Magazine. The

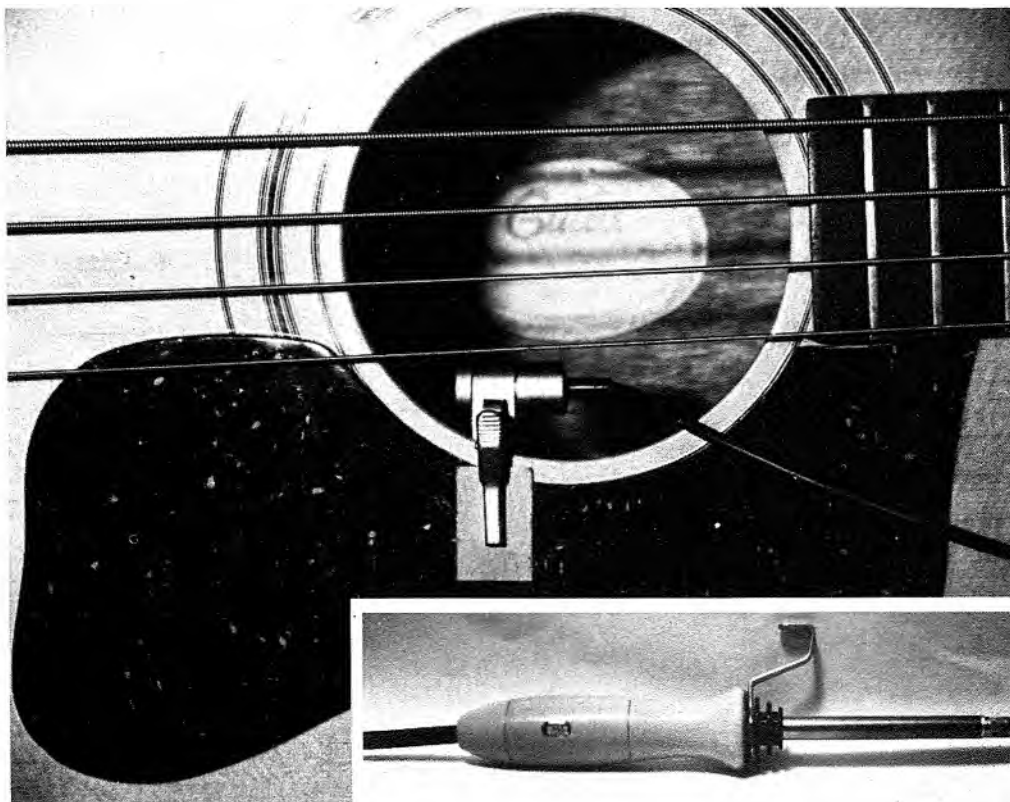
intention is still the same – to bring to your attention, small items which cannot easily be fitted into a review or do-it-yourself article, but which may make your lives as musicians or repairmen, more efficient, more enjoyable, and hopefully, less hazardous.

Firstly, as promised last month, small microphones, for use with the Guild Acoustic Bass. Unfortunately, the Maruni's 'Lavalier' mike, type T.O. 14, is no longer available from Skewes, who are unlikely to have any more. The model LEM. 1, which they now supply, is

neither acoustically, nor mechanically suitable for Acoustic Bass Guitars. This is unfortunate, as the Maruni mike had a strong clip, and just the right sort of internal sound adjustments to minimise feedback, in this application. If anyone is interested in importing a few more, I think I know the original manufacturer. There may still be some around in the shops, and should you have the good fortune to find one, the photograph shows the optimum fitting position for use with my amp. Moving 5 mm. in any direction will produce a

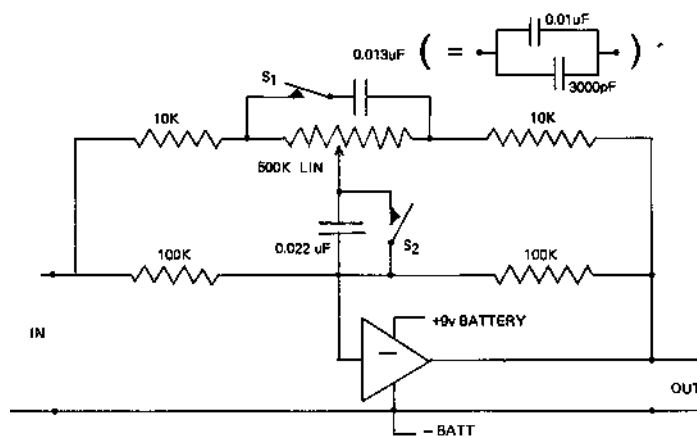
noticeable change of tone, and some experimenting may be necessary with other amps or instruments. The same system would certainly be worth trying on a Double-Bass.

The other item this month is freely available: the Oryx Super 30 soldering-iron. Even the simplest work on the electrics of a guitar generally requires a soldering iron, and in spite of the large choice available in some shops, very few have sufficient heat capacity to remove wires soldered to the backs of volume and tone controls. Those which can cope, are usually too massive to fit between the layers of wiring. The lazy way out of this situation is to buy the professional tool – an efficient, slim (and expensive) temperature-controlled iron. Otherwise, to do the job properly, you need to buy one large and one small iron, at about £2.50 each: total cost £5 plus the fares into town. I recently discovered that Greenwood Electronics can supply a soldering iron suitable for virtually all guitar wiring and jack-plug jobs for £4.00 including v.a.t. and postage. The order code is "Oryx Super 30 fitted with type LL/DF/08 tip", and a Postal Order for £4.00 would be preferable. The address is Greenwood Electronics, Portman Road, Reading, RG3 1NE. (The tip specified is not standard, but is very convenient, as the fine point is good for delicate work, and the side of the pointed end is suitable for heavier wiring.) As with most soldering irons, it is not a good idea to let the hot shaft or tip come into contact with the mains lead. It may easily melt through to the live conductor and the results can be rather dramatic!



TONE FILTERING CIRCUIT

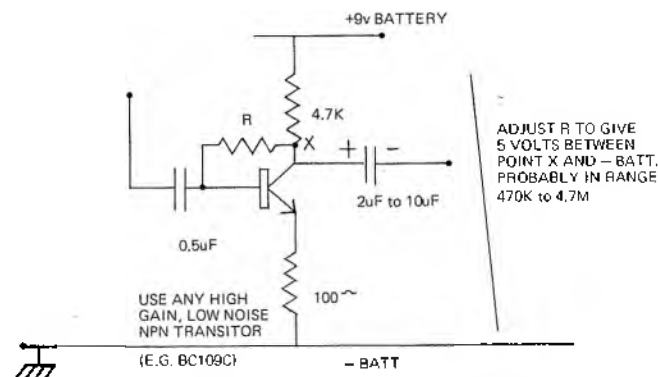
CAUTION -- μF = MICROFARAD/pF = PICOFARAD



This is presented in its most basic form for more experienced electronics enthusiasts. I have not tested it fully. It should give about + or - 15 dB at about 300 Hz. Opening switch 1, (or removing C.1.) converts it into a

+ and - mid and treble control: closing switch 2, (or replacing C.2. with a wire link) should produce a + and - bass control. The switches are optional, and not necessary if you only require + and - control of mid range.

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TEST BY *Bob Henrit*



Tama drums are manufactured in Hagoya, Japan by Hoshino Gakki Ten Inc., which is the parent company of Tama Seisaku Sho Inc. They have been building drums for export only since 1965 and up until 1974, they were called Star. They are now called Tama and are for the first time available to the Japanese home market.

In 1965, they were producing and exporting 1500 sets per month and nowadays they are up to 1700 sets per month, but their drums of today bear no resemblance to the original "Star" drums which started life as very cheap American copies.

These days, Japanese drums are as good if not better than the sets they were cribbed from. In the past three or four years, prior to the launch of Tama, the company has been heavily involved in experimentation and development to discover a material to give what they consider to be the most natural drum sound. Their exhaustive and expensive tests took them through the whole gamut of modern drum construction materials and back to square one — natural wood.

To this end, a new set from Tama will shortly be unleashed on the world. It is to be made of solid four-ply wood in an unusual and secret way, and the new set will be called 'Tama Super Star' and finished by hand. The drums will not be covered in plastic but lacquered by the Ibanez guitar people, who are also part of Hoshino Gakki Ten. This painted finish will undoubtedly help the drums to resound better since there won't be anything stuck to the shell to deaden its vibrations. The bass drum will have wooden hoops for the first time and as far as I can see

the new drums will be slightly deeper than usual.

All this is of course extremely interesting and food for thought but it won't tell you anything about the present generation of Tama drums. So... This month's test set, the Mars 5, has 13 x 9, 14 x 10, and 16 x 16 tom-toms, a 22 x 14 bass drum, a 5" metal shell snare drum, hi-hat and bass drum pedals and two cymbal and one snare drum stands.

Bass Drum

The bass drum has 20 timpani type "T" tuners, pressed steel claws, and large cast nut boxes which the Americans would call beaver tail shaped. The drum has unique inlaid metal hoops with a groove in them roughly 2/3 of the way in to the head to locate the bass drum pedal. It has disappearing spurs made from substantial rod with lockable, adjustable rubber or metal tipped ends. The holders which locate these spurs are cast and substantial and boast the hefty and sensible "Y" shaped locking wing bolts which are prevalent at adjustment points all over the set.

Although it was a 22, the bass drum did not have a particularly big sound — it was a little constricted and it seemed to me that it needed to be opened out and breathe a little. To be honest, it was not fitted with C.S. heads but what looked to me like Remo Ambassadors (it simply says on them "Tama Imperial Star Made in U.S.A.") and this could be part of the problem. The drum tended to "clang" a little, so perhaps front head dampening could be the answer. I couldn't put this theory to the test, since Tama supply only one felt strip damper with their drum.

Tom-Toms:

The tom-toms sounded really meaty and since they were for some strange reasons fitted with three different sorts of batter head, I had an opportunity to see and hear which was best suited for the drums. The 13 x 9 had a clear C.S. head, the 14 x 10 an Evans heavy duty Rock head and the 16 x 16 a regular coated Ambassador head, which comes as standard for the set.

The 13 x 9 had a clear, penetrating sound ideal for stage work. The 14 x 10 had a slightly deader sound, but with enough to be ideal for recording or "miking up" on stage. The 16 had a deep but slightly "clangy" sound which leads me to believe the bass drum could be corrected and improved with C.S. or Evans heads.

The tom-toms have a deep, clear sound due partly to their nine-ply shells (the bass drum also has this thickness) with substantial laminated (not solid) glue rings, and triple flange hoops. The interiors of the drums are coated with a thick substance called Portafleck (also sprayed on to the hallways of apartments) which first appeared inside Rogers drums in the 'fifties. This flecked, stone-like finish serves to round out the tone of the drum.

The 13 has six square headed tuners per head, the 14 has eight, as does the 16 inch floor tom-tom. All drums have extremely substantial adjustable and lockable dampers which fit underneath their batter heads. These dampers are unique in that they have a form of cam operated twist release which returns them to exactly the same tension against the head each time, an excellent idea.

The legs on the floor standing drum locate into a cast block fixed to its shell which contains an eye bolt insert. The feet of these bent legs are exactly the same as the bass drum spurs, lockable rubber or metal spiked. These rattled at first but this was because I didn't set them up properly. These tom-toms too have beaver tail cast nut boxes, slightly smaller than the bass drum — sort of a cross between Slingerland and Rogers and perhaps a little Ludwig thrown in. Still, they do look nice.

Snare Drum

Tama's "King Beat" snare drum is something else. The one I played has a five inch shell with ten square headed tension screws and lugs, two triple strengthening heads, cast triple flange hoops with edge beads and their usual adjustable lockable quick release batter head tension screw to maintain constant tension and prevent them from unscrewing while being played through vibration.

It too is fitted with Remo Ambassador heads which locate on the shell's 45 degree inverse flange. This flange has a 2 mm radius at its head contact point to prevent "choking" and a snare location area on its bottom edge. The drum's piece de resistance is its hybrid snare mechanism. It's like Ludwig's Super Sensitive throw-off with a parallel action and snare tension adjustment at each end, but it also has a Rogers innovation, a snare carrier which keeps the snares taut at all times, even in the off position.

This carrier is made (possibly) too substantially of steel rod (as opposed to Rogers' cast aluminium frame) but it really does the job. The bosses of the strainer are cast and bolted to the side of the drum. The King Beat snare drum can alternatively be supplied with a cast horizontal cam action strainer with its adjustment diametrically opposite, or a conventional vertical cam action strainer with tension adjustments and on/off set on the same side.

The drum sounded orchestral and the nearest thing to an old Ludwig Super Sensitive I've ever heard. Tama have not made the mistake of copying the Super Sensitive's individually adjustable snares and the result is a really good drum. Its sound, while excellent was not particularly rock'n'roll but since they also make a 6½" shell drum, you would possibly be better off stipulating that. I say "possibly" because I didn't have the opportunity to play one of the deeper shell models, although presumably it will be exactly the same as the thinner drum, but with a little extra "funky" depth. It's very interesting that Tama fit solid die cast hoops to their King Beat snare drums. These rims tend not to flex or buckle out of shape and so help to maintain consistent head tension. Normally, cast rims on a metal shell tend to deaden and yet strengthen the sound of the drum, but basically they take away some of the higher unacceptable overtones - this of course makes them ideal for recording. My one criticism of die-cast hoops is they make the rim shot a little clonky.

Accessories:

Tama do a very heavy duty, basket-type twin legged tripod based "Stage-King" snare drum stand. It has a height adjustment clamp which is ingeniously sprung within itself, with an angle adjustment that has large "Y" shaped screws to secure it. The basket clamps to the drum with a large central nut. It has large rubber feet and with its double legs and large diameter central tubes it seems absolutely immovable.

The double tom-tom holder on the bass drum is roughly the same as Ludwig's original

with a large cast block bolted to the bass drum, which has a round hole in it to take a tube with a cast "T" shaped top to which are bolted two cast, splined (but not sprung) ratchets. These are of course adjustable and contain and retain two splined "L" shaped rods. These rods locate inside the leg holder type block with its eye ring insert which is fixed to the shell of small drums. This fitting effectively holds the tom-toms in position. The height adjustment is by a single bolt, activated by a box spanner. I find this is not too clever, since it allows the mounted drums to swivel on the bass drums, which I'm sure we would all find annoying.

Tama's Stage King hi-hat stand is massive. It has extra large diameter down tubes, twin tripod legs, an easily adjustable spring, a cast two piece foot plate, a metal strip for its centre pull mechanism and a screw type spur attached to its cast and substantial saddle frame unit. The hi-hat too has its height adjustment spring and boasts a large size clamp on its top tube to keep this height positioning constant. The bottom cymbal cup seating is large and adjustable in its angle and its top cymbal clutch, with its large "Y" bolt and plastic tube, seems large and strong enough for the job. It was very smooth and positive.

The "hi-beat" bass drum pedal looks exactly like the one produced by its nearest Japanese rival. It has a cast two piece foot plate with a toe stop, a cast frame and twin adjustable spurs. The one I played had a noisy adjustable expansion spring with only one locking nut which probably would not be enough. Its beater height is adjustable, as is its beater travel. It has a clamp type fixing to the bass drum hoop which is tightened with a fiddly wing nut. Otherwise, no complaints - It's

smooth, fast and effortless to play.

The Stage King cymbal stand (two are supplied) seemed to me to be well over the top - it's not just large, it's gigantic. It has a huge double legged tripod base, very large diameter tubes, two very substantial height locking "Y" bolts one sprung within its clamp and a cast ratchet tilter fixed to its ½" top tube. For all this it has a very small wing bolt and washer at the top which seems strange. Anyway, it's huge, heavy and would undoubtedly not fall over - you could also have your cymbals set six feet high, which is a dubious advantage.

The stage master stool is as you would expect pretty large with a nice thick (14" diameter) soft, comfortable seat. It has a tripod base and is finely adjustable up and down on a square shouldered thread which can be locked into position with a large wing bolt. It has a spring clamp like the hi-hat's, which maintains nominal height adjustment and the whole lot can be locked so that you can always sit in exactly the same position.

Appearance:

I was disappointed in the look of the set. For all its technical innovations, I wasn't knocked out with its appearance. It's a shame, this, since Tama have an extremely high quality sound. The interiors of the drums were beautiful, as were the exteriors, but there's just something which lets them down for me - perhaps it's the badge which cheapens it or perhaps it's the chrome, or something intangible. You can choose from 11 different plastic finishes and the set I tested was in metallic blue which looked professional enough, but for me their silver called Platina is really arresting.

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TEST ON *Elgam Talisman*

DATE *October 1976*

PRICE *£ 763.89 Ex VAT*

TEST BY *Rod Argent*



Elgam, like so many contemporary organ production companies, are based in Italy. They started in a small way only five years ago with a catalogue of two small portable instruments, but can now boast distribution in 68 countries and a range of 26 portable and console models varying in price from £115 – £1,300.

J.T. Coppock, Leeds, Ltd. possess the U.K. franchise and the Talisman is top of a three organ range with which they deal. Retailing at £825, it's placed pretty squarely in the middle of the portable organ league (financially speaking) in a good position to state its claim to a portion of the market.

The Talisman is obviously aimed at the group or club musician. It's a double manualled instrument, each keyboard consisting of forty nine notes (four octaves) and is governed just about equally by both drawbars and presets. There is also a good choice of effects incorporated into the instrument.

Upper Manual

As is the case with almost every portable organ, the upper manual gets most of the attention in the form of variety of effects and degree of sound modification – although the Talisman, to its credit, does provide a system of three presets in addition to the lower manual drawbars. Six bars, pitched at 16', 8', 5 1/3', 4', 2 2/3' and 2' control the upper keyboard. This is a smaller number than is usually found, and to some extent I missed the extra choice which would have been brought about by the addition of another couple of harmonics. On the other hand the sound produced by the organ is basically strong and the limitations thus imposed on the tonal variation can be overcome to some degree by the introduction of one or more presets which may be used in combination with the drawbars as well as by themselves – although with regard to this, the absence of a level control on the drawbars seems a bit odd, particularly when its equivalent section on the lower manual possesses one.

The presets themselves cover most tonal areas and the quality of sound they produce is good. They are orchestrally based and consist of saxophone (16'), trumpet (8'), oboe (8'), diapason (8'), quint (5 1/3'), strings (4'), nazard (2 1/3') and piccolo (2'). To the right of the piccolo lies a sustain tab; next to that a cancel control.

Percussion comes in five pitches, 8', 5 1/3', 4', 2 2/3' and 2' and of course in combination. It may be modified in several ways, the most interesting of which, marked 'Poli' (Poliphonic?) enables a chord, once struck and held, to be reiterated in conjunction with any single notes played subsequently, something I haven't come across before. Otherwise a repeat mechanism with speed control – variable from skitter to George Formby imitation! – a level fader, a cancel control and a tab governing the choice of long or short percussion grace the section. I must say I found the overall percussion sound just a little 'clonky'; ideally I should have liked a bit more resonance. Also the 'long' position on the decay tab didn't really provide a long enough decay for my taste.

A control marked 'automatic wha-wha', even though a little noisy when switched on, produced a very interesting sound, although, strangely, only on the preset section of the upper manual.

Also interesting, and certainly unlike any other I've come across, was the vibrato effect. Two controls offer a choice of degree and a variable choice of speed. When the speed control was set at its slowest position the result was extremely pleasing and very 'Leslie' like, although certainly with a sound of its own. I was less happy about the faster vibrato, however, which to my ears seemed like a mechanical rather than a musical effect.

A reverb control, adjustable in degree, is set to the left of the instrument but affects, curiously, only the upper keyboard. I found this annoying because although as an occasional effect the contrast of an echoey line against a 'dry' one might be desirable, in most situations it's the overall sound that needs reverberation, not just part of it.

There is also a small section marked 'sustain' on the right handside of the lower manual. This consists of three tabs which control three additional tonal colours; 'Harpichord', 'Celesta', and 'Kinwa'. When used in conjunction with the level and decay adjustments they form quite a useful additional section, and certainly complement the other upper manual sections well when used in combination with them.

On the lower manual there's a fairly limited number of controls but in some ways a much less limited sound and tonal range than usual.

Like the upper keyboard, the lower has only a few drawbars – four in this case, pitched at 8', 4', 2 2/3' and 2'. Don't feel too upset, though, because, unusually, it's also provided with a small bank of three presets; Horn (8'), Violin (8') and clavinet (4') as well as a sustain tab with which to fortify its sound. The result is a stridency of sound which is able to match that of the upper manual – something which is sometimes quite hard to find on an organ of this type.

Overall Sound

The feature which most strongly recommends the Talisman to me, in fact, is the quality of its sound. It's basically quite strident, sometimes almost brash, but always strong and powerful, which to my mind is an essential quality for any organ, and particularly for one which might be applied to rock music. Also, its sound is distinctive. Many instruments in this price range, while undoubtedly sounding good, sound similar, and the distinctiveness of the Talisman is definitely a point in its favour.

While on the question of sound, however, I must say that on the model I tested the level of background noise created by the organ was annoying, particularly in the form of harmonics breaking through or 'singing' – even when the instrument was not being played. In my house, through a fairly small amp, the noise was annoying. In an on-stage or studio situation, through high powered amplification or critical recording equipment the problem would obviously be compounded.

Appearance

Whether or not one likes the appearance of a particular piece of equipment must largely be a question of personal taste. I have to say that the design of the Talisman is not really to my taste. Something to do with it is the colour scheme, which is based around strong colours – the red, orange, yellow, greens and blues which adorn the plastic drawbars and control tabs. I fully concede that some would probably find the organ bright and pleasing to look at, but to my eyes the effect is a bit garish. Mostly, however, it's the blue metal which clothes the sides and the top of the instrument which makes the construction look a bit 'funny' and insubstantial. The slight tendency towards brashness in the sound was something I admired. In the design it's also present, and in this context I don't find it so pleasing.

Conclusion

I deliberately left the comments on appearance to the end of the review because it was the only aspect of the instrument about which I felt a positive dislike – in many ways I felt a real affection for it. The basic sound, which is really the first test of any organ, is strong and distinctive. The number and quality of effects provided on the instrument seem to me to be more than are often asked for on an instrument of this type. Ideally, I would have preferred a greater range of drawbars, and I admit to some concern about the degree of background noise, but to the person who finds the design of the Elgam Talisman pleasing I would recommend the organ as being very good value for money.

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NB. The Grove-Power horn are rather wider than is permissible for the standard cabinet dimensions given.

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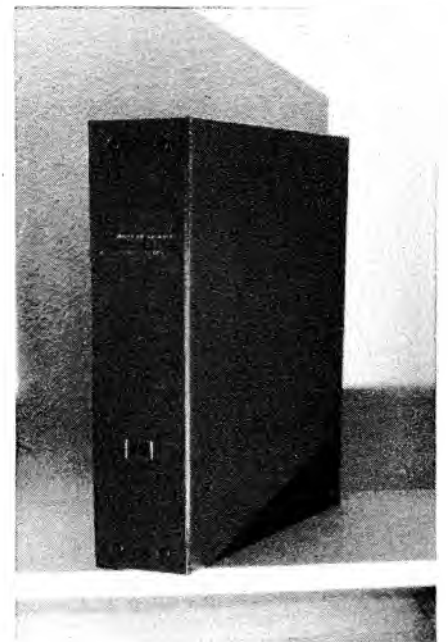
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How to Build: A Loudspeaker

In parts one and two, that appeared in the September and October issues of IM, we covered the construction of a basic loudspeaker cabinet in two sizes, and the covering and finishing of the cabinet to achieve a professional looking end-product. In this third and final part, we shall cut and prepare the baffle panel, fit the loudspeaker drive units and test the completed loudspeaker.

In part one, it was suggested that the various components be laid out in order to obtain a guide as to the sort of size the cabinet would need to be to accommodate these. Now, we must lay them out again, but this time on panel f (see pt 1) in order to mark the cut-outs necessary to mount each item, and a suggested layout format is given in Fig. 1. It is intended in this design, that the bass unit be mounted from behind the baffle panel, whilst the horn be front mounted after covering with the grill material. It would probably be as well at this stage to consider the type of drive unit and horn to be used, as cutting out cannot proceed until these have been selected. The type of bass unit used will depend upon whether you intend to reflex the cabinet, or use it as an infinite baffle system, and also upon the application for which your cabinet is intended. The horn selection is less critical, but a smaller, less expensive type of horn will be adequate for use as a musical instrument loudspeaker, while for PA use, a better quality horn will have better directional control—a most important factor in determining feedback levels.

These cabinets have only one bass drive unit and this will necessitate the selection of a 300mm or 320mm unit able to handle 50 watts or 100 watts RMS without overloading, depending on the cabinet square building and this requirement narrows the field of choice considerably. The next important factor is the type of cone or piston suspension used, as this will determine the behaviour of the loudspeaker under different operating conditions. For our purposes, a fairly stiff cone suspension is required if the cabinet is to be used for electric guitar or keyboards amplification, say a cone resonance of between 50 and 75Hz. A heavily doped linen or cambric suspension will usually serve better than the more usual paper suspensions, as this will be less prone to fracture and sagging after a lot of hard use. If the cabinet is to be built as an infinite baffle type for PA use, then a rather more free suspension will be required, with a cone resonance below 50Hz, but it must not be too free. The roll surround or foam suspension types used for Hi-Fi speakers for example are not at all suitable. If the cabinet is to be built as a reflex design, then a soft linen or cambric suspension, lightly doped, and with a cone resonance around the 30Hz mark will be ideal. The important factors when selecting loudspeaker units are, apart from those already mentioned, the size of the magnet structure (not to be confused with the size of the pressed tin magnet cover, as this is often many-fold larger than the actual magnet beneath!) The magnet is the only part of a loudspeaker with any weight, so this is a good guide to the magnet size. Inspect also the adequacy of the voice coil feed wires and their termination. Whether the loudspeaker has a pressed steel or an elaborate cast alloy chassis is really of little importance (except that units with cast chassis usually cost a lot more money!) as a properly designed pressing will hold the magnet structure and cone assembly in line just as well as its more expensive counterpart. Also, don't be misled by flashy paint finishes or labels, as these contribute nothing to the performance of the unit. Some of the best loudspeakers I have come across have looked so crude and basic, that most users would not have given them a second look! One factor of importance not so far mentioned—the impedance must match the rest

of the component to be used (see Figs 2 & 3). The table below gives some recommendations of loudspeakers that have been found suitable for such applications over many years of loudspeaker research. *

It is also possible to build a 100 watt system in the smaller cabinet by using the very high power 300mm drive units now available, although the size of horn that can be accommodated in the smaller cabinet size is restricted. Some possible bass drivers include a) JBL K120 infinite-baffle cabinet for instrument amplification or PA 100w. b) Gauss 2841 infinite-baffle or Reflex cabinet for Instrument amplification or PA 100w. The RCF L12P/11, Fane Crescendo 12 and ATC PA75/std. are able to handle between 75 and 100 watts if used sensibly, and therefore could be used with a higher power system.

Any high frequency horn will be at least twice as efficient as the bass driver, and therefore need only handle half the power. One of the more important considerations when selecting a horn for PA use is its radiation characteristic and smoothness of response, as unwanted peaks in response or the beaming of certain frequencies will cause certain feedback or howl-round. In the case of the 50w cabinet, attention must be paid to the physical size of the horn flare in order to accommodate it in the cabinet dimensions. Some possibilities are listed below. *

There are many other makes and types of loudspeakers and horns available, and the intentionally general nature of this series should enable readers to substitute any preferred type of suitable loudspeaker, or to use components already to hand. The items listed are among those used successfully by the writer and cover a wide price and quality range.

The selection of a suitable crossover network is not so simple, as very few seem to be on the market. If the cabinet is to be used to amplify electric instruments, then the simple circuit shown in Fig. 2 will be quite adequate, but it is not recommended for PA purposes. The reasons for this are given in part 2 of my series on PA in the December 1975 issue of IM, where the characteristics of different types of loudspeaker system are discussed in some detail. I have to date only found two commercially made crossovers of adequate quality and at a realistic price. One is type CN1284 made by Richard Allan Radio Ltd, of Cleckheaton in Yorkshire, the other is type CN459 by Vitavox. The Richard Allan crossover is really built for domestic Hi-Fi use, but is of unusually high quality and able to handle the range of powers found in the music business. It is really a three way crossover, but is recommended for use here with the 50 watt cabinet with the third channel left unused. The Vitavox is a more sophisticated purpose built job, and incorporates an attenuator to enable the

*For listings see over the page

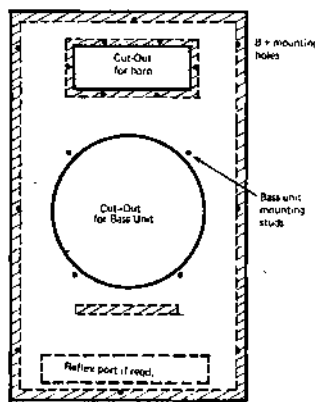


Fig 1. Baffle panel layout

power fed to the horn section to be adjusted. The Vitavox unit is designed for use with 15 ohm units, but may be used with 8 ohm system if some seration loss can be accepted, while the Richard Allan crossover can be ordered as either 8 or 15 ohm versions. Fig. 3 shows the wiring diagram for both 50 and 100 watt systems, using either crossover.

To return now to the preparation of the baffle panel, first check that the panel is a loose fit with sufficient clearance all round for the grill material—a gap of between 3 and 5mm should be adequate. If this is not so, then reduce the size of the panel with a surform type plane, or a circular bench saw if available. Now lay out your components as shown in Fig. 1, mark out the aperture for the bass unit and horn and cut these out with either a key-hole saw or power tool with a jig-saw attachment (watch your fingers if you are not used to using powered jig-saws—they can be lethal!) If you are building an infinite baffle cabinet, your baffle panel is finished, and all you have to do is clean it up with glasspaper, paint it and mount your components—we shall come to that later. If yours is to be a reflexed design you must now calculate the approximate port dimensions for your loudspeaker unit. We shall adopt a very rough and ready rule of thumb method here, but one which invariably works well, provided that the free air cone resonance of the drive unit is below 50Hz. Measure the diameter of the actual cone of your loudspeaker unit—that is not including the cone suspension and remembering early school geometry, dig out the formulae for the area of a circle, hr^2 , and work out the effective cone area. It is likely to be about 450-500 sq. cm. for a 300mm unit, and about 850-950 sq. cm. for a 380mm unit. Add about 10% to your calculated figure, and work out the dimensions of a rectangle that can be accommodated within the dimensions of your baffle panel to give the same area. Mark and cut out the reflex port and smooth off the rough edges. Now position the bass unit over its aperture, mark out the fixing holes and drill holes to suit. Counterbore these holes to a depth of about 4mm on the inside face, and countersink on the outer face. Using countersunk head bolts of adequate length and suitable diameter, mount the bolt in the baffle panel with a half-nut, so that the head of the screw is recessed in the countersunk part of the hole, and the half-nut is recessed in the 4mm deep counterbored hole, leaving the required number of studs protruding from the inside face of the panel. Now drill eight mounting holes around the perimeter of the panel to line up with the front battens of the cabinet. Mount the bass unit, horn and crossover, roughly wire up and bring the input wires out through the reflex port aperture. Screw

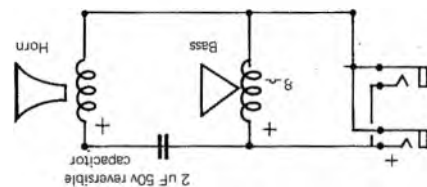
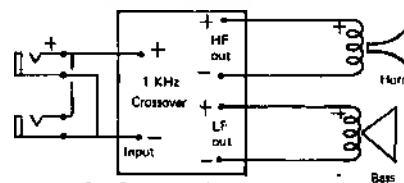


Fig 2. Basic circuit Instrument amplification only



For an 8 ohm cabinet, all components must be 8 ohm impedance, and for 15 ohm, all must be 15/16 ohm impedance.

Fig 3. Wiring for 50 & 100 cabinets for P.A. or quality instrument amplification

Cabinet Part 3

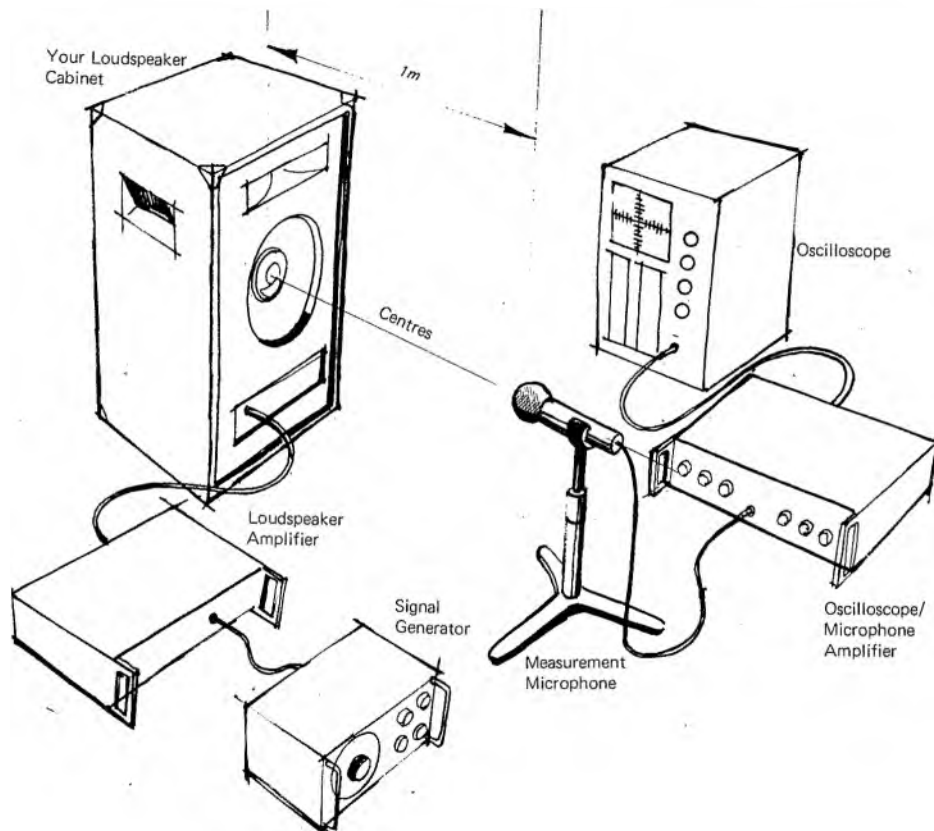


Fig 4. Test rig to tune reflex port for 50w or 100w cabinets

the assembled baffle into the cabinet and you are ready for testing and for finalising the reflex port size.

For this you will need two amplifiers, a signal generator variable over a range of 20Hz. to 10KHz, a good microphone with a known low end frequency response, and an oscilloscope. Maybe your friendly neighbourhood dealer, or college lab may be able to allow you the use of these, and possibly assist in the procedure. Set the equipment up as shown in Fig. 4, ie. with the signal generator feeding into one of the amplifiers to drive your new loudspeaker, with the microphone on a small stand on the central axis of the bass unit and about 1 meter away, connected into the input of the second amplifier, the output of which is loaded with a suitable high power resistor and fed into the input of the oscilloscope. We are going to drive the loudspeaker at different frequencies with the signal generator, and look at the resulting waveform coming out of the loudspeaker on the oscilloscope. Proceed as follows (in a quiet environment!):

1. Set the generator output to 200Hz, and switch all equipment on. Turn up the loudspeaker amplifier until a tolerably loud sound is heard from the loudspeaker.
2. Turn up the microphone amplifier, and line up the oscilloscope controls until a good clean trace of a 200Hz sine wave is displayed.
3. As the frequency control of the signal generator is turned down, a noticeable peak in the output of the loudspeaker should become apparent on the 'scope, probably at about 10 or 20% above the cone resonance frequency. This is the resonant frequency of that particular loudspeaker in that particular cabinet. Before proceeding further, check that your cabinet is not itself vibrating and that there are no appreciable air leaks in the cabinet. If there are, these must be corrected before proceeding.
4. Have to hand, an offcut of 18mm plywood or chipboard, and starting from one end, slowly cover up a small portion of the reflex

port, until a point is reached where the peak in the loudspeaker output is reduced, or even removed entirely. When this point is reached, screw the piece of plywood over the reflex port at that position and run through step 3 again. This time, you should get two smaller peaks, one below and one above the frequency of the original larger peak. If this is so, then you have tuned your cabinet. If not, re-run the tests and try again.

All that now remains is to work out the actual area of reflex port left open, cut two suitable pieces of 12mm plywood and screw and glue one over each end of the original reflex port on the inside face so that the port area is permanently reduced to the size found in the tests. As a final check, re-run step 3 above to make sure that you still have two small peaks and not one large one.

Now it is necessary to dis-assemble the components from the baffle panel in order to cover it with the fret material and finish the cabinet, but be certain to leave the mounting studs in place, or you will not be able to re-mount the bass unit after covering!

The first step is to paint the prepared baffle panel matt black. Several choices of material exist, either select one of the many types of cloth covering, such as Vynair, Radio-Silk, Tygan etc, or use one of the expanded vinyl meshes now becoming popular. For durability, either Tygan or the expanded mesh is recommended, and the instructions that follow are for these types. Tygan is applied much as was the cabinet covering, with an adhesive and a staple gun. Proceed as follows:-

1. Leave the Tygan in a cool place for 24 hours before using, then cut a piece large enough to overlap the baffle panel and leave a generous surplus after folding over.
2. Apply adhesive (Copydex or Thixofix etc.) to one short edge and to a depth of 50mm on the inside face. Taking care that the correct side is outermost and that the design is in the required shape, position the top or bottom edge of the material as appropriate along the inside face and staple in place.

3. Apply a narrow strip of adhesive around the horn cut-out, and to the opposite edge and inside face. Wrap the Tygan over the front of the panel, round the opposite edge and onto the inside face again, keeping a good tension on the material. Staple opposite end in place on inside face.

4. Apply adhesive to one long edge and inside face, and wrap over and staple—not too much tension here, or the design on the material will be distorted. Repeat for opposite side.

5. Trim off excess material from inside face and leave to dry thoroughly.

Alternatively, if you prefer the look of the expanded vinyl, you will also need enough 12mm x 12mm black plastic angle strip to make a frame around the baffle panel to finish off the edges, as this material cannot be folded around edges etc.

Proceed as follows:-

1. Cut the expanded mesh to shape, about 1mm less than the finished dimensions of the baffle panel.
2. Using a junior hacksaw or sharp knife, cut the 12mm x 12mm angle to length and mitre corners to form a 'picture frame' around the baffle panel.
3. Place strips of adhesive-backed foam rubber across panel as shown in Fig. 1 (this is to prevent vibration and rattling).
4. Place the cut piece of mesh in the panel. Position one of the long angle strips along one side, press firmly down to compress the foam strip, and staple through the edge—not the front—of the plastic angle strip into the edge of the baffle panel. Proceed to fit the remaining three lengths of angle strip.

If your staple gun is not adequate to penetrate the plastic angle strip, an alternative method is to drill a series of small holes—say about a No. 50 drill—along the edge of the strips and fix with small panel pins or countersunk head woodscrews.

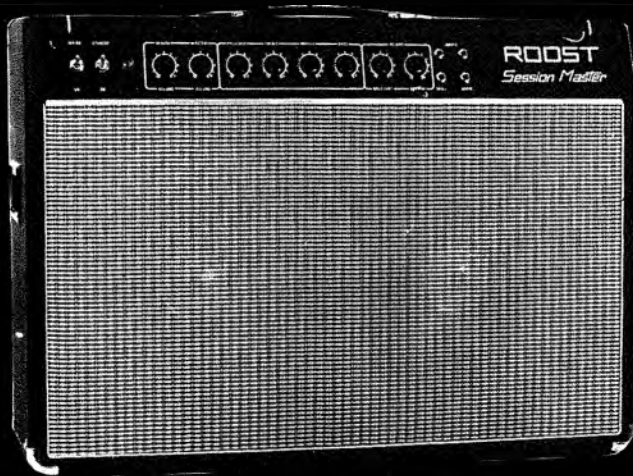
5. Carefully staple the mesh into the panel around the perimeter of the horn cut-out, keeping as close as practicable to the edge of the actual cut-out.

Whichever grill has been fitted, you must now cut away the material that is over the horn cut-out, and you are ready for final assembly and wiring of your components. Bolt the bass driver in place, mount the horn flare from the front and screw on the pressure unit if these are separate on your horn, and securely screw the crossover unit to the floor of the cabinet. Now mount and wire together the two jack sockets, leaving a pair of wires about 500mm long for connection to the crossover unit.

Now you must lag the cabinet to reduce internal cabinet reflections, and care must here be taken not to overdo it, or some of the punch of the bass unit will be sacrificed. It is recommended that Bonded Acetate Fiber or a similar fibrous material be used (not Fibre glass loft insulation, as this will ruin your bass unit) to line the top, bottom, sides and back panel to a depth of about 20 to 30mm. It can be secured with adhesive and 200mm strips of 12mm wide linen tape stapled to the cabinet at each end, thereby strapping the BAF material to the inner faces of the cabinet.

Finally, carefully wire up the crossover and units, taking care to observe the marked polarity of each component thoroughly check over and screw the completed baffle assembly into the cabinet, with perhaps a touch of black paint to mask the screw heads after assembly. Tygan, vinyl mesh and BAF wadding are all available from Hamiltons of Teesside, if you are not able to find a local dealer, and their address, along with those of the various loudspeaker component manufacturers given can be found among the advertisers in this publication.

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Home Recording Power Amps

The heart of any sound system is the amplifier. Whilst it is true that poor speakers can inhibit performance, it is also true that the quality of any sound system revolves around the amp design.

For the home recordist amp considerations differ somewhat from those of the hi-fi addict who requires to hear pre-recorded music in the best possible conditions.

If you're into your home studio in a big way, you'll want to know about power amps driven by the mixer, if you're concerned on a slightly smaller scale you'll want to know about moderately priced amps which nevertheless offer an honest performance.

In the last five years there has been a total revolution in amp design. It will probably have gone unnoticed outside of the hi-fi market, but it is very important. The introduction of solid-state designs has eliminated many of the disparities that used to exist in power amps. Ten years ago the choice of a power amp was critical. Many were still of valve designs and only a few were of an acceptable standard for recording purposes.

Luckily, things are now different. Even the most humble little amp should be able to offer almost zero distortion and an even response curve and the price of any amp should only increase with the power or facilities offered.

For recording let's consider the selection of amps under two headings. For use with mixers: For use without mixers.

If you've got a mixer you've got a highly versatile pre-amplifier and providing you've got a reasonable degree of equalisation and a reasonably powerful output, you need no pre-amp control section but can make do with a pure power amp. These units are generally available in multiples of 100 watts so you can see that high-quality monitors are required. The names in this category are well known. In mentioning just a few of them, I'm not suggesting they're better or more easily available, providing specs. match up, you should really decide on the basis of the price you are offered the unit at. The American BGW amps are getting towards the ultimate. Perhaps the most suitable model for home use in their range is the 250B, an amp which produces 90 watts RMS into 8 ohms. It's a rack mounted unit, and it's specifications are second to none, offering a band width of 20-20,000, (+0,-0.25dB), noise and hum level better than 110dB on a sensitivity of 1.5 volts for full power.

Of particular interest to professional type studios operating in small spaces and serious home engineers, HH produce a small output version of their famous TPA power amp. The big fellow falls into the same league as the BGW, but usefully HH provide a 45 watt and 80 watt power amp (figures given for eight ohm loads) without sacrificing the very high standards of performance associated with the big TPA. These amps are strictly mono so multiply them exactly by the number of channels you need to amplify. The power amp range is quite wide and you have the choice of buying either rack mounted modules or free standing units. Common names found in studio applications include Amcron, Quad and Accuphase. Amcron are probably the most famous of all professional power amps. Originally marketed as Crown, the amps were used almost exclusively to power the giant hire-PA rigs of the late sixties and early seventies and today the firm is well established as a leader in the professional amplification field.

In the past Amcron's specifications have always been the ones to beat and it is only now, that some other manufacturers (mostly American) are starting to offer units equal to the Amcron stand-

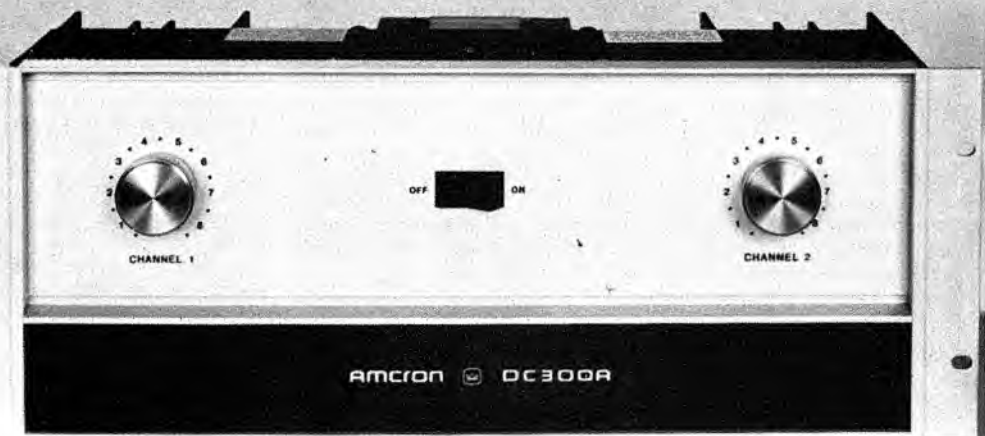
ards. Obviously, with such a reputation and degree of research Amcron amps don't come cheaply, but for many professional users, there's no other choice.

For musicians with slightly less equipment — getting by without a mixer or using a mixer with limited tone controls — the answer is an integrated amp as used in every hi-fi system.

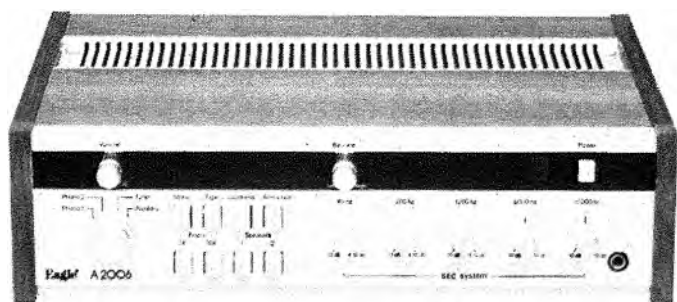
The choices of integrated amp is as endless as the hi-fi shops in any city. You can buy a little amp with an output of ten watts per channel very easily and you can buy a big job with 100 each side — you can even get some highly sophisticated eq systems built in, but it's all a matter of how much you have to spend. There are some real dogs on the market that aren't worth consideration as hi-fi amps, but they're fairly easy to spot from their price tag. I've picked out a few examples of amps across the price range that would perform satisfactorily for use in home recording.

The British firm of Armstrong make an incredibly pretty amp called the 621 Stereo Amp. This unit is designed as part of a series of hi-fi modules, and is compatible with almost every tape deck and record player. Power output is 40 watts per channel into an eight ohm load and distortion and signal-to-noise

figures are as good as any professional power amp. Equalisation is by both rotary and push button filters and together it's possible to obtain a reasonably refined degree of control. Another British company, Rogers, have produced an unusually styled integrated amp called the Panthera. This little unit produces 37.5 watts per channel (eight ohms) and with use of slope and filter buttons is able to offer good control. At the top end of the integrated range is the NAD 200 which is imported from Japan. This is an amp capable of delivering 100 watts per channel and it has a built in Dolby system for replay. It's an expensive unit, but every facility is offered with doubled up inputs for almost everything and roll over tone controls for each channel. A subsonic filter eliminates all signals below 25Hz in case speakers are damaged. Twin VU meters monitor output. Accuphase offer another high power integrated amp called the E-202. This is also a 100 watts per channel job capable of delivering high quality at high sound levels. Naturally it's expensive, but the features are very comprehensive. Included are controls for VU meter sensitivity, filters and rotaries for tone and endless input alternatives.



Home Recording



ON TEST: Eagle A2006 stereo amplifier. Retail Price £92.60 (plus 12½ per cent V.A.T.)

Choosing quite the right amp to use in a recording situation isn't always easy. Despite the large numbers of domestic hi-fi amps on the market, few offer the little extras that turn recording into interesting experimentation so I'm pleased to be able to report that this Eagle 2004 is an exception.

For the musician who has a more modest recording set-up (and that's most of us) the type of amp employed will be the average domestic model with a power rating of between 10 and 30 watts per channel. The inputs on these units are suitable for direct feed from tape machines and, to an extent, they limit the need for a mixer or a complex pre-amp.

The exceptional thing about this little amp is the SEC section. Most amps in the well known Eagle range offer the use of tone controls, but this SEC section makes the amp of particular interest in a recording situation.

SEC stands for Sound Equalisation Circuit and the amp has a built in EQ unit offering control over five separate frequency ranges. The controls can only be used for modifying playback, and Eagle market an SEC unit that will modify signals going onto tape for those who get that serious.

The SEC unit immediately showed me where some of my main mistakes lay in recording in a certain room. The controls offer 10dB cut or boost at frequency points centred around 40Hz, 200Hz, 1200Hz, 6000Hz and 15000Hz. By using these to adjust playback it's possible to hear what the recording would have sounded like with some boost around 200 Hz (for example) and this facility helps towards making far better recordings.

Another important feature for home engineers putting up with makeshift conditions is the ability to adjust playback tones to allow for working in different rooms. Every room has its own acoustic — the bedroom with thick curtains and carpets will be more bassy than the living room with a parquet floor (for example) — and

by adjusting the playback to compensate for these differences it is possible to get some sort of continuity when moving the equipment around.

The layout of the amp is very good. It's easy to use and after an evening's practice I found the right control every time. Push buttons are provided for most switching functions and, just for fun, there's an "Ambience" circuit incorporated which allows two out of phase speakers to be connected up at the rear of the listening room to gain a form of "surround sound".

The amp is well designed and it works very well. In recording situations an amp must be expected to run for longer periods than in a hi-fi situation and despite several sessions which lasted around six hours each, the amp continued to run cool and work perfectly.

I would personally have preferred a larger volume control — perhaps the large rotary knob provided for input switching could be used for volume and a different system incorporated for switching, but that was about my only grouse regarding layout.

Some care must be exercised regarding monitors used with this amp. It's likely that the home engineer buying the Eagle would also be buying up market hi-fi speakers for monitoring, but if you get a sudden rush of money when speaker shopping beware the very expensive, low efficiency type units which need a 100 watts a channel to drive them properly. Most hi-fi speakers will work very happily with this amp (even the under-efficient models work well, but lack a little depth) and at its price it makes a common sense addition to a small home studio set up.

ON TEST: BGW250B Power Amp. Retail Price £407 (plus 12½ per cent V.A.T.).

If you've ever been into cars you'll know all about the desire to drop a V8 engine into a Ford Popular and hit the highway — it can be like that for home engineers as well.

Hooking up a BGW power amp puts real heart into a home recording system and providing

you've got the speakers to take it, it can be the big breakthrough in sound quality you've been looking for. Upgrading amplification is one of the most useful moves possible, and it's surprising just how much distortion small amps are responsible for.

You may have read the sales literature in which power for its own sake is praised with the words "even if you don't need it, it's better to have it." If you have read it, believe it. Bringing in a professional quality amp with a power output of 90 watts per channel (R.M.S. into an eight ohm load) instantly offers power plus quality and forces into sharp focus all the defects in the system you may only have suspected before.

In most domestic situations, nobody monitors at 90 watts per channel. The average listening level in domestic environments must be somewhere about 90 dB and even with low-efficiency speakers, it doesn't take that much power. The principal advantages of having unused power on tap are a greater depth of sound and a performance from the amp so far below the limits at which it begins to clip that the listener is hearing a sound from the amp, which, for all practical purposes, is perfect fidelity.

The BGW amp provides all these qualities. It's an example of amplifier technology at its highest state and incorporated into home recording situations sets a standard that is professional, but at a controlled price. The advantage of this unit is that you don't have to pay for power you don't need — many professional power amps offer 200 watts per channel, or even more.

The 250B is particularly well protected. When high power amps first came into the market towards the end of the 'sixties, the heat produced and the transient surges tended to blow both amps and speakers with regular monotony. Today, the standard of the BGW have reduced those problems to nil. One of the particular advantages of this amp I noticed under extended use was the amazing degree of heat dissipation that has been achieved.

This amp is designed, of course, to be rack mounted and in most professional systems it would be

surrounded by other amp items, all producing heat levels and under extreme conditions, amps of this type become extremely unstable and dangerous. BGW, however, have approached this problem in a singular way. They have mounted all signal carrying transistors on massive heat sinks, this means that heat is directly dissipated and despite running the test amp at high levels for lengthy periods (sometimes in reasonably enclosed situations) I couldn't even get it hot!

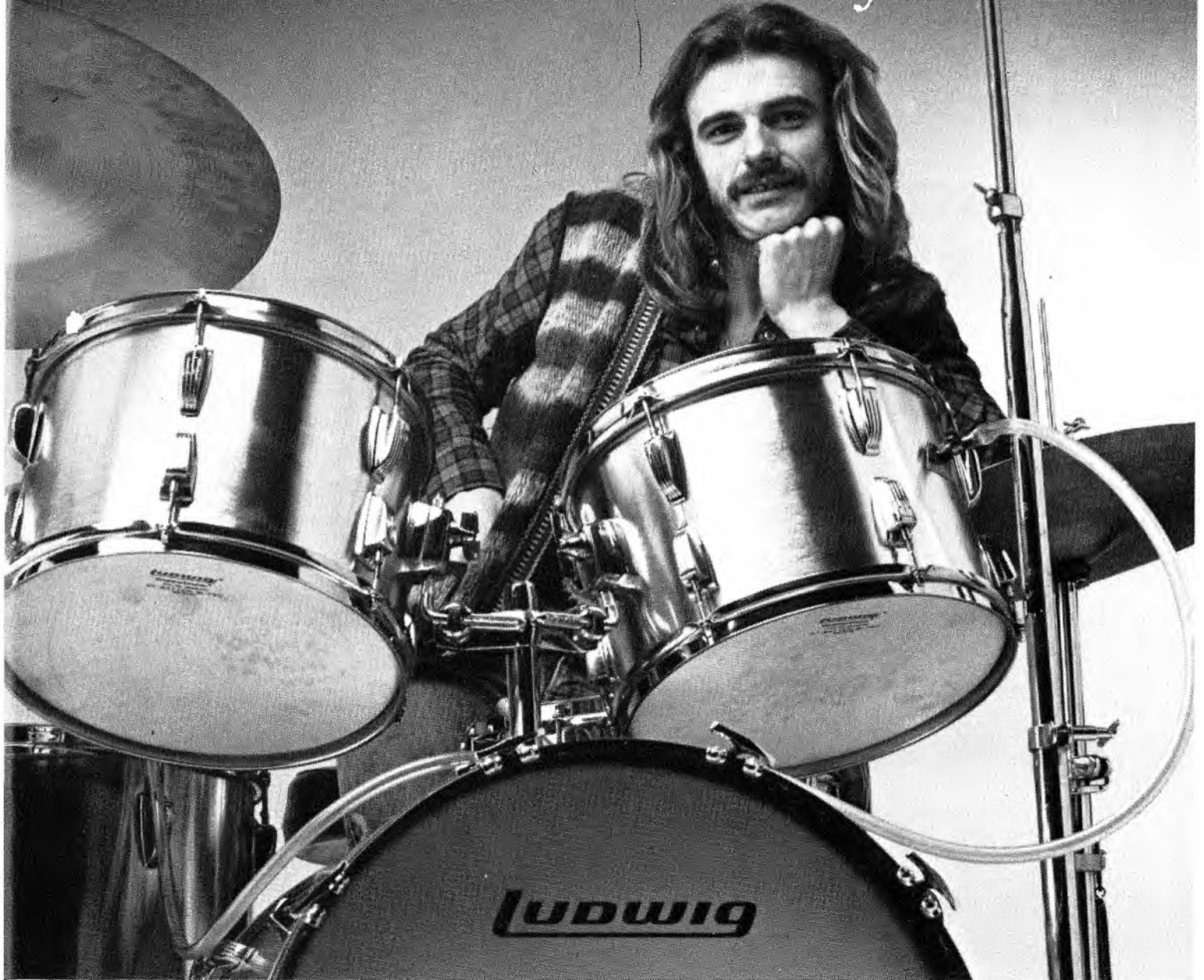
Another particularly useful feature of this amp is its instability into various speaker loads. It will operate perfectly happily down to loads of two ohms and this offers great flexibility with systems that have to connect up with varying speakers. In a recording situation, this means that it's possible to have more than one set of speakers available for monitoring (an extremely useful device to avoid mixing to speaker coloration) and it's possible to switch between them even if they offered different impedance loads without having to pull the amp out of the rack and alter the settings.

A unique feature of the protecting design is a system called the SCR Crowbar Circuit. This is a failsafe device built in to protect speakers (and the amp) in the event of untoward signals (such as input shorting). In this event the circuit triggers and it discharges all the energy stored in the power supplies and physically turns the unit off via a magnetic circuit breaker — the on-off switch flips to off. There is no dying off time for the amp, it's gone instantly. This is a vital protection system and where BGW amps are used, quite a few speaker cones will owe their extended survival to this instant switch-off system which stops incredibly loud buzzes and bangs from hurling the cone from the magnet.

The front panel of the amp is a standard 19in. rack size but the BGW amp is provided with small rubber feet for those who do not wish to rack mount. It's an amp purpose-built for extended life under constant use and must be a high contender for any engineer intent on having a studio of professional standards within domestic proportions and a restricted budget.



It took me twelve years to realise what I couldn't do with my drums.



"Playing with Yes demands a lot of technique. Believe me, once you've accepted rhythms like 19/8 and 11/8 as the norm, 4/4 sounds rather strange. But that's just one way in which Yes has allowed me to develop.

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I still have my same basic Ludwig kit - two 9 x 13's, two 16 x 16's, the speed king pedal, the 400 snare, and the 14 x 22 bass drums - but now I make it do a lot of different things.

For instance, I've added a moog drum that I use through a keyboard. And I've had an air pump built that inflates the drum and alters the tone of the kit.

But, for all that, one thing hasn't changed. My playing still has the same earthy feel that it had 12 years ago.

And the reason for that is I'm still using the same Ludwig kit. You can hear that kit on a lot of albums I've

been a part of over the past few years. Lennon's *Imagine*, *All Things Must Pass* by Harrison, a lot of Joe Cocker's records, my own solo album *Ramshackled*, and all the Yes material since *Close To The Edge*.

That kit is the second kit I ever had. It's been around the world three times and it's stood up to a lot. I've always used it, on stage and in the studio, and I always will continue to use it. Because that dry powerful sound is basically where I'm at.

In fact, that's my advice to anyone starting out. Get into the best gear straight away. Because then you grow up to it. And if you have any prospects at all, the tools of your trade are the most important thing.

And with a new Ludwig kit you're flying."

Alan White has played extensively as a session musician, as drummer with Joe Cocker, and most recently with Yes.

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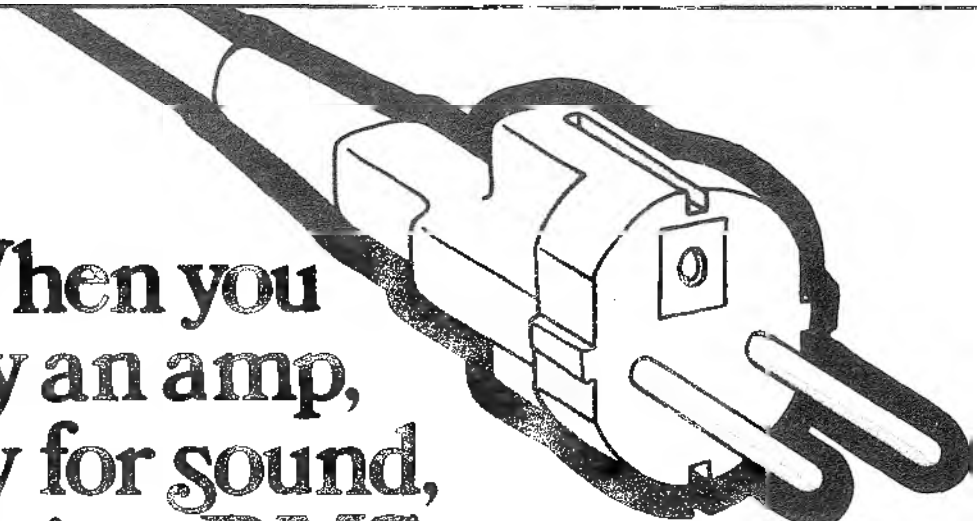
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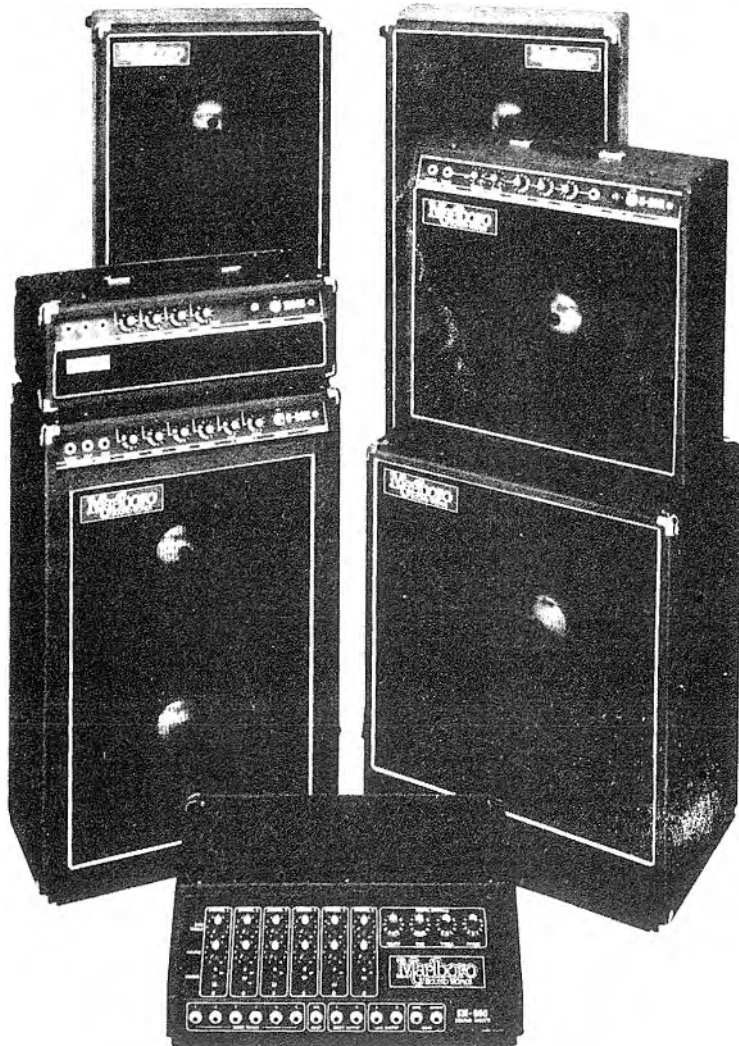
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PHOTOREVIEW

PARIS SHOW

The Paris musical instrument trade show is one of the quieter gatherings of the people who make the instruments we play. It follows hard on the heels of the British Trade shown in August, but it's important because of the fundamental differences that exists in the French musical market to the rest of Europe. French readers will undoubtedly know some of the names and faces pictured here, but for those in the musical instrument trade who didn't manage to make it, here are some photohighlights.



15a) Monsieur Gerrard Poncet (right) of Freevox, France pictured here with I.M.'s Promotions Director Malcolm Green.



6a) Musibridge are part of the D.P.M. group.



19a) Jean Servranck of Faylon amplification (left) discussing mixing techniques with a knowledgeable visitor to the stand.



14a) Peter and Veronica Isom of Asba Drums greeting visitors to the Asba stand.



1a) Philippe Nicoloy (right) of Major, with David Barnett overseas sales manager of UK company, John Hornby-Skewes.



5a) Michel Gillard (right) of Codim-France part of the giant D.P.M. group, discussing business with a French dealer.



18a) The British trade tended to gang up on the French at times and here Joel Garnier of Camac faces (L-R) Laurie Westell of Hohner, Mr. Page and Alan Marcuson of Cardiff Music Strings.



12a) Michel Marcuson (left) of Audio Systems, the company representing Allen & Heath mixers in French territories. Andrew Stirling of A & H was also on hand at the show.



13a) Monsieur J.M. Gaffarel (centre) of Gaffarel, the French importers of Marshall and Carlsbro amplification.

GIANT KEYBOARD COMPETITION WINNERS

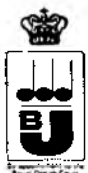


After an amazing response to our Giant Keyboard Competition, the prizegiving took place at Macari's in Charing Cross Road. The picture above shows (left to right): David Barnett(Hornby Skewes), Andy Sherwood (Macari's), Jacob Kahn(Boosey & Hawkes), Brian Nunney (Brodr Jorgensen), Malcolm Green(I.M.), S.Land (2nd prize), David Hook(1st prize), James O'Shea(3rd prize) and Ray Kitchen(Boosey & Hawkes). Our apologies to the winner of the 4th prize, S.Young, who couldn't attend, and Tony Walker of Hohner, who couldn't quite squeeze into the picture.

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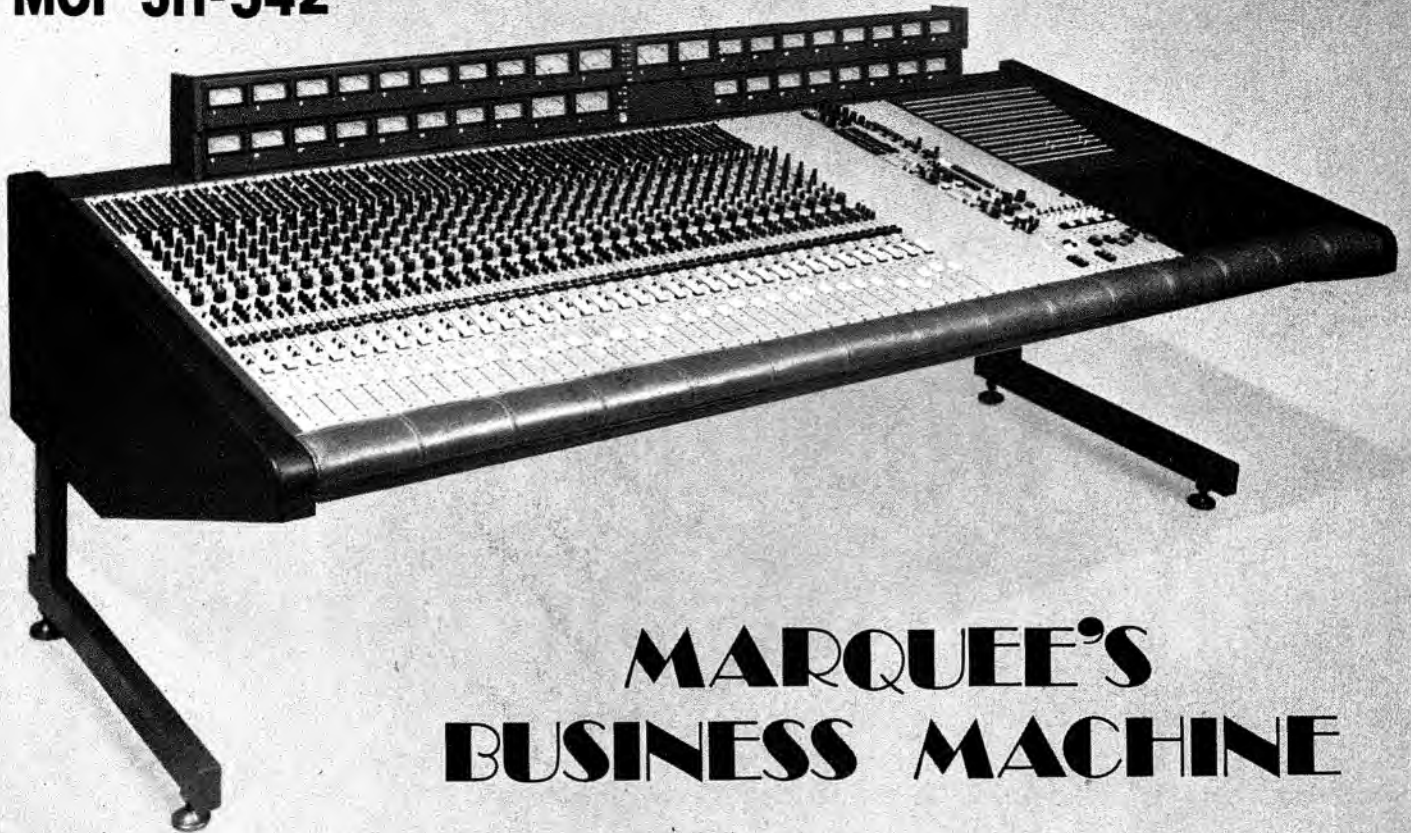
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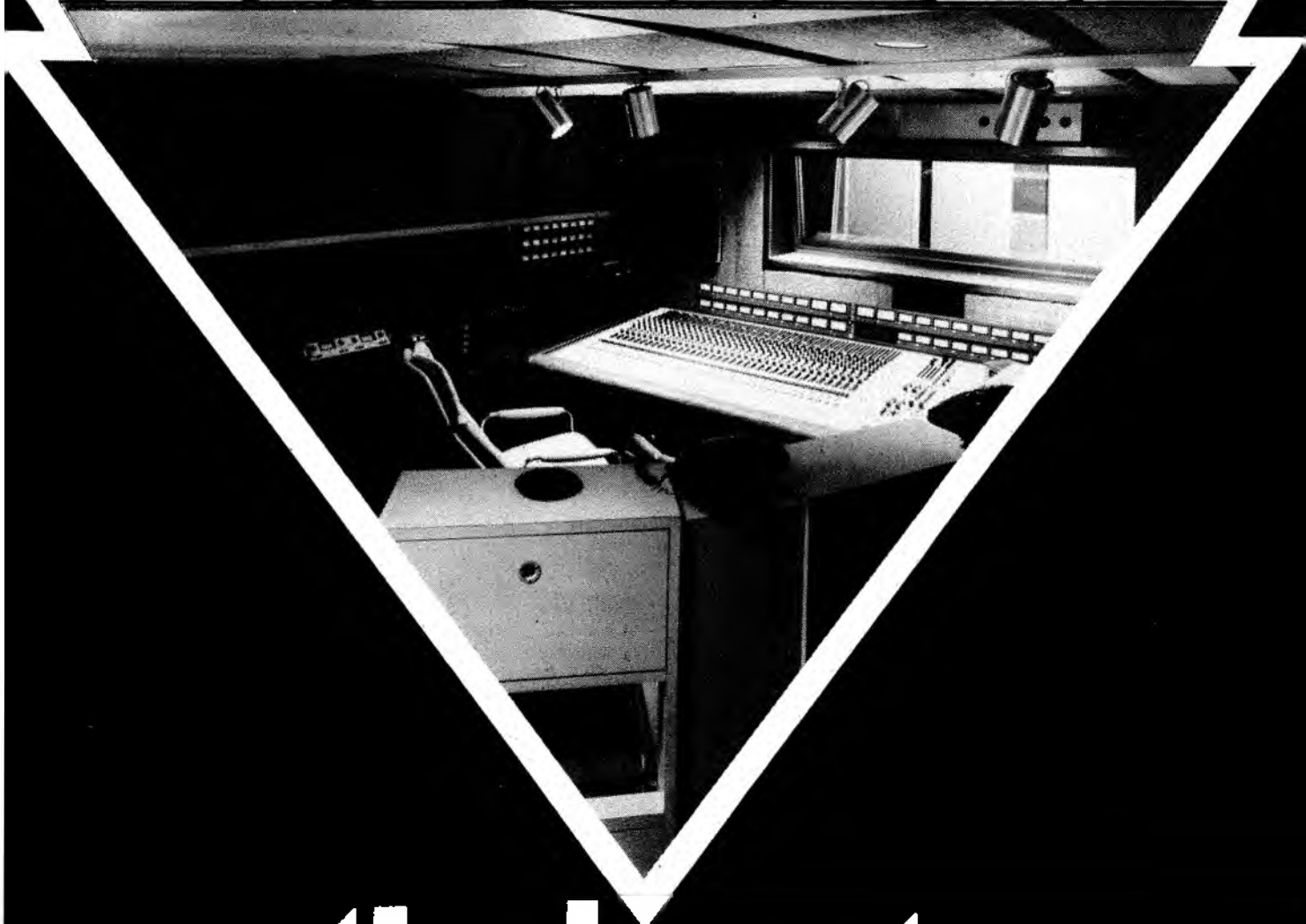


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Marquee Studios

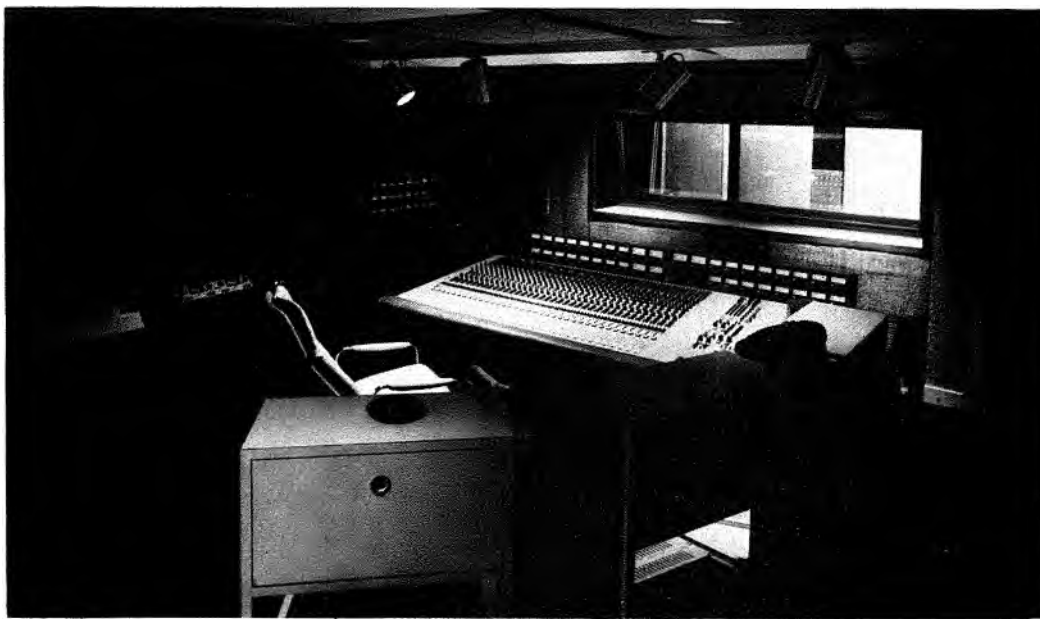
For many years now, London's Marquee club has been one of the most popular "small clubs" in the capital. The Who, Yes and Jethro Tull are among many bands who "broke" after Marquee residencies. In 1964, when the club moved from Oxford Street to their present location in Wardour Street, chairman Harold Pendleton found he had too much space for the club and decided to utilise the spare area for a recording studio. This studio - the renowned Marquee Studio - is now one of the best equipped and most popular recording studios in England.

Initially, it commenced work as a "mono" studio. One of the first sessions booked, in fact, was for The Moody Blues' "Go Now" - after 72 hours of mono recording, this single immediately went to Number One. This success continues today with artists like Elton John, Kiki Dee, Mud, Lynsey De Paul, Colin Blunstone and Buddy Greco, all of whom have used the Marquee Studio. The studio's popularity is not exclusive to artists - top producers like Gus Dudgeon, Biddu, Pip Williams and Del Newman are all regulars there.

In 1966, four-track equipment was installed - this was the first of a series of "upgradings" for the studio. Managing Director Gery Collins, takes up the story: "In those days, studios tended to look like large, brown warehouses, with very little sophistication in either decor or equipment. However, being in the centre of London was very helpful - we were very lucky in that respect." Lucky enough, in 1968, to find themselves financially capable of upgrading again - this time to eight-track. This was just one year after Gery, a former CBS balance engineer, joined.

"We made several modifications then - we were basically using a series of home-made desks. In 1970, we installed a new 16-track desk and machine, completely redecorated and revamped the studio, and enlarged the control room. By this time, we were in fairly good stead, and business improved to the extent that we found our desk was not capable of being modified to the requirements of the day.

"Unfortunately, British desks were extremely expensive and the delivery time quotes we received were too long for us to wait. We heard of a new company called MCI who were making 'production-line' desks which were reasonably priced and available ex-stock." They placed an order with MCI for a new JH416 console and immediately found it was going to be the basis for their future success - a success that mushroomed until, in December



1974, they installed 24-track equipment.

"The beauty of the MCI desk was the fact that one could buy an add-on section, which meant we could go up to 24-track without having to make too many alterations," said Gery. "It was just a matter of running out a few extra cables, basically." By the first week in January 1975, they were fully operational in a 24-track format, having added extra MCI machines. Today, the main hardware of the studio is MCI, with Lexicon digital delay, Universal Audio, DBX and Keepex limiters and two parametric equalisers. Monitoring consists of JBL cabinets powered by Amcron.

Situated behind and above the Marquee club, the studio can be linked directly to the club for live recording. "This is a particularly handy facility," continued Gery, "because, even with the best mobile studios, there are problems. All our staff here know the acoustics of the club so well, there's no problem."

The latest development within the Marquee studios is the recent opening of their new remix suite on the first floor. "We have been doing very good business with the studio," Gery explained. "We've actually had to refuse as much work as we've done. This made us realise that there was definitely room for a second studio. There are restrictions on the space available, so we decided to build a remix suite and small overdub studio on the first floor. The suite was designed to be a completely floating structure to ensure there would be no leakage between the two studios. As we had developed excellent listening and monitoring conditions in the first studio, we asked the designers, as far as possible, to duplicate those conditions in the remix suite. Obviously, this was difficult with different sized rooms, but the engineers are



now very happy with the results.

"Once we'd completed the electronic installations, we set aside one month for our own engineers to familiarise themselves with it and iron out any problems. Obviously, changes had to be made, but the engineers are all well-versed with the suite now."

MCI again heads the list of equipment in the remix suite, the console is the 542 model, the first of its kind installed in England. Although it is capable of taking 42 channels, only 36 have been installed leaving plenty of room for expansion, it's designed for easy conversion to automated control.

"The tape machine complement, again, is MCI," Gery added, "and we find the big advantage of the 24-track and two-track machines is that they use identical electronics for the transports, so there is a lot of saving in the stocking of spare parts. Not that we worry about that too much, as they don't break down to any great extent. Basically the equipment is the same as downstairs, with the exception of digital delay, which is

the latest Eventide with vari-pitch.

"The thing is we've got ourselves a good reputation for having a nice, easy-going atmosphere and we don't want to turn into an institution. We want to remain friendly and easy-going, and we've tried to bear this in mind with the decor and atmosphere of the remix suite. As it will be basically used for mixing sessions, where one tends to spend a lot of time, we've incorporated a shower next door to the suite, although, like the other studio, it's fully air-conditioned throughout."

The future looks rosy for the Marquee's remix suite - it's solidly booked up until February next year, and it looks like the £170,000 that it's likely to have cost "when the dust settles" was well invested. "With a studio, it's a case of re-investing all the time," Gery continued. "With the remix suite, almost everything we budgeted for, changed enormously since we first envisaged it. We also plan to update the existing studio in the future."

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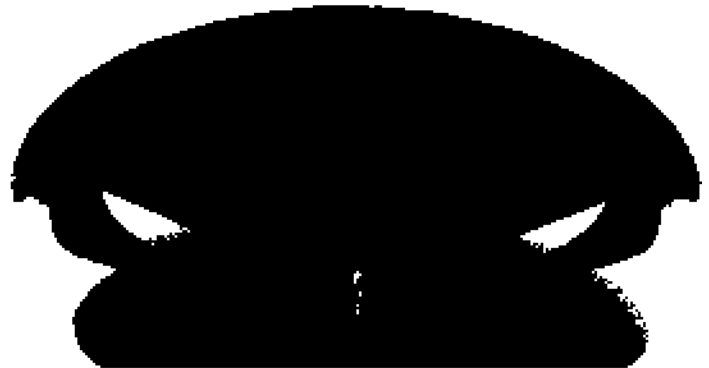
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Albums Albums

Saffron Summerfield: Fancy Meeting You Here. (Mother Earth Mum 1202)

You have no excuse for failing to have an album out. Saffron shames each and everyone of us who have talked at length (even tried at length) to get elusive record deals together — she's turned her back on the whole damn business and recorded herself, formed her own record label, cut her own master, pressed her own records, had the sleeves printed, put the package together and now hits us all over the head with it. Saffron must be known to almost every artist who has played in British or Continental folk clubs. She writes songs and sings them — delightfully. After endless record deals that went wrong, endless foul-ups and endless people "who'll help if they can," here's the second album she's recorded on her own label and the music here reveals the insanity (and basic immorality) of the business that is forced to ignore any music that's doesn't immediately excite the accountants. Saffron's good. She writes clever intricate songs that nonetheless communicate nothing but feeling, and the only problem is that for one reason or another, she avoids writing repetitive hooks that would impress themselves after one play. The first encounter with her recordings revolve around her astonishing vibrato. She's got a unique voice with breathtaking control and the depth and modulation of her vibrato defies any of the electronic tremulant gadgets our industry has to offer. On this album, Saffron offers eight of her own songs plus a version of "Eleanor Rigby." I didn't think her version of the Beatles song came off — she's such a good singer, it would have been more effective if she had stuck closer to the original arrangement rather than worked so hard to get away from it. My favourite song on the album is "Lewis" — a story of a visit — and despite the fact that budgetary considerations reduced most arrangements to three or four musicians, the album is surprisingly rounded. This album illustrates perfectly what British singer/songwriters are currently up to, and if you have any problem getting the album, U.K. readers should contact Mother Earth records at 10 Balham Park Mansions, Balham Park Road, London, S.W.12. Overseas readers should ask Polydór, who show sufficient initiative to represent Saffron world-wide. Produced by Saffron Summerfield at Highbury Studios London. Engineered by Curly Clayton.

Ray Hammond

Jet Harris and Tony Meehan: Remembering. (Decca REM 1.)

Harris and Meehan were originally one half of The Shadows and, after splitting to pursue a "duo" career, regularly entered the British charts with instrumentals like "Diamonds," "Scarlett O'Hara" and "Applejack," all of which are included on this compilation album, the first of Decca's "Remembering" series. Their first, biggest and to my mind, best hit was "Diamonds," written by Jerry Lordan, who penned many of The Shadows' early hits. In these days of superstar bass players like Stanley Clarke and Jaco Pastorius, it's hard to take Jet Harris seriously as a "solo" bassist, but in 1962, it was something of an innovation for a bass player to play "lead" bass on record. On some tracks, like "Scarlett O'Hara," Harris plays lead guitar, while on others he plays acoustic so there's plenty of variation. The Harris-Meehan partnership lasted only two years, and, for this reason, "Some People," "Big Bad Bass," "Besame Mucho" and "Man With The Golden Arm" all of which were recorded without Meehan, are included. Likewise, Meehan's rather poor solo "Song Of Mexico" is also included. Nostalgia rules however, and it's nice to have all these tracks on one album. Studios and producers not specified.

Eamonn Percival

Sutherland Brothers and Quiver: Slipstream. (CBS 81593.)

Considering various stresses that the band were under at the time, SB & Q's two Island albums, "Dream Kid" and "Beat Of The Street," were somewhat tasty, and were consolidations of a stream of superb gigs that won the band many friends throughout the U.K. and the States. After a lull (virtually between contracts) the band, in slightly truncated form, signed with CBS and have enjoyed considerable success since that date, what with Mr. Stewart's rendition of "Sailing" and "Arms Of Mary" going, er, chart-bound. This album, then, comes across as much more confident than anything the Quiverlands have done to date, and the material is up to their usual high standard. Included amongst it is an instrumental, the first ever to appear on one of their albums, entitled "High Nights" and written by ace guitarist Tim Renwick. It's a bit Shadows-like; what I mean by that is that it's good. It was featured to good effect on their recent tour, with Tim taking the spotlight for a well-earned

solo spot. The rest of the composition credits go, as usual, to the superlative Gavin and Ian Sutherland, Gavin reaching a high on his "Midnight Rendezvous." Other peaks include "Wild Love," "Sweet Cousin," "Secrets" (the new single) and the title track "Slipstream." The production is a little heavier than on previous Sutherquivs offerings, especially the use of brass, and the excellent Ron and Howie Albert do the band proud on an album which should prove to any doubters that the Sutherland Brothers and Quiver are a force to reckon with in British pop music.

Recorded at CBS Studios, London. Produced by Ron and Howie Albert.

Tony Bacon

Deaf School: 2nd Honeymoon (Warner Bros. K.56280)

Despite a fair amount of "hype" type publicity at the moment of release, this album only began to grow after a month in circulation. This band won a major national talent competition in the U.K. and since have secured a useful W.B. contract. Their music is a cross between Roxy, Sparks and Lec Sayer and in an unbelievably dismal year for music, they bring a little freshness to the scene. They're an ex-art school band and as such have developed a good visual presentation and despite the fact that the listener is aware that some of the arrangements on the album are contrived, they're interesting and imaginative. The approach to recording is very interesting and the band seem very confident in their control of the medium — far more so than one would expect from a new band. At the time of writing this review "What A Way To End It All" is doing exceptionally well as a single in the U.K. and the band are quickly communicating the fact they're well able to recreate it all live. Engineered at Orange, Air and Island Studios by Steve Churchyard Phil Ault and Pete Swettenham and the tracks were produced by Muff Winwood, and Rob Dickins.

Ray Hammond

Various Artists: At The Hop. ABC (ABCL 5175)

Especially marketed for nostalgia-maniacs, of which there must be a fair number considering the amount of rock'n'roll compilation albums available, this set features sixteen tracks by various American artists, recorded between 1957 and 1965 — the endearingly innocent days of mono. The title track is, of course, performed by Danny and The Juniors and more or less sets the mood for the album. The rest of Side One features some lesser-known artists like Joe Bennet and The Sparkletones and The Poni Tails, who had hits in the States but are pretty obscure as far as the U.K. is concerned. Also included on the first side are the Royal Teens' "Short Shorts" and Steve Gibson and The Red Caps' "Silhouettes," covered over here by Freddie and The Dreamers and Herman's Hermits respectively. The material on Side Two is more familiar and more recent. Tommy Roe's "Sheila," Pat Boone's "Johnny Will" and Brian Hyland's "Sealed With A Kiss" are all



SB & Q a force to reckon with

included, as are "Wipe Out" by The Surfaris and The Chantays' "Pipeline," the last two being products of the early 'sixties surf craze. My surfers handbook tells me Wipe Out is a term used when a rider is knocked off his board, while a Pipeline is the "tunnel" under the crest of a breaking wave. A good album for younger rock'n'roll fans who may not own the original singles. As Adam White says in his superbly informative liner notes "Ramalamadingdong . . . forever"

Various Studios and producers.

Eamonn Percival

The Who: The Story Of The Who. Polydor Select Double 2683069.

As far as I'm concerned, a Who album is always a good album. Polydor, in their infinite wisdom, have seen fit to compile this double set from an odd assortment of Who tracks. I say odd because not only are they not in chronological order, but there are some glaring omissions considering the album is called "The Story Of The Who." How can you possibly begin to tell their story when "I Can't Explain" and "Anyway, Anyhow, Anywhere" are omitted? Early material from the "Quick One" album like "Heat-wave," "Boris The Spider" and "Run Run Run" appear on Side One, along with "Magic Bus," "Substitute," "I'm A Boy" and "My Generation." While Side Two includes "oldies" like "Pictures Of Lily" and "I Can See For Miles," "Squeeze Box" from "The Who By

Numbers" album appears rather incongruously on the same side. Side Three has eight titles from the "Tommy" set including, naturally, "Pinball Wizard." This side is a good selection, featuring some of the best numbers from the double album. Side Four has "Summertime Blues" from "Live At Leeds," "Slip Kid" from "Numbers" and "Baba O'Reilly," "Behind Blue Eyes" and "Won't Get Fooled Again" from "Who's Next", all good numbers and well selected. Sadly, nothing from the "Quadrophonia" set appears on this album - it would have been nice to see "Bell Boy" or "Punk And The Godfather" included. Apart from the fact that a lot of the material is still available on "Mighty Meaty, Big and Bouncy," I feel Polydor would have done better to re-arrange the tracks into chronological order, replace some of the newer material with older tracks and call the album "Volume One" - the real Who story cannot be told in a double album set.

Various producers and studios.

Eamonn Percival

Harvey Andrews: Someday (Transatlantic TRA 329)

This album really marks Harvey's emergence from the horrible "singer/songwriter" bag that has come to be a put down in the last few years. Since 1972 he's been making brilliant albums quietly which have been quietly received by the public despite critical raptures. One of the lad's problems has been that people

seem unwilling to listen to songs without prejudice - because he sang about "ordinary" life as he observed it, they had to mark him down as a protest or folk singer and thus dismiss him. Such rationalisation isn't possible with this album as Harvey has managed to craft his songs more subtly and build melodies that would exist very happily if divorced from the lyrics (the beautiful "Jane" on Side One for instance). Falling into a trap myself, I have to say that this new album seems very like a Neil Sedaka record. However, I mean that as the highest possible compliment as Neil's records represent collections of the very finest contemporary songs. Harvey has discovered melody and to enhance the awakening he sings very well on this record, far better than on anything before. I suspect the faithful of his hardcore folk club audience will be slightly upset by Harvey seeming to go commercial - but that would be as pure an expression of prejudice as the opposite view I mentioned earlier. It's a very fine album demonstrating that English songwriting is as vital as any in the world. If a hit single comes from this album (and it should if Transatlantic can do their job) all of a sudden the world will have discovered a new songwriting force - only like other overnight successes he's been waiting a long time.

Produced by Ritchie Gold, engineered by Barry Hammond at Chipping Norton Studios.

Ray Hammond

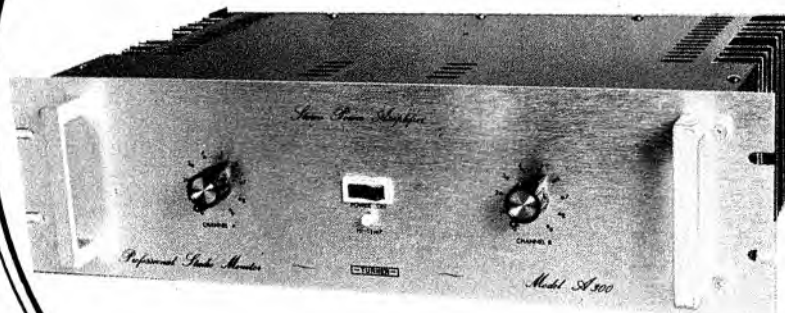
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How to measure amp power

An amplifier's power output is one of the most important aspects of its specification. Amplifiers are generally sold and advertised on their power capability and the market price for both new and second hand equipment is fixed by the power standard. This is not to say that certain manufacturers do not enthuse about other details concerning their amplifier specifications.

Commercial grade amplifiers, both in the U.S.A. and Britain, have rated their amplifier powers differently over the last few years and buyers have been understandably confused by such terms as music power rating, I.H.F.M. rating, peak power, and finally r.m.s. rating. In this article I am going to describe some practical aspects and simple solutions in measuring the specific (r.m.s.) power output of the audio amplifier.

The signal from an Audio Frequency (A.F.) signal generator must be correctly connected to the input socket of the amplifier under measurement, observing the sensitivity figure given by the manufacturer for the amplifier. The sensitivity

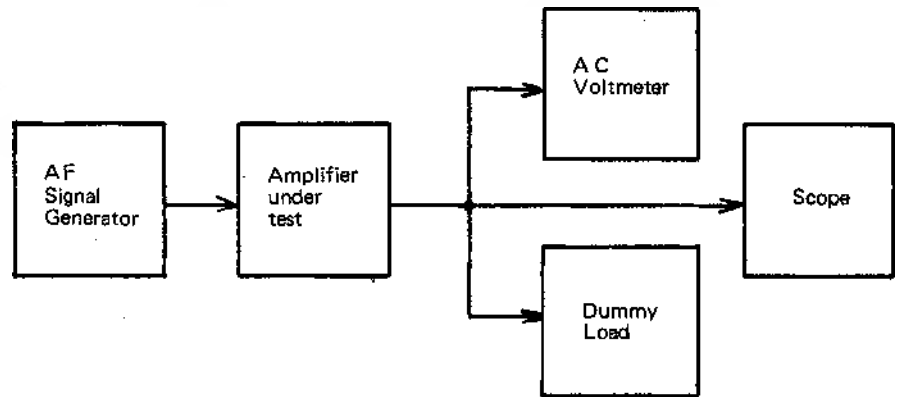


Fig 1

figure explained non technically means the voltage figure that you require to drive the amplifier in order to obtain the power figure given for the amplifier. Sensitivity is qualified as follows; 0.775 Volt for 100 watts r.m.s. into 8 ohms.

This means that you need 0.775 Volt (or 775 mV) at the input end of the amp-

lifier to obtain 100 watts from the amplifier when a load of 8 ohms is connected across the amplifier output. If you can change the load to 4 ohms or 16 ohms, the figure will vary and if you drop the signal level to 600 mV the power output from the amplifier will obviously decrease.

Fig. 1. contains an A.F. signal generator

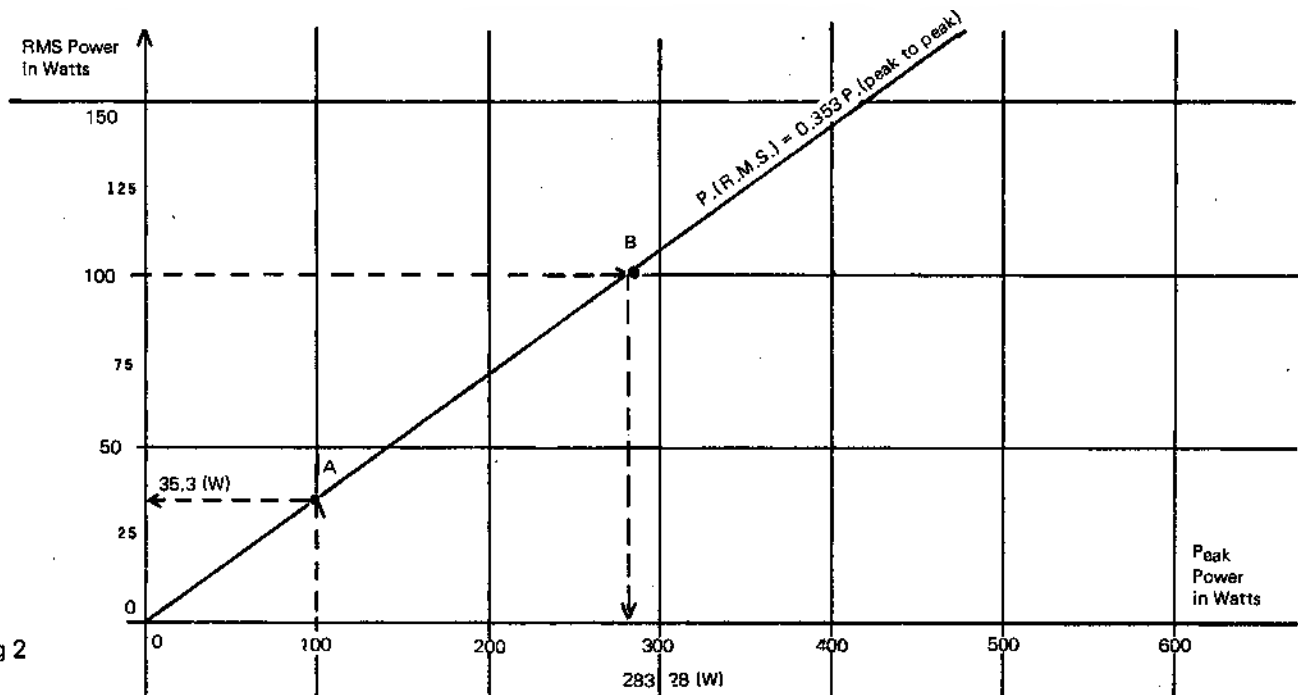


Fig 2

with a fixed 1 KHz sinewave frequency, recommended by both British standards and American I.H.F.M., the amplifier under test, an A.C. Voltmeter (r.m.s.) – preferably a meter with a high input impedance for example and A.C. Valve Volt Meter, a dummy load and an oscilloscope.

I'd like to point out that it is essential to pay special attention to all the audio connections which should be made from high quality screened audio cables. Otherwise, hum noise or R.F. pick up can affect the results of our measurements. The dummy load connection lead need not be screened and should be of correct thickness to carry the output power signal without loss. (overheating problem).

If you measure the r.m.s. voltage, the true r.m.s. voltage meter should be connected and to observe the waveform of the output signal, a good quality oscilloscope is required. To understand power measurements, a few basic equations must be learnt. Assume that existing circuit current and voltage may be represented as the sinusoidal signals, (sinewaves) then the output power is defined by the equation:

$$P = V \times I \times \cos a$$

Where: V = voltage (Volts)

I = Current (Amps)

a = The phase angle between V and I waveforms.

For those of you with limited knowledge of mathematics do not despair at this stage. The main thing to remember is that the following formula proves that

$$\text{Power} = \frac{\text{Voltage}^2}{\text{resistance}}$$

Since the load absorbing the power is purely resistive and the a = 0 (both parameters have the same phase angle), the above equation may be restated as:

$$P = V \times I \text{ (as the } \cos a = 1)$$

Accordingly, with the constant value of dummy load resistance and V = I x R from Ohm's Law, you can simplify the last expression to:

$$P = \frac{V^2}{R}$$

This derivation is only adequate and true if the load has a constant value of resistance and is of a resistive character. In the opposite case, the calculation of amp output power is more complicated and the problem is too sophisticated to develop in the space available in this magazine.

To obtain the r.m.s. power in r.m.s. Watts, the measured voltage must be r.m.s. also. Example: The amp output voltage measured across 8 ohms dummy load is 20 V. r.m.s. The power calculations is as follows:

$$\begin{aligned} P.r.m.s. &= \frac{V.r.m.s.^2}{R} = \frac{20^2}{8} \\ &= 50 \text{ W.r.m.s.} \end{aligned}$$

Sometimes when the peak to peak is required this parameter can be computed from the simple formula:

$$P \text{ Peak to peak} = \frac{P.r.m.s.}{0.953}$$

A simple engineering solution to the problem is a conversion graph (r.m.s. to peak to peak value) as shown in Fig. 2

The two points in Fig. 2 A and B show how to use this method. For example the 100W r.m.s. (B) is equal to 283.28 W of peak to peak power, and the peak to peak power of 100W is equal to 35.3W r.m.s.

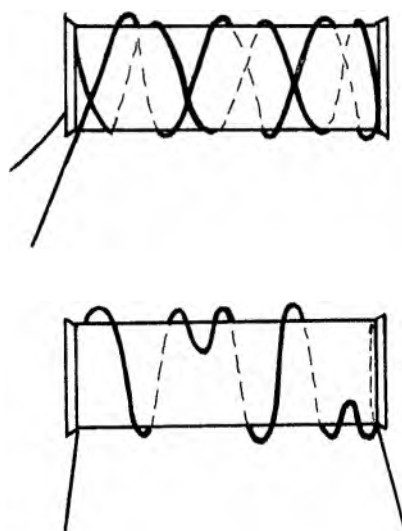


Fig 3

During power output measurements, the dummy load should be designed with a wattage rating several times higher than the amplifier output, because of overheating processes which can easily affect accuracy. If you do not have a professionally built amplifier dummy load and want to construct one, make sure to minimise the inductance of the element. Some practical precautions are given in Fig. 3, which shows the methods of winding the dummy load that will then limit the constructional inductance factor.

Also the capacitance character of the dummy load in no case can be accepted and the resistance value should be carefully checked on the resistance bridge or with an accurate ohmmeter.

In practice most audio equipment manufacturers claim a "rated output power" (ref. standard 1 kHz frequency) but with a Total Harmonic Distortion figure which is limited by an expected range of applications. For some P.A. systems, Instrument amplifiers etc., this figure may be set at a level of up to 10% THD although 1% would be a professional maximum and for certain high fidelity applications a figure of 0.1% THD or less is applicable.

So far we have only taken a look at the practical amp power parameter measurement side – the "continuous output power" or "maximum output power" terms must be considered. Both of these are identical, the first was "born" in America and the second is of British origin. Definition claims a level power for 30 seconds period of time without exceeding its rated Total Harmonic Distortion, or in synonym terms they are also known as "sinewave power" and "Steady state power". In American Music Industry practice, we find some other terms, eg. "music power output".

Since there are a vast amount of different safety devices built into amplifier (short/Open circuit protection) and a wide range of very different amplifier constructions available, basic safety precautions should be taken when carrying out any of the above experiments.

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MIXERS

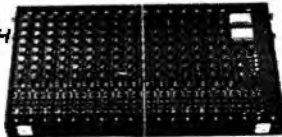
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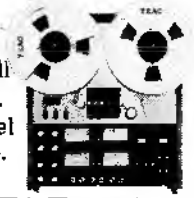
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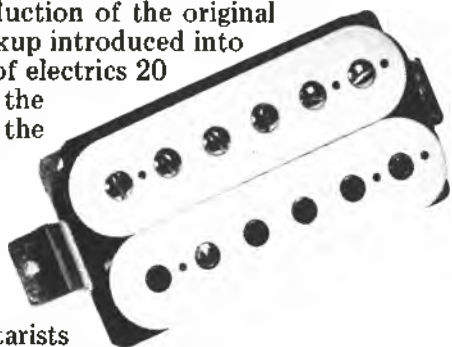
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New! PAF

The PAF, or "Patent Applied For" pickup is an authentic reproduction of the original humbucking pickup introduced into the Gibson line of electrics 20 years ago. Until the Di Marzio PAF, the quality of sound of this original device was never approached by other pickups. The PAF is intended for guitarists who don't need the extreme increase in output of the SDPH, but want a warm, sustaining sound with moderately increased output at a reasonable price.



Features:

- Nickel plated pole pieces
- Double creme colored bobbins

'Fat Strat' & 'Pre-BS' Telie

Designed for the Fender Stratocaster or Telecaster player who wants to improve his guitar's output and sustain, while retaining the guitar's original circuitry and appearance, the Fat Strat and Pre-BS Telie are exact replacements for the original pickups — and are installed in a matter of minutes. The Pre-BS Telie mounts in the bridge position of Telecasters only; the Fat Strat is recommended for the bridge position in Stratocasters, but can be installed in other positions. These exceptional pickups feature the increased low and midrange response, and they especially complement the harmonics already present in these guitars while virtually eliminating the "squeal" or feedback common to them.

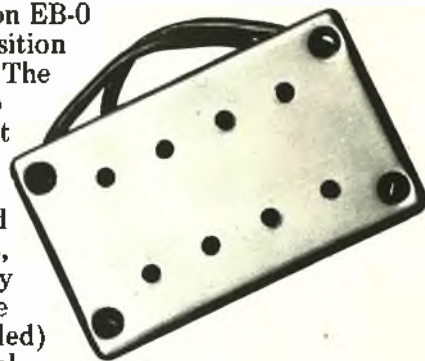


Features:

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Model 1 Bass Pickup

The Model 1 is a high fidelity, exact size replacement pickup for the Gibson EB-0 (also for the bass position of the EB-1, 2 & 3). The Model 1 Bass Pickup produces two distinct sounds, similar to those made by Fender Precision and Rickenbacker basses, which are selected by installing a miniature toggle switch (included) in the guitar's control section. The pickup is hum-cancelling in both modes, and can be wired directly into the circuit without the switching ability.



FEATURES:

- Eight individually adjustable polepieces
- Two separate sounds
- Three conductor cables

New!

DiMarzio Acoustic Pickup

A new type of contact pickup for acoustic guitars, the Di Marzio Acoustic is an attractive alternative both in price and sound to other pickups. It's easily installed (non-marring adhesive) and no Pre-Amp is required. Suggested list is \$29.95.



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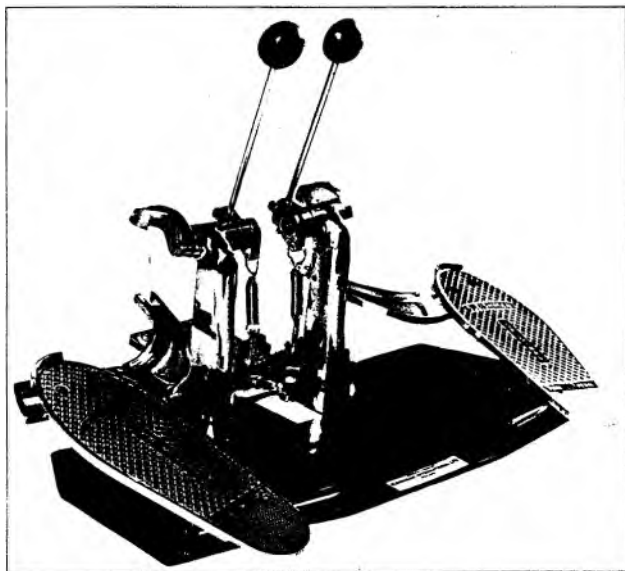
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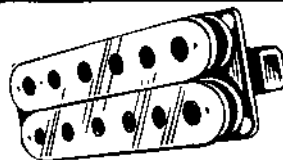
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Studio Diary Studio Diary

ACORN... A Scottish 'Folky' band, the Tannahill Weavers, recorded an album produced by Steeleye Span drummer Nigel Pegram, and engineered by Colin Bateman... Bands demoing recently have been a varied bunch, and included Bandy Leg and Fast Buck from Jet Records, Starry Eyed and Laughing, and Montana Red... Judge Dread's recent single was recorded, produced by Ted Lemon... Ex-tour promoter Peter Bowyer has been getting into record production of late, and a recent project of his recorded at Acorn was the single "Magic Man" which boasts several session-players from around the country... Brother Kip recorded a single produced by Pete Langford of the Barron Knights, who have themselves been recording at Acorn... Electric vibes player Robert Wood, who has enjoyed recent success in France, recorded some material for Polydor Records, France with engineer Colin Bateman...

CENTRAL SOUND... Max Bygraves recorded a single with producers David Riley and Tony Bygraves and engineer Simaen Skofield... Simaen engineered all the sessions mentioned here... David Riley and Barry St. John recorded a single with Tony Bygraves producing... The Brotherhood of Man put down their next proposed hit with the help of Tony Hiller... Graham Preskett returned to Central to produce himself on a new single recording... J. Vincent Edwards, who had a recent release on Pye, recorded some more material with producer Tony Aitken... Mikl Antony, the Goodies producer, recorded a few tracks himself on a recent visit to Central...

EDEN... Various artistes and bands have been in Eden Studios recording backing tracks for London Weekend TV programmes, they include Hot Chocolate, Alvin Stardust, Twiggy and the Drifters... American band Clover have been in the studio for quite a long period of late; they recorded several tracks which may eventually grace the face of a single, and they were produced by Nick Lowe, along with engineer Roger Bechir... Jeff Phillips was in to record some tracks, produced by Tony Wolbrom and engineered by Mike Gardner... Ex-Animals and Family person John Weider has been recording an album with his new band for Anchor Records produced by Phil McDonald and engineered by Roger Bechir...

FREERANGE... David O'List, sometime of The Nice and almost of Roxy Music, has been laying down some tracks for Rock Artists Management with engineer Baz Bawbridge... Phil May, now ex-Pretty Thing (or Pretties as they seem to prefer), has been in recording some material for Swansong, with engineer Tim Hassett... Perceptive persons eyeing up the recent ads for Dr. Feelgood's new album will be interested to note that the "still" in the ad was taken from a film of the band made by Freerange... New artist Nina Shaw was recording some tracks with engineer Gavin Phillips-Page... Fuse Music have been recording music for the kids TV series "Scouse the Mouse", with Donald Pleasance among the people involved... Barry Lenihan has been recording a radio show for Advice... Winston Edwards of Faye Music has been overseeing the production of some masters... Production deals continue for Shownuff Music... Freerange's 16-track Scully recorder has at last been installed, and they would remind punters that Freerange is available 24 hours a day...

GROSVENOR... The Cory Band recorded a single for Transatlantic, produced by Brian Gaye... A choral item described as a religious pop record, was recorded for Pilgrim Records, and produced by John Pack... Brian Sharp put down an album recorded mobile for release on Grosvenor... Danish organist Arni Benike recorded an album for Grosvenor produced by John Taylor... Various radio and TV commercials have been recorded along with a number of demos...

KONK STUDIOS... The Kinks have been making use of their studio, putting a number of ideas onto tape for their next waxing, producer was the very wonderful Ray Davies... Mud were recording recently at this North London studio, with Pip Williams producing and the engineer as ever, Roger Wake... Showaddywaddy have also been recent visitors, and recorded some new material with producer Mike Hurst... A fine band called Cafe Society have been recording tracks which, it is hoped, will eventually form part of their proposed album; producing them was John Miller and engineer was Roger Wake...

LANSDOWNE... Steeleye Span's recent album release was recorded at Lansdowne with Mike Batt producing and Bob Butterworth engineering... Mike Batt also produced the new Kursaal Flyers album... The JALN Band recorded an LP with Peter Waterman and Mike Finesilver producing... Dave Clark has been working on a project with engineer John Mackswith... Roger Whittaker recorded two albums, one for France and one for the U.K. with Bob Butterworth engineering... TV singer Elaine Delmar recorded some tracks... Penny Farthing Records recorded an album with a band called Chopper, engineered by David Baker... State Records band Rokotto recorded some material with Wayne Bickerton and Tony Waddington producing and David Baker engineering...

PEBBLE BEACH RECORDERS... A band deservedly receiving some attention of late, Meal Ticket, have been recording various tracks at PB., and do in fact have a production deal with Pebble Beach, the tracks in question were produced by Tony Platt... Alexis Korner has been continuing work on an album with his son Nick and daughter Satho involved, plus drummer Simon Stewart and National Health bassist Neil Murray...



Alexis cornered at Pebble Beach

The producer was Alan Callan and engineers Tony Platt and Eil Pearl... Strife recorded some demos over a three day period with producer Neil Slaven... Another in-house production involves Brighton singer/songwriter John Kennet who had a recent continental hit and has a single released on Transatlantic...

REL (Radio Edinburgh)... The mobile was hired by Scottish TV to record Elton John's recent gig at the Playhouse in Edinburgh, which included some of the newer songs like "Tonight", Chris Giles was the engineer... The Rollers demoed some material at REL for their recent album with Neil Ross and Chris Giles engineering... Dave Valentine recorded a single called "Dancehall Queen" which has already interested another band... Scottish band Barnaby recorded some demos in an attempt to generate interest in their material... Gerry Ford recorded a country and western album for Radio Forth produced by Chris Worrel... Parts of a previous album called "The Burns Story" by John Cairney were re-recorded and edited for a cassette production of this work about Robert Burns...

SARM... Queen have been back to Sarm recently, with Mike Stone engineering, for Queen Productions... Curved Air recorded a single for BTM Records with engineer Gary Langan... Roy Baker produced a band called Gasolin for CBS Denmark with engineer Gary Lyons... Alan Child also recorded a single with producer Lem Lubin and engineered by Gary Lyons... A band called Nutz recorded an album with production handled by John Sinclair and Gary Lyons... Sunfighter recorded a single with Chris Rainbow producing and Vic Smith engineering... Binzi also recorded a single for her upcoming BBC TV show, produced by John Sinclair... Paul Da Vinci recorded some tracks with engineer David Hall and producer John Sinclair...

SUN... Van Morrison was "preparing musical ideas" at a recent stint in Sun Studio... The New Vaudeville Band recorded a variety of new tracks with engineers Rob Bowton and Martin Maynard, the album resulting will also be pressed by Sun... Red Rag Records artist Bob Gooding was recording with producer Alan Robinson and engineer Martin Maynard; other Red Rag artists recording at Sun recently have included the Calico String Band and Dave Harding... Several pressings were completed, including an album for Fanfare International called "Three valves and eighty-eight keys", and an album for Automedia about Santa Pod dragstrip called "Drag racing thunder"... Other visitors to Sun have included Owl, Winston, Sunfighter and the Phil Howard Band...

ELECTRIC LADY (New York)... Al Di Meola guitarist with the Chick Corea Band, was recording some tracks for a new solo album with engineer David Palmer... Guitarist Joe Beck spent some time recording at Electric Lady recently; his producer was Jack Richardson and the engineer was Ron Johnson... Earl Klugh recorded some new material with his producer Dave Grusin... The superb Janis Ian has been in to finish some mixing on recently recorded material... Chuck Mangione produced himself when working on some tracks at Electric Lady... Al Kooper stopped by to transmit some ideas to tape... Electric Lady's phone number has changed recently, it is now (212) 477 7500...

DiMarzio picks up where the others leave off.



Rick Derringer



Al Di Meola



Laurie Wisefield



Earl Slick



Ronnie Montrose

Aerosmith
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 Carol Kaye
 Jefferson Kewly (Mac Davis)
 Kiss
 Lynyrd Skynyrd
 Bob Mann (session man)
 Nazareth
 Mick Ronson
 David Sancious

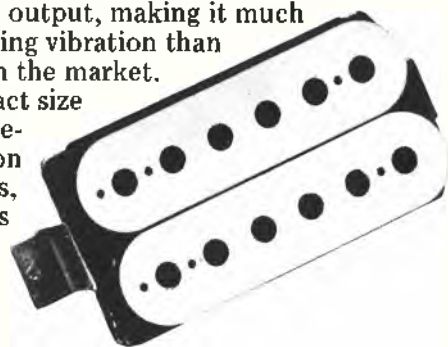
Di Marzio, the "Pickup People" offers a complete line of guitar and bass pickups. All high output Di Marzio pickups feature a dynamic range unmatched by any other pickups on the market. Their exclusive Tailored Frequency Response achieves optimum sound from your instrument. And there's no technical expertise required to install them.

Check out the Pickup People. Hear how Di Marzio picks up where the others leave off.

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The SDPH is the exact size and hardware replacement for large Gibson humbucking pickups, and greatly improves the sustain and output capabilities of the guitar.



Features:

- 12 individually adjustable pole pieces
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Dual Sound Humbucker

This deluxe version of the SDPH shown above, features both the hot sound of the SDPH plus a second sound similar to that of a Stratocaster or Firebird. This allows the guitarist a choice of two distinct tones, providing greater flexibility. The installation of a small switch provides for the selection of a "hot" or "clean" mode in humbucking.

Features:

- Same construction as SDPH
- Special wiring allows two separate sounds
- Foil wrapped three conductor cable.

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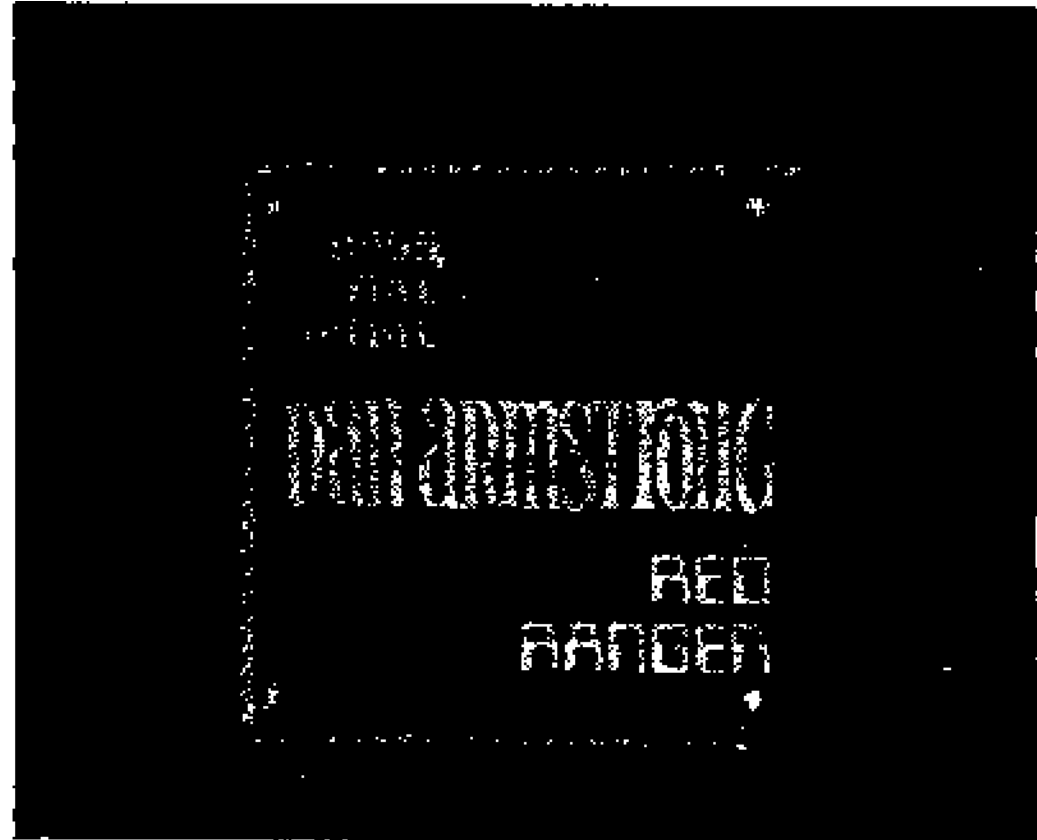
Audac Radio Microphone £296.30 ex VAT

As all American radio will know only too well, CB Radio is the thing across the American continent and, despite the annoyance they can undoubtedly cause innocent passengers trapped on a drive with a CB freak, the boom proves that efficient transmitters and receivers can be mass-produced for little cost.

The radio mike is by no means new. It's been on offer for about ten years, but there have been serious drawbacks to some of the models on offer. Logically there should be no reason for either a guitarist or a singer to be anchored via a lead, but musicians and singers in the rock field have been slow to appreciate the possibilities. In the past, the concept of the radio mike has been promoted towards the solo performer, so that Perry Como can move amongst his audience, and the idea of a "rock" radio microphone hasn't really existed. Now an entirely new British product is seeking to change things.

The Audac Unimic 65 radiomicrophone system is basically a good microphone, attached to a good radio system. In the past, radio mike development has unfortunately poured most concentration into the development of the radio system rather than the mike itself, but this model is different. Larry Macari of Colorsound, who loaned us this microphone for evaluation, tells us that the basic mike capsule is made by Shure and, judging by the quality of sound, it's very much a Shure.

So you've got a first class stage mike and a clean, undistorted, interference-free radio system — what else is necessary? The answer is; a little education. Because the mikes have formerly been directed at "mature" solo singers, rock artists have seen the radio mike as being passe before it's even arrived and, unfortunately, the area of presentation in which a radio mike would be most effective — i.e. a large auditorium with scope for movement —



Dan Armstrong Red Ranger

has been neglected. With the arrival of mikes of the quality of the Audac, that should soon be put right. All that remains to be solved is the problem of any inherent resistance to the idea.

The concept of total freedom of movement on stage is an exciting one. Singers have incorporated nervous lead twitching into their act, but far from appearing stylish and professional as the singers imagine, the nervous fondling is a dead giveaway of the anxiety the singer is suffering, and this transmits itself to the audience. The end result is uneasiness. The radio mike adds many possibilities to the act. To compliment the mike, a small transmitter is being developed for use with guitar and the total elimination of leads must be the ultimate destination of stage technology.

Dan Armstrong Red Ranger £12.99 ex VAT

Dan Armstrong recently introduced a range of "Sound Modifiers" which are distributed in the U.K. by Sound Projects of Lon-

don. This range includes the Red Ranger, Green Ringer, the Purple Peaker, the Yellow Humper, the Blue Clipper and the Orange Squeezer. These rather exotically-titled effects units cover a variety of functions — the Purple Peaker gives two different boosts and, in simple terms, is supposed to give a Fender or a Gibson sound. The Yellow Humper is designed for use with bass and gives a Precision or a Rickenbacker-like sound. While the Blue Clipper is a distortion and volume booster, the Orange Squeezer offers compressor limiter facilities. I.M. looked at the Red Ranger this month, and we hope to check out more of this range in the near future.

The Red Ranger incorporates a three-position switch which allows the user to select a full-range level boost or to boost either the bass or the treble range. In the Full (middle) position, it provides 13 dB of clean boost across the full frequency range. This is particularly useful with low-output instruments, or for inducing amplifier distortion. In the treble position, the Ranger produces an

additional 12dB boost in the treble range, while in the bass position, it boosts the bass range a total of 22 dB without cutting back the treble. Input impedance is 110 kOhms, and the signal-to-noise ratio is 85.

Like the rest of the range, the Red Ranger is powered by a single 9v battery housed in the aluminium unit which measures 59mm wide x 70mm deep. They are all designed to be plugged into the jock socket of the guitar, but can also be converted (by interchanging two wires) for use at the amplifier end. This is particularly useful if you want to use one of these with a Strat or similar instruments with recessed, angled jack sockets. Also, when operated from the guitar end, the units tend to swing around quite freely and you have to "search" for the control. This doesn't exactly provide "fingertip" control. To my mind, they would have been better designed for operation at the amp end and originally. This is one of the reasons why a similar fuzz unit, made by Vox many years ago, failed. Apart from this, it's still a good buy at less than £15, pro-81

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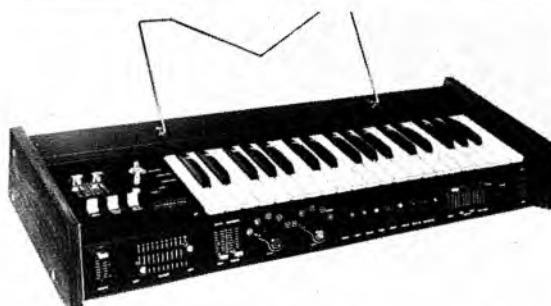
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viding bass, treble and volume boosts all in one. E.P.

The Fender Phase Shifter

This recent addition to the CBS range comes from Fender Musical Instruments, California, U.S.A. The unit is quite compactly housed in a black metal case of step design. A silver coloured grill and On/Off push button switch are located on the lower step and a rotary plate which acts as the phase shifter speed control on the upper step. There are input and output $\frac{1}{4}$ " jack sockets on each side of the unit.

The electronic circuitry has all been mounted on one fibre glass P.C.B. and contains two IC's, five transistors and three silicon diodes. The design of their circuit reflects the modern tendency to use integrated circuits whenever possible, especially where space is limited. The power supply section contains one small mains transformer protected by one quick blow fuse (3123AG/250mA.) and two 220 uF/16V smoothing capacitors.

The power consumption is low by any standards 2.5 W. The unit is adapted to 240V. 50Hz mains only and equipped with $2\frac{1}{2}$ metres of power lead with a two pin plug, which necessitates the use of an adaptor at all times NOT only from the safety point of view but because of the type of plug provided by the makers.

The phaser operates quite simply, by depressing the On/Off switch; (foot operation seems to have been envisaged with this design) and the phase shift is activated by the rotary plate. Turning the plate clockwise activates the speed and counter clock-wise decreases the speed. A white dot engraved on the rotary plate acts as a marker for various phase settings.

We experimented with various amplifiers and guitar around our offices and found the sound effects from the unit to be interesting and very acceptable.

Our overall impression of this effects unit was a good one; small and sturdy (weights 1.5Kg (3.3 lbs))

and easy to operate although it is possible to accidentally turn the unit off when the ball of the foot is operating the phase plate.

Fender Bassman 100 amplifier £224.81 ex VAT

Choosing a bass amplifier is one of the more tricky aspects associated with The Compleat Bass Player, and to attempt to help prospective bass amp owners, we hope to feature several well-known and not so well-known possibilities in the coming months. It seemed logical to begin with an amp which is certainly in the "well-known" category and must be a tempting choice when considering a new bass set-up.

The appearance must be familiar to most readers; the traditional Fender grey fronting with silver-coloured instrument panel and black rotary controls, but the actual control lay-out may not be. Basically, the amplifier is split into two channels, which are labelled "Bass Instrument" and "Normal". "Bass Instrument" would imply that this channel is more suited to bass, which isn't really true at all - both channels offer a range of tone

controls and setting possibilities that make either totally ideal, but different. It seems a good opportunity to question the whole point of providing the facility of two channels on an amplifier principally designed for use with one instrument; this is by no means a criticism of this amplifier, but just a general observation. Think about it.

The "Bass Instrument" channel is on the left of the facia, and features two input jacks, one for ordinary output instrument, the other for high output instrument or for the unlikely event of two instruments feeding the same channel. Rotary controls are Treble, Bass and channel Volume, and there is also a "Deep" switch. It's a treble cut, and is particularly effective in low-volume work.

The "Normal" channel is positioned in the centre of the facia, and the layout is similar to the previous channel, except for the addition of a "Middle" rotary control, and a "Bright" switch in place of the "Deep" switch. The Middle control is a useful additional colour, it gradually thickens the bass tone with a slight richening of top frequencies toward the full

extent of its rotation. The "Bright" switch is a bass cut which I found to have minimal effect on the overall sound.

In addition to the separate channel controls, there is an overall Master Volume rotary control and a red pilot light, and on the rear, the usual Fender on/off and standby switches, voltage selector, 3-amp fuse and two output jacks to deliver a total of 4 ohms.

From a subjective point of view I tried the amp at high level "band" volume, and low level "front room" volume, with a Fender Telecaster Bass. The standout feature of the amp was the vast range of tone colours available from it; with a little experimentation using varying balances between channel volume and master volume, and discovering that the tone controls actually affect the sound of the amp (which makes a change after having tried some amps), it soon becomes obvious that if you want anything from a warm, rich "traditional" bass voice to a funky, metallic "new" sound, then the Fender Bassman should be high on your list of possibilities.

T.B.

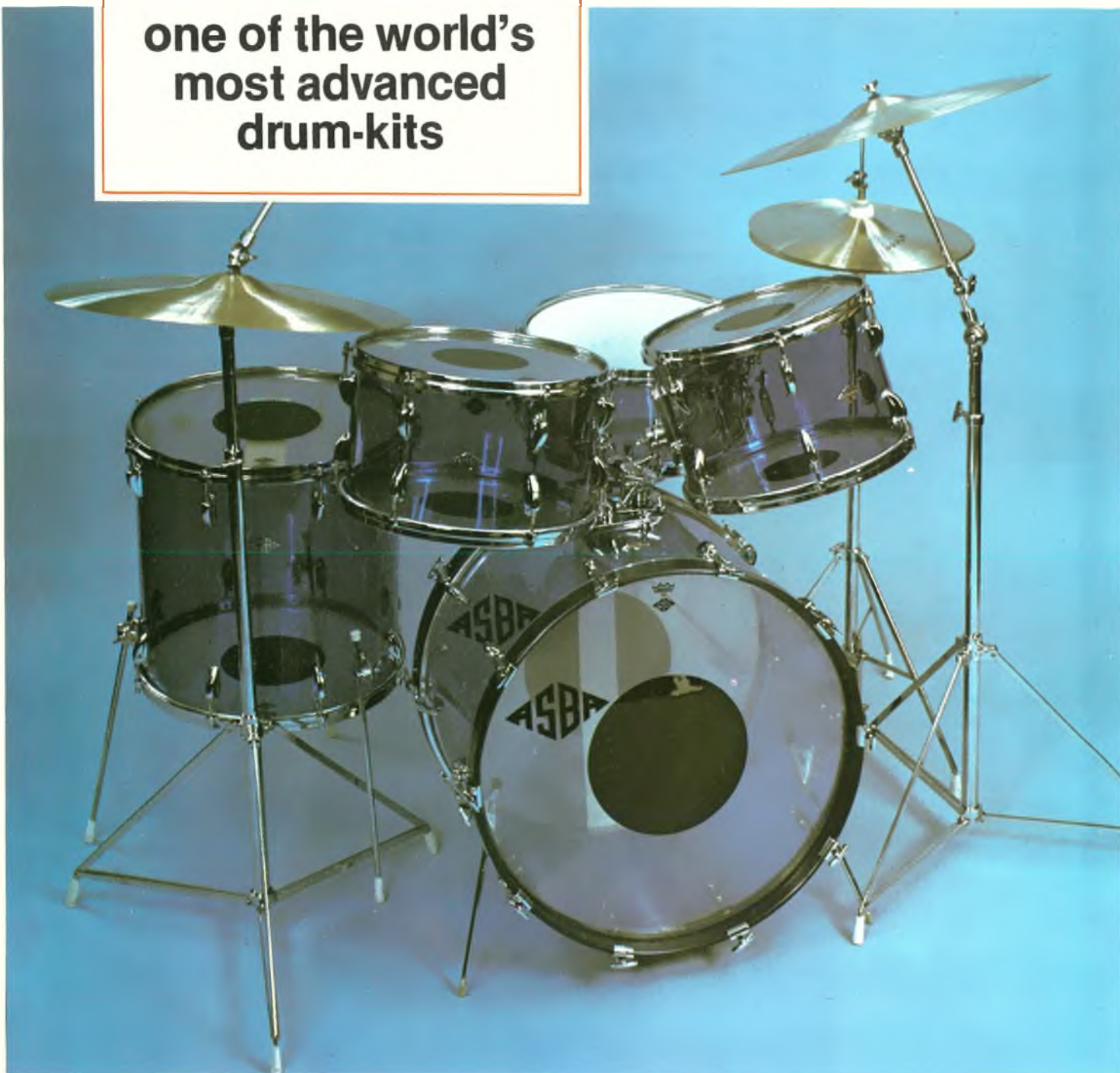


The Fender Phase Shifter

Hand-made
ASBA

one of the world's
most advanced
drum-kits

ASBA is available only from SOUNDS, the new music store at 124 Shaftesbury Avenue, London W1V 7DJ, who can provide full information. Just write or phone 01-437 2458.



Transparent is beautiful and more than that, because Altuglas, the remarkable French acrylic, is not only strong and crystal-clear, but also, by one of those rare scientific happenstances, a superb drum material, yielding a big, fat, sensational sound.

And ASBA is hand-made, although available at a mass-production price. All metal parts are hand-cast (yes, even the wing-nuts). All the shells are craftsman finished. All the fittings are hand-wrought, hand-finished, individually assembled. The total result is total satisfaction for you, the drummer.

ASBA Bass Drum Pedal 222 is a final master touch. Whether your foot stroke is delicate or deliberate, you can fully adjust for a super-fast action. The cost of all this? Well, the drums illustrated above will give you change from £600. And that's a great change.

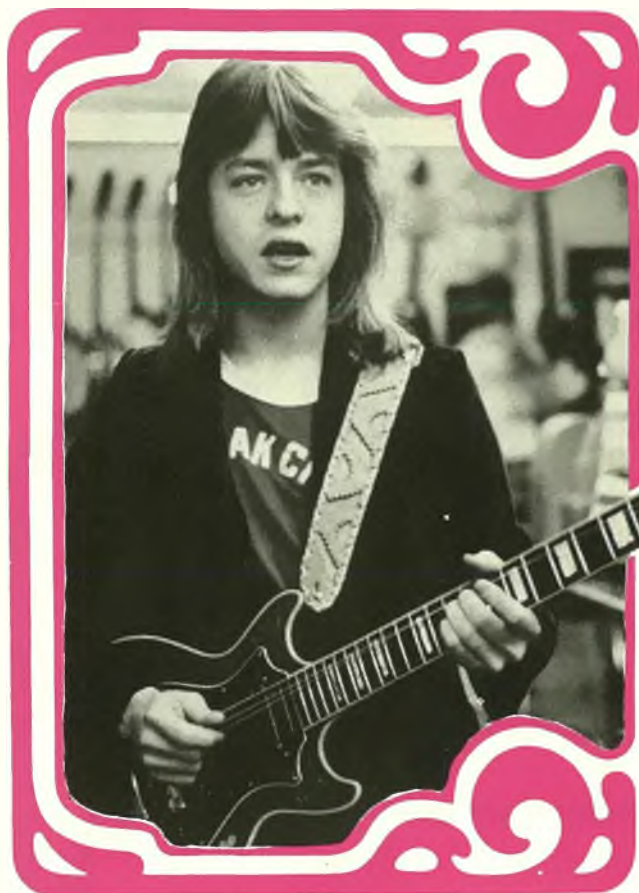


ASBA Acrylic is available in blue, clear, orange and smoke. Top-quality, metal-shelled ASBA kits are also available. Also from SOUNDS, the new music store at 124 Shaftesbury Avenue, London W1.



as used by **Eric Clapton**

as used by
Rick Derringer



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The Rick Derringer Model

The Chiefster Model

Dealer News Dealer News

Broadway Music Worthing

Nigel Glocker, drummer with the Rubber Band, took delivery of a Tama Saturn 13-drum kit... Local band Honeybunch were good customers recently: Terry the bassist bought a Fender Jazz, Peter Wadson had a Gibson Les Paul Standard and drummer Steve Mallandine left with a 1964 vintage kit... Mark Thursfield from Tortoise grabbed a Gibson Grabber bass... Peavey and HH are doing particularly well at the moment... Pete Birch from Twice Bitten got his teeth into a tasty Telecaster... Tony Strudwick bought a Wuritzer piano for his Big Band... Local session guitarist Tony Wells bought a Gibson Les Paul Custom...

Dandelion Huddersfield

Dandelion have had a spurt on repairs recently with names like Isotope's Gary Boyle and Be Bop's Bill Nelson calling in with overhauls... Rudi and the Zips are regular customers having recently bought an Elka Orla Rhapsody plus slaves and horns for their P.A.... Tony, their guitarist, also purchased a Maine amp... Local D.J. The Ghost placed an order for two HH

1000 watt power amps... Local cabaret outfit Rhapsody's Dave Beaumont bought a Music Man combo... On the studio front, Pennine Sound Studio bought an ARP Odyssey, ARP Pro Soloist, Hohner clavinet, three HH Echo Units, a full range of HH VS amps and numerous guitars...

Rock City Newcastle

Peavey amplification has been enjoying tremendous popularity with the North East musicians... The guitarist from local band Arbre bought a Peavey Classic... Geordie's axeman Vic Malcolm purchased a Fender Strat... Kelth Satchfield from Warbeck had a handfull of Roland effects units... A lot of interest was shown in the new ranges of Ibanez guitars... The Drifters hired 3,000 watts worth of P.A. gear for their Northern gig...

Chris Stevens Music Centre Southend

Up and coming band the Kursedl Flyers bought a couple of Paiste cymbals and lots of spares for their new tour... Popular punks Eddie and the Hot Rods are also regular visitors to the shop... Amplification in general

has been going well... Local band Smoke, recent winners of a talent competition, celebrated by ordering a new HH P.A. system...

David Vane Music Centre Exmouth

Local six-piece band Serendipity bought a new Yamaha P.A. system consisting of two TS200 and two YHS horn units... The shop has recently taken on the Music Man agency for Devon and Cornwall and have already sold two amps to local musicians Rod and Dave... John Birch guitars were selling very well... Local band Shotgun, regulars at the shop were assisted with their new record...

Top Gear London

Suzie Quatro came in with some basses to be overhauled, while guitarist Len Tuckey purchased a Gibson S.G. Standard... Soft Machine's John Etheridge splashed out on some new strings... Queen's road crew were in to buy a Mike Matthews amp... Cliff Richard's "nearly famous" guitarist Terry Britten chose a Music Man combo...

Hollie Tony Hicks stocked up with strings and accessories... Mott bassist Pete Watts turned the tables and sold a few basses... former Mott The Hoople leader Ian Hunter popped in for a social visit... Labi Siffre recently had an Ovation Pacemaker rebuilt... The Who's road crew collected some bits and pieces prior to their American tour...

Strings and Things Swindon

Traffic's Steve Winwood made a detour into Swindon and bought a Mutron effects pedal... Feeling moody and blue, Justin Hayward cheered himself up with a Yamaha FG 170... Nicky James, who writes with Moody Blue Ray Thomas, is a regular customer of S&T's... Local bluegrass duo Pete Stanley and Roger Knowles are also regulars... Terry Stannard, drummer with Carol Grimes' London Boogie Band, bought a Pearl Thunder King outfit... High On The Hog's John Hillier bought a Telecaster, while Paul Henry left with a Compac piano and a Traynor amp... Rock/blues group Ale House's Dave Gregory had a Stratocaster to help him bend those notes...

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Third .092
Fourth .108

ROUND WOUND

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Second .070
Third .085
Fourth .102

○ GUITAR STRINGS

ORANGE light 9's .009 to .042
BLUE heavy 9's .009 to .046

RED regular 10's .010 to .046
GREEN heavy 10's .010 to .052

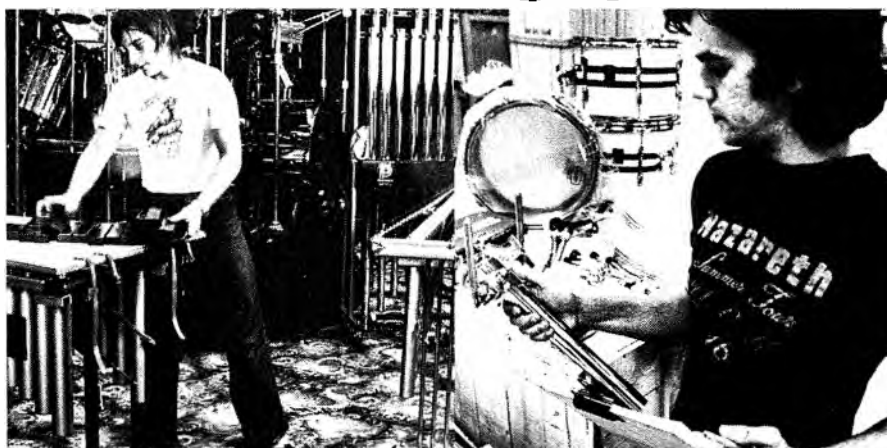
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If anybody knows about the stick that percussion instruments have to take

-it's these guys.



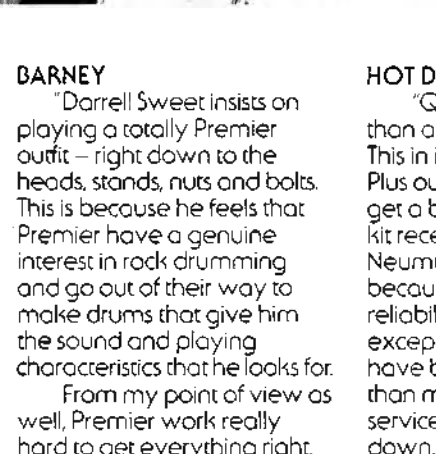
ALLAN TERRY
Carl Palmer's roadie



BARNEY
Nazareth's crew boss



MICK DOUBLE
Keith Moon's roadie



HOT DOG
Status Quo's roadie

ALLAN TERRY

"Carl has had most of his Premier tuned percussion for almost three years, and in that time I've not had to buy a single replacement part. This reliability makes my job much easier. I think it's due to two things: Premier build quality instruments and they operate a proper test programme.

Why does Carl play Premier? He's a perfectionist. He pushes himself to give the finest performance and he expects his instruments to come up to the same standard. The cost is relatively unimportant – he spent over £10,000 getting his drum kit together!

I make it my business to keep in touch with all the latest developments at Premier. But it's a job to keep ahead of Carl – he's already visited the factory three times this year!"

MICK DOUBLE

"I've looked after Keith Moon's kit for the last six years, both touring and recording. Inevitably, it gets a bashing on the road. But the real test is on stage when Moonie gets to work. He stands on them, jumps on them – even throws them. And that's on a quiet night! So you can see why my setting up routine includes nailing everything to the stage!"

I've had this kit specially reinforced – but Premier drums are basically very strong anyway. Premier still make all their own equipment of course, that's why they can take so much punishment. Remember that scene in 'Tommy' when the kit was pushed off the stage and trampled by the mob? Well that scene had to be shot over and over, with me diving to the rescue after each take. We used the same kit in 'Stardust' and we've still got it today!"

BARNEY

"Darrell Sweet insists on playing a totally Premier outfit – right down to the heads, stands, nuts and bolts. This is because he feels that Premier have a genuine interest in rock drumming and go out of their way to make drums that give him the sound and playing characteristics that he looks for.

From my point of view as well, Premier work really hard to get everything right. I've never had a faulty piece of kit from them. And though I like to carry plenty of spares, I still need to top up with parts in a hurry. Premier always seem to have what I need – and it's reassuring to know that wherever we are, I can call on the best dealer network in the business."

HOT DOG

"Quo probably tour more than any other British group. This in itself is tough on the kit. Plus our crowds sometimes get a bit excited – our main kit recently survived a riot at Neumunster. I like Premier because they give me the reliability I must have. They're exceptionally strong and have better quality fittings than most. And Premier service has never let me down.

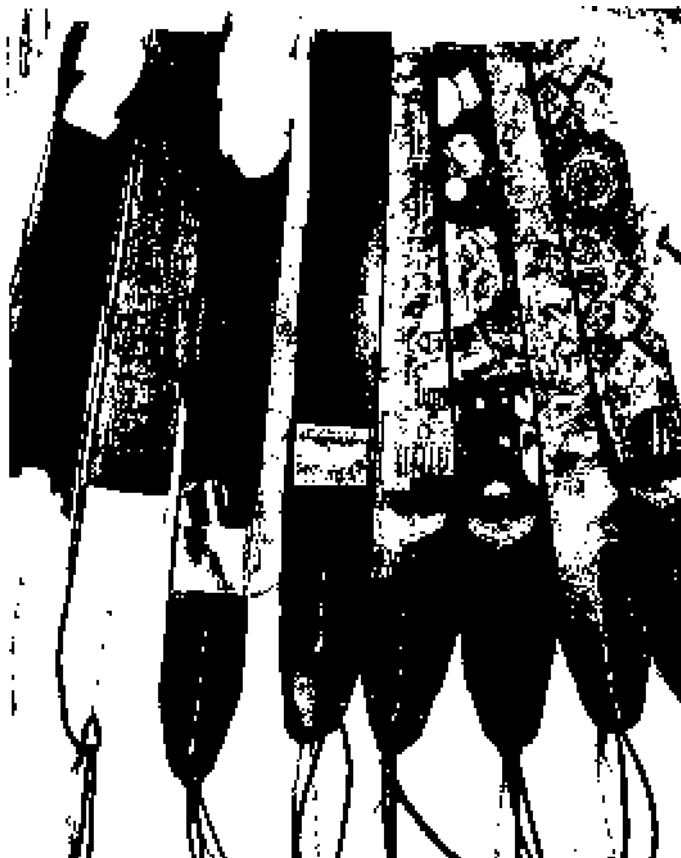
Of course, reliability is my big interest – John (Coghlan) plays Premier because he likes the sound. You should ask him about his '35' snare! He was one of the first to use one – and now he'd never be without it. In fact, he's got four of them!"

Premier

1st IN PERCUSSION

The Premier Drum Co. Ltd., Diaby Road, Wigston, Leicester LE8 2DF.

Music Trade News Music Trade News



A selection of "pick-pocket" straps

Pick-Pocket Straps

SILVER-EAGLE Designs of California recently introduced their new range of "Pick-Pocket" guitar straps which feature utility pockets on all models for holding picks, slides, capos and other accessories. The straps are 3" wide and contain no plastic or metal parts, eliminating the possibility of scratching the guitar. Easily adjustable from 52" to 42", they are all supplied with a heavy weight rawhide guitar tie and are available in a variety of fabrics.

Supersounds Open

OCTOBER 2nd saw the opening of a new music shop in Highgate Road, London NW5. Called Supersounds, it is managed by John Ward, who told I.M. "We will be carrying a lot of tuned percussion—marimbas, vibes, tymps and associated accessories. We will be heavily involved with percussion and my partner Duncan Kinnell will be in charge of that. Equally,

we'll also stock all types of guitars—electric and acoustic—amplifiers, keyboards and all accessories."

5000 Volts get 2400 Watts

5000 VOLTS, who recently had hits with "I'm On Fire" and "Doctor Kiss Kiss", have purchased a complete Bose P.A. system comprising three 1800 amplifiers, three TC18 transit cases, two pairs of Bose 800 speakers (with equalizer) and four pairs of Bose 800 speakers (add-on).

Bob Stevenson joins CMI

CLEARTONE MUSICAL Instruments recently announced the appointment of Bob Stevenson as their new Sales Representative for Eastern England. Bob has been in the music trade for several years, a former professional drummer, he later ran Kitchens of Leeds' drum department. For the past five years, he has been managing the Huddersfield Music Centre.

Live Godwin

PICCADILLY RADIO, Manchester's local station, recently ran a live transmission from the Sisme showrooms in Manchester featuring organist Bill Roberts. The DJ was Ray Teret, ex-Radio Caroline man, and listeners heard the announcement of the new range of Godwin organs.

Mr J.S. Wood, major shareholder of a group of companies in Manchester, recently took up the position of Chairman in the company. He is shown in the photo with Managing Director Walter J. Streit.

LoPrinzi expects the complete changeover on all the guitars by January 1977.

Wakeman and Phoenix Choose Keynote

BOTH RICK Wakeman and Phoenix are now using Keynote Vortex rotating-speaker cabinets. According to Rick Wakeman, "It's the first time I've seen musical equipment that sounds as good as it looks and looks as good as it sounds." As well as using Vortex cabinets, Phoenix's Jim Rodford also plays a Keynote Consort portable organ.



Mr. J.S. Wood & Walter J. Streit of Sisgo



Bob Stevenson of CMI

LoPrinzi revise guitar logo

THOMAS LoPRINZI, President of A. LoPrinzi Guitars Inc., of Plainsboro, New Jersey has announced the introduction of a revised logo for his complete line of handcrafted guitars. While still retaining the characteristic "old english" lettering, the logo has been enlarged.

This is the first logo change since 1972 and Mr



New LoPrinzi logo

JORGENSEN AT FORTH VALLEY

Pictured right are Brian Nunney and David Levinson (left) of Brodr Jorgensen at the opening of Forth Valley Music's new shop. David has recently been appointed as Brodr's agent for Scotland promoting and selling the Roland range of products. David was previously a sales representative for CMI and lives in Edinburgh. He can be contacted on 031-669 6587.

They were amongst many celebrities at the opening of the 3,000 sq. ft. shop, which features three floors; the ground for general musical instruments, the first for keyboard instruments and the top floor for a teaching area.



Bob Hutchinson of Keynote

New man for Keynote

BOB HUTCHINSON has recently joined Keynote Musical Instruments as Sales Manager for the Northern England area. His background includes selling office dictating equipment, and a stint as a cabaret artist playing guitar and singing at clubs in and around his native Manchester.

New Morley units

"THE INITIAL dealer reaction to the new Morley Pro Phaser has exceeded all expectations", according to Marv Lubow, Morley's Marketing Director. "The response," he continued, "of professional musicians has been phenomenal." AC powered, it has four continuously variable controls which allow individual adjustment of phase travel, phase centering, harmonic



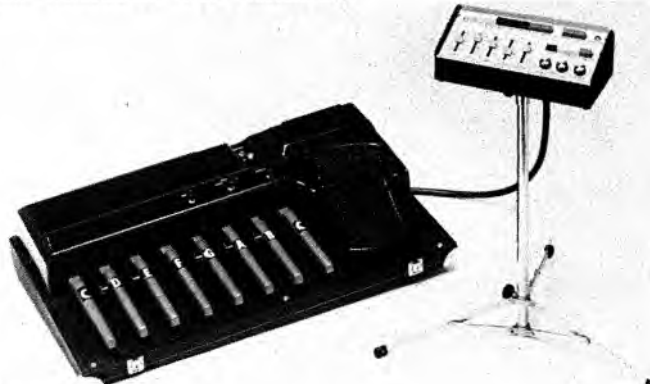
David Levinson and Brian Nunney



Jim Holdsworth with Kustom Cup

Kustom Kup

JIM HOLDSWORTH manager of Chingford Group Gear, was presented with a cup from DB Wholesale for selling the largest amount of Kustom amplification for a single shop in the U.K. The cup was presented by John Ryan of DB Wholesale, and the competition ran from February until the August Trade Fair. Each year, from now on, there will be a similar presentation at forthcoming Trade Fairs.



Crumar OMB2

content and the treadle controls the phase rate manually or automatically.

Also new from Morley — the PWA Auto Wah. It is the first Morley pedal to use LED devices to control the

functions and incorporates three distinctive effects. It may be used as a volume pedal, a wah-wah pedal or as a unique automatic wah pedal.

Crumar One Man Band

CRUMAR RECENTLY introduced their OMB2 unit. Virtually a one man band, it consists of a rhythm unit with eight different rhythms, tempo and volume controls and brush and claves cancels. Connected to this is a 13-note pedalboard with tone, sustain and volume controls.

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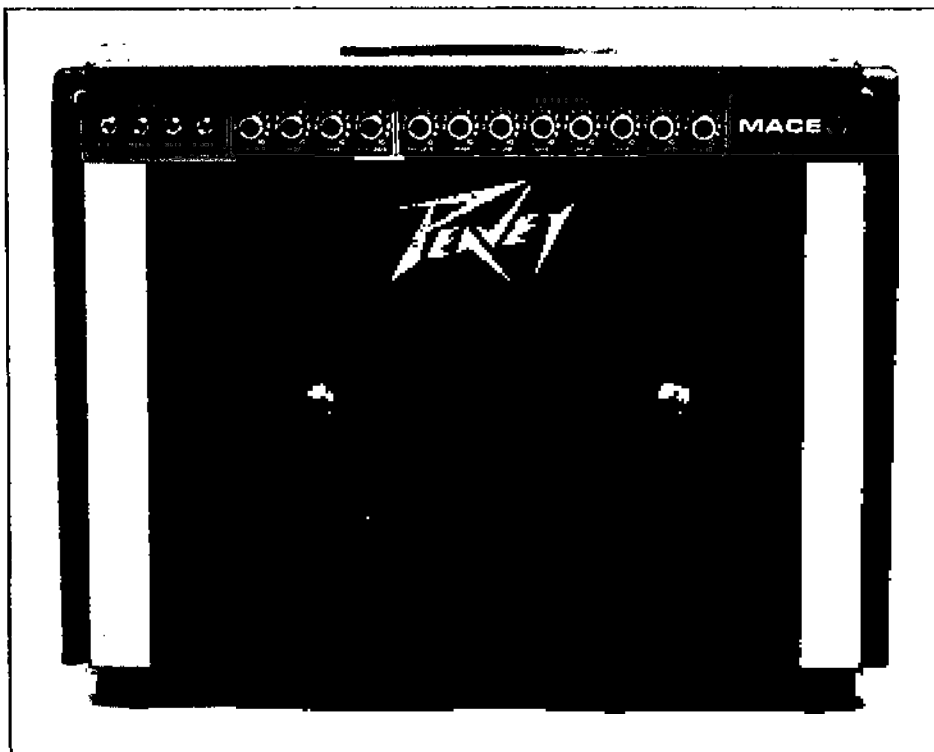
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MACE!

160 Watts RMS @ 5% THD – AUTOMIX –
Tremolo and Reverb on each channel –
2 or 4 12" Ram Driver Speaker options –
Maximum power and portability



One of the most exciting features of the new Peavey "MACE" is that it has two completely independent channels with pre and post gain controls on each. This means that each channel may be pre-set for volume, overdrive distortion, and tonality. By using the AUTOMIX footswitch, you can select either channel, play both channels at once (parallel), or play one channel into the other (series) creating tone and distortion/sustain variations never before possible . . . all at the flick of a footswitch! This unique channel selector/combiner feature makes the "MACE" the most practical amp ever designed for performers who require versatility during a gig without having to readjust tone or gain settings. Six brute 6L6GC valves power the "MACE" and utilise super heavy duty power and output transformers for maximum dependable performance.

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DORSET
Eddie Moors, Bournemouth
ESSEX
Chris Stevens Music, Romford
HAMPSHIRE
Bennetts Music, Portsmouth
Kingfisher Music, Fleet
HERTFORDSHIRE
Free 'n' Easy, Hemel Hempstead
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Dave Simms, Ealing
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Swanns, Manchester
MERSEYSIDE
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NORTHANTS
Peter Noble Music, Rushden
Peter Gray, Northampton
NORTHERN IRELAND
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NOTTINGHAMSHIRE
Carlsbro Sound Centre, Mansfield
Farnsworth Music, Nottingham
SCOTLAND
John Barclay, Aberdeen
McCormacks, Glasgow
Music City, Edinburgh

SUSSEX
Broadway Music, Brighton
Broadway Music, Worthing
TYNE & WEAR
Rock City, Newcastle
White Custom Sound, Sunderland
WALES
Peter Noble, Llanishen
WEST MIDLANDS
Sound Centre, Coventry
Woodroffes, Birmingham
Yardleys, Birmingham
WILTSHIRE
Mitchell Electronics, Salisbury
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Music Box, Rotherham
Dandelion, Huddersfield
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MARKET REPORT



PEAVEY

Peavey is the biggest selling amp in the USA. How well are they doing in the UK? The company are currently looking to Britain as their newest expansion market and during last summer a UK company, Peavey UK, was set up with British music-businessman, Ken Achard, heading operations.

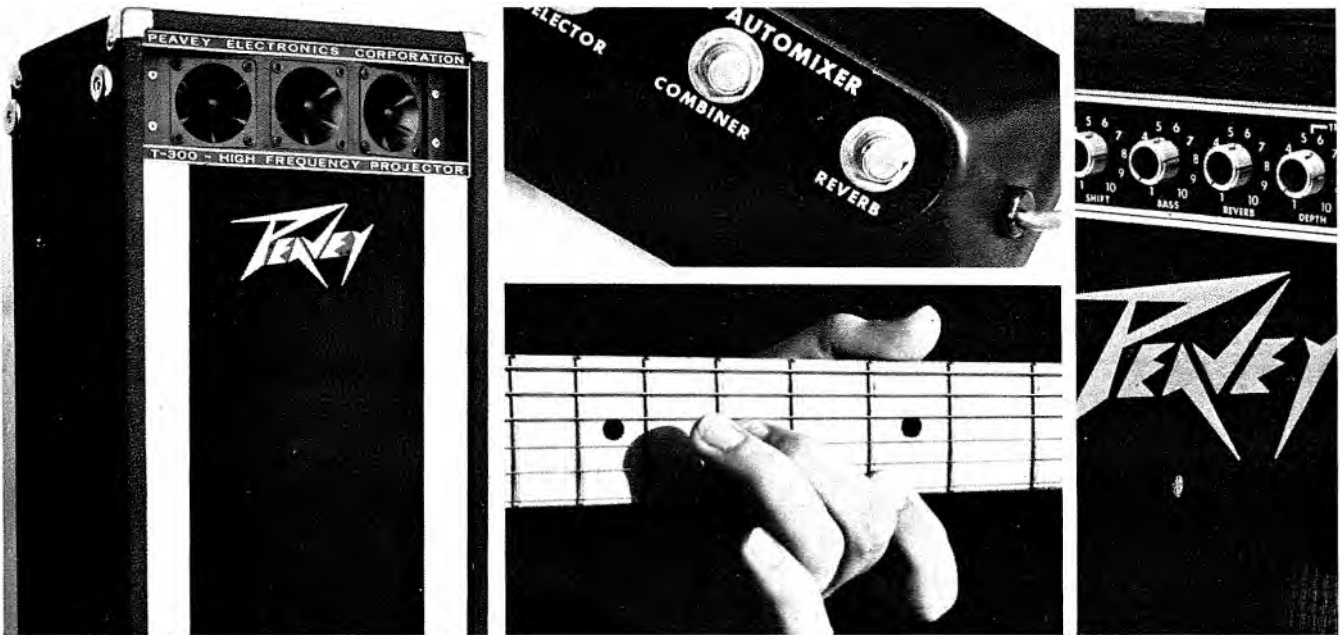
Just why Peavey is so popular and the reaction of the British dealers and musicians is expressed very clearly in the following market report. At the end of the long process of speaking to dealers all over the UK, we were of the opinion that Peavey is a leader in the minority-taste amp field, but even as we were researching, Peavey was starting to break through to mass acceptance and become a major name in the UK market. The fall of the pound isn't helping the drive, but Peavey have been very good at stabilising prices and are successful enough to be able to absorb some of the inevitable increases.

The Peavey plant in Merriden, Mississippi is about the most advanced amp manufacturing factory in the world. Much of the production flow is computerised and US marketing is sufficiently refined for large groups of Peavey dealers to be brought to the plant for short courses (a week at a time) during which they learn everything about the amp and it's manufacture. The whole organisation is led by a young, southern drawling lad named Hartley Peavey (it's a deep south custom to use last names for Christian names) who started out building amps in his spare time and found he could do the job better than the (then) professionals.

N.B. Crosses mean items are in stock

	How long Peavey dealer	combo amps (valve)	combo amps (s. state)	Mixers	amp tops	standard cabinets	slaves
John Beeby's Music Place, 132, Crouch Hill, N.18	2 years	X	X	to order	X	X	-
Bennetts Ltd., 58, Fratton Road, Portsmouth	9 months	X	X	-	X	X	-
Broadway Music 9 The Broadway, Brighton Road, Worthing, Sussex	1½ years	X	X	X	X	X	X
Carlsbro Sound Centre, 182-184 Chesterfield Rd North, Mansfield	1½-2 years	X	X	-	X	X	-
Dandelion, 97 King Street, Huddersfield.	3 years	X	X	X	X	X	X
F.D. & H., 138 Charing Cross Rd., WC2	1 Year	X	X	X	X	X	X
Peter Gray, 212A, Wellingborough Rd Northampton	3½ years	X	X	X	X	X	-
C.A. Hare, 221, London Road, Bedford	3 years +	X	X	X	X	X	X
John Holmes Music Centre, 219-223, Chelten- ham Road, Bristol	18 months	X	X	-	X	X	-
Hudsons, 40 Burlington St., Chesterfield	2 Years	X	X	X	X	X	X
Kingfisher 20 Kings Road Fleet	since beg-1X inning	X	X	-	X	X	-
Kitchens 26, Queen Victoria Street, Leeds	2-3 years	X	X	X	X	X	-
MacCormacks 33, Bath Street, Glas- gow	2½ years	X	X	X	X	X	X
Mitchell Electronics 7 Queen St., Salis- bury	2 years	X	X	X	X	X	-
Moran Sound	1 year	X	X	X	X	X	X
Music Box, 131 Ferham Rd., Rotherham	2 Years	X	X	-	X	X	X
Musical Sounds, 274 London Rd., Sheffield	Since beginning	X	X	-	X	X	-
Peter Noble Music 90 High St., Rushton, Northants	6-7 mths.	X	X	-	X	X	-
Peter Noble (Llanishen) Ltd, 11 Station Rd., Llanishen, Cardiff	Since 1974	X	X	Varies	X	X	-

bins	monitors	Complete systems	Items per month	Best Point	Worst Point	Reliability	Do you do own repairs	Peavey UK service	Bands supplied with Peavey	Do you discount Peavey
X	to order	X	5-12	Design	None	Very good	Yes	Excellent	various locals	No
-	-	X	1	All controls work	None	Good, so far	Yes	No complaints	-	10% cash
X	X	X	10	PA	None	Excellent	Yes	Very Good	Junior High & the Rockets	10% cash
-	-	X	Varies	New set-up	No covers	Good	Yes	V. Good	Shape of the Rain	Cash discount
to order	to order	to order	Varies	light compact combo	Rear panels lack of spares	Very good	occasionally	Remains to be seen	Be Bop Deluxe The Whales, Turnstile	Generally no, sometimes yes
X	-	X	10	Robust, reliable	None	V. good	No	Excellent	-	To a degree
X	X	X	Varies	Tone Quality	Classic liable to distortion	average	Yes	Excellent	Jinxy	Usually
X	-	X	1-2	Reliability appearance	None	Good	No reason to	Good	-	10% cash
X	-	X	4-5	Facilities	too powerful	Very Good	Yes	Hardly had to use	-	Only normal cash
X	-	X	4-8	Sustain power	Lack of covers	V. good	Yes	Very efficient	Plastic Orange	Cash 10%
X	to order	X	3-4	Reliability	None	Very Good	Yes	Excellent	Chameleon	No
X	-	X	6	combos	None	fair	Yes	Not much dealings	-	Yes
X	-	X	1 or 2	Clarity	None	V. Good	Yes	Very Good	Scottie	No
-	X	X	10-12	no break-downs	None	100%	Never have to	Excellent	CC4, Trucker Mason	Only normal cash
X	-	X	3-4	Power	None	Good	Yes	V. Good	Charlie Boy,	No
-	X	X	Varies	Sound, finish, design	Not really	V. good	Yes	V. good	Axis	Only on cash
-	-	X	Varies	Performance, value, for money	None	Excellent	Never had to	V. Good	Sapphire	No
-	-	to order	6	Clear sound	None	Only one returned	Yes	V. Good	-	It depends
-	-	Varies	Varies	Well made, reliable	None	Good	Yes	V. Good	Aurora + Sessioners	Varies



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N.B. Crosses mean items are in stock

	How long Peavey dealer	combo amps (valve)	combo amps (s. state)	Mixers	amp tops	standard cabinets	sla
Organ Loft, 18a Market Street, Huddersfield	1 Year	X	X	X	X	X	
Rock City Music, 48 Cloth Market, Newcastle	1 Year	X	X	X	X	X	-
Rose-Morris, 81-83 Shaftesbury Ave., W1	6 mths	X	X	-	X	X	-
Rumbelows Ltd., 138 Friar Street, Reading, Berks	9-10 mths	X	X	-	X	X	X
S.A.I. Regent St., Coppull, Chorley, Lancs	3 Years	X	-	-	X	X	X
St. Giles Music Centre, 16-18 St. Giles High St., WC2	2 Years	X	X	-	-	-	-
Session Music, 163 Mitcham Rd., SW17	1 month	X	X	-	X	X	to
Dave Simms, 1 The Grove, Ealing, W5	3 months	-	X	-	X	X	-
Sound Centre, 98-100 Clay Lane, Coventry	18 mths	DEUCE 2 STILL ON ORDER		-	X	X	-
Sound Pad, 64 London Rd., Leicester	2 Years	X	X	X	X	X	-
Sound Sense, 46 Grays Hill, Bangor	1 Year	X	X	-	X	X	-
Sounds, 124 Shaftesbury Ave., W1	2½ mths	X	X	-	X	X	-
Chris Stevens, 33 North St., Romford	2 mths	STOCK SITUATION YET TO STABILISE					
Swanns, 84 Oldham St., Manchester	3 Years	X	X	X	X	X	-
Top Gear, 5 Denmark St., WC2	3 Years	X	X	X	X	X	-
White Sound, 3 Albion Place, Sunderland	6 mths	X	X	X	X	X	X
Yardleys, 87-89 Old Snow Hill, Birmingham	2 Years	X	X	Will be	X	X	-

35	bins	monitors	Complete systems	Items sold per month	Best Point	Worst Point	Reliability	Do you do own repairs	Peavey UK service	Bands supplied with Peavey	Do you discount Peavey
-	On order	X	2 or 3	Durability & quality of sound	None	Excellent	Yes	So far so good	Gatsby, Jeep	No, depends on sale	
X	-	X	8-10	Electronics	None	Very good	No trouble yet	V. Good	Arbre, Warbeck	Not usually	
-	-	X	About 1	Size - very compact	Not off hand	Very good	No	V. Good	-	Normal cash	
-	X	X	Varies	Power, efficiency	Controls too close	Excellent	Yes	Quite pleased	Night Porter, Roy West	Just for cash	
X	-	X	Varies	V. good design	None	Good	Yes	Good	Local bands	No, don't need to	
-	-	-	Varies	reliability	None	V. good	Refer to Peavey	V. good	Mostly semi-pro	No	
order -	-	X	Don't know yet	reliability	No covers	V. good	9 times out of 10	So far so good	-	Not a great deal, just cash	
-	-	130 PA system	Too early to judge	Finish, quality, value	None	Good	If necessary	Good	John Clay Band	Normally for cash, but against advertised discount.	
X	-	X	2	Look incredible	No covers	1st class	At a pinch	Excellent	Country Rainbow	Yes, if necessary	
-	-	X	5	Very attractive	Don't get covers	Excellent	Yes	No trouble	Lee Grant Explosion	Only normal cash	
-	-	X	6	Finish superb	Delivery	No repairs to do	Contracted out	The best	Giants	Normal 10%	
-	-	X	4	Handles bass well	None	V. good	Depends on extent	No problem	-	We do a bit	
-	-	-	-	workmanship	None	Good	If situation arose	So far so good	-	Depends	
-	-	X	Varies	Overload system v. good	Getting pricey	V. good	Only had to repair one	Alright	Harbour Lights	No - except cash 10%	
-	-	-	20	Wide range equipment	None	Excellent	Send away	Good	Jack The Lad	No, only for cash	
X	X	X	12	Auto-mix on amps excellent	None	Excellent	Yes	Excellent	Showbiz Kids	No	
X	-	X	6-7	Value for money	Confusion as to what goes with what	Good	Yes	Good	Varies	Occasionally	



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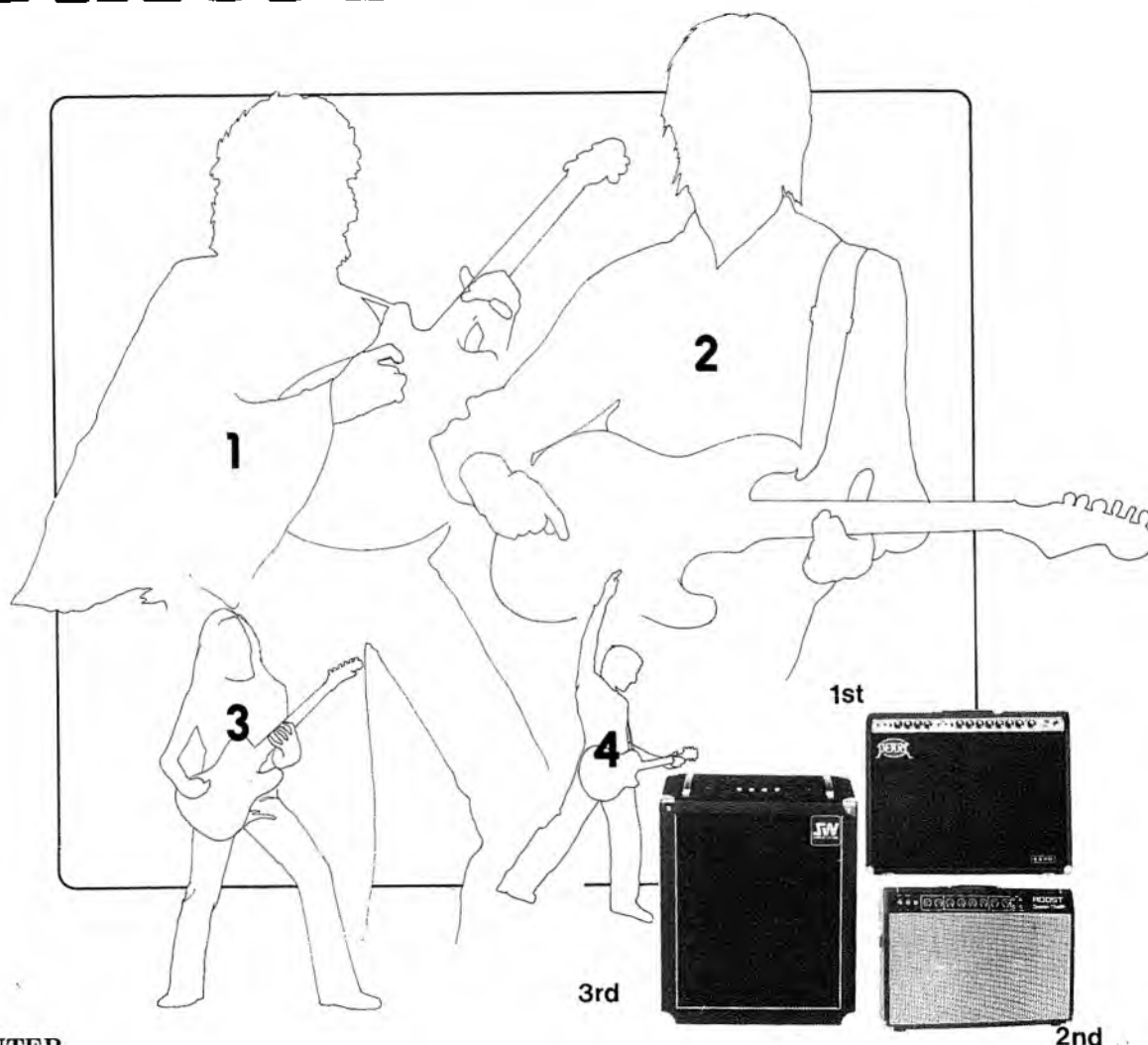
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Each of the outlines above has a number beside it. The entry form for this competition is inside the back page of this magazine and there you will find the numbers with space beside them for you to fill in the name of the guitarist you think the outline is. For instance if you think outline one is Eric Clapton. Write his name beside 1... and so on. After you've done that tell us in not more than 20 words why you prefer Combos to Stacks and post the back page to Combo Competition International Musician & Recording World, Cover House, 7a Bayham Street, London

NW1. If you want to receive any catalogues or details from our advertisers take the opportunity to place a tick (check to all you Americans) against their names on the Ad. index that appears on the same page as the Entry Form for this competition. Please let us have all your entries by the last day of December 1976 and we'll publish the results in our February issue.

The Editor's decision is final and legally binding. No correspondence can be entered into.

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2 2nd PRIZE
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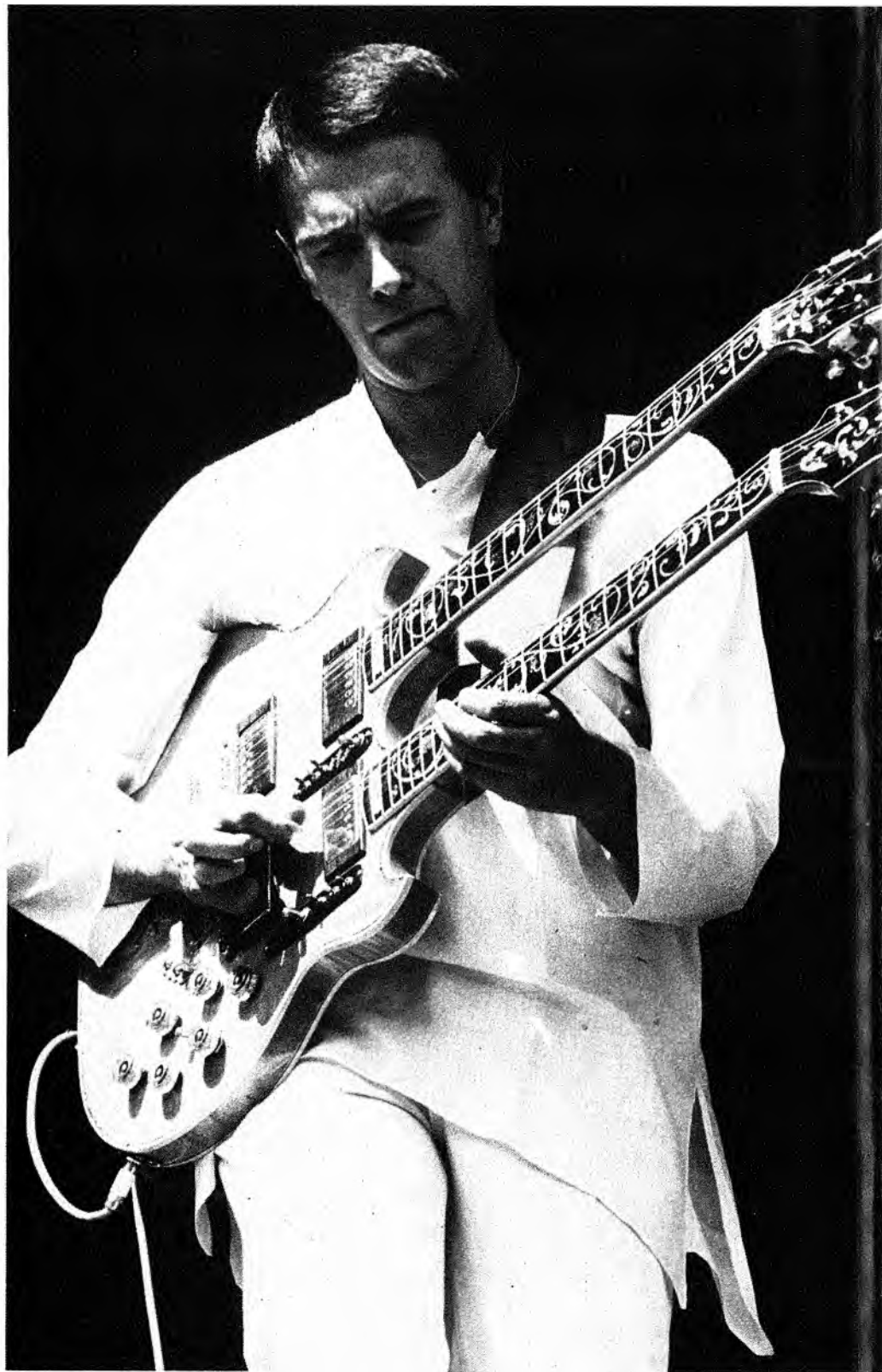
A heavy duty 110w valve amplifier combination with two heavy duty 12" speakers. Facilities include Presence, Treble, Middle and Bass tone controls; Brilliant and Normal input volume controls and Reverberation.

3 3rd. PRIZE
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Play Guitar with John McLaughlin

as told to Steve Rosen in L.A.



Mahavishnu John McLaughlin has taken the guitar further in the last two years of his career than most players hope to in a lifetime. His approach to the instrument, coupled with a superb technical mastery, has made him the forerunner of this ethereal type of playing. His devotion to the guitar is never-ending and the pioneering work he has done with the double-necked instrument makes these advancements even more important.

Acknowledging that this interview was the first of its type he had ever given, John was entertaining, encompassing, and effusive in discussing his past work, guitar approach, and ultimate goals. Because his previous playing involved stints with such greats as trumpeter Miles Davis, bassist Jack Bruce, and drummer Tony Williams, it is natural to pre-date these instrumental excursions and search out the true beginnings of Mahavishnu John McLaughlin's musical development.

Was your family musical in any way?

My mother was a violinist and I had three brothers who were into music. So, from when I was about four there was a lot of music happening in the house. Symphonic music; basically classical music. But when I was around seven we got a gramophone and that was the first time I actually heard anything in music, ever recognised anything. I remember quite regularly putting a record on the player and getting one of my mother's knitting needles and waving my arms around in front of the mirror and 'conducting' this orchestra. But I quickly found out that it was much more satisfying if I knew the music, because then I could bring the violins in here and the horns in there.

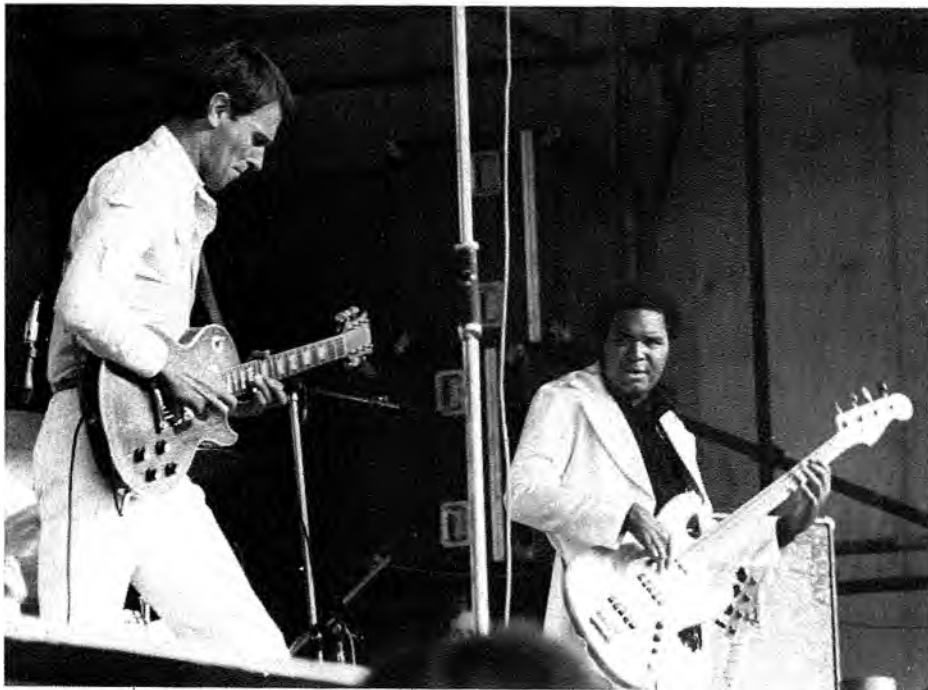
I continued to just listen to music until I was 9, then I started learning classical piano. I did that for about three years, taking lessons; then a guitar came into the house via one of my brothers. It went from him, to the next one, to the next one, to me. And that was the beginning of the beginning.

Did you start listening to guitarists at this point?

Yes. No sooner had the guitar come into my hands than I was exposed to the black ethnic blues culture through Big Bill Broonzy, Muddy Waters, Leadbelly, and the Mississippi Delta blues players. I was really into Sonny Terry (he was not with Brownie McGhee then) and the whole blues-harmonica-guitar-bottle-neck thing. I didn't even know what a bottle-neck was. For years I thought they were doing it with their fingers. I was trying to sing and play like Big Bill and Muddy, you know, 'sing da blooze.' I was around 12 then.

At about 14 I heard Django Reinhardt and started using a pick instead of just my first fingernail. Immediately I tried to play like Django, then I heard Tal Farlow — my first white American guitarist. Tal Farlow took me out because he was ahead of his time — or maybe he was just right in his time. His chords and his single-line work became very powerful influences on me. Jim Hall, too.

Then I heard Miles (Davis). I bought that album, Milestones (Col., CS 9428) with Miles, (John) Coltrane, Cannonball Adderley, Red



Garland, Philly Joe Jones, and Paul Chambers. That completely blew away my previous concepts of how to improvise. I started listening to other records — like when Cannonball left Miles and got the quintet with his brother Nat, and Coltrane left to work with (Thelonius) Monk. And as time went by I discovered earlier recordings of Coltrane, like from 1948-50, and he became a dominating influence on my life, spiritually as well as musically.

When did you get your first band together?

I had my first band when I was about 15, in school. I played electric guitar; it was an acoustic that I put a pick-up on and played through a record player. That was my first and last band right up until the first (Mahavishnu) Orchestra. I was always a sideman but that was fine by me because I was learning. I still am.

I was playing in a lot of different groups in England — a lot of different music: R 'n' B, avant garde jazz, Jimmy Smith Trio-type. About 11 years ago, when I was 21, I was with the Graham Bond Organisation with Jack Bruce and Ginger Baker. They were the greatest rhythm section in the world at that time. I'd play with Ginger and Jack anytime. They're beautiful.

About 13 years ago was the Georgie Fame era. There was just one club in London where everyone played. I was with Georgie Fame, Jack and Ginger with Alexis Korner along with Mick Jagger who was vocalist, and Eric (Clapton) was with John Mayall. That's where I first met Eric. I really liked his playing. Eric had like a sweet blues thing.

What type of guitar were you using during this period?

During the whole time I went through many guitars and amps because like most musicians you pay your dues. I was using Gibson mostly, and Gretsch and Fender. I was using a Les Paul Custom in the early days of the first Orchestra, but then I got the idea for a double-neck. I

had an electric 12-string but to play it I had to take the other guitar off and it was such an unnecessary hassle. Then I saw this double-neck in a catalogue and thought, 'just flick a switch and you've got your 12-string.' So I ordered it and took off from there. My first one was a Gibson, but I did go look at a Mosrite. The order took about four months; I picked it up in Chicago during Christmas of 1971.

How do you use the two necks?

I tend to do the arpeggiated chords on the 12-string. They sound best there because you've got a shimmer, like a liquid movement, like a river. And it's sonorous, it's sweet, it's clear, and it's bell-like, which you can't get on a 6-string. The 12-string is terrific for rhythm, too. But the 6-string is much more melodic. The 12-string is stiff, but there are certain things that couldn't be done on a 6-string. Like on the Orchestra's live album (Between Nothingness And Eternity, Col., KC 32766) there's a 12-string solo on one piece that wouldn't have worked on the 6-string.

You can sort of see the two necks in different roles: One in terms of chords, the other melody — be they rhythmical or arpeggiated. I do play melody on the 12-string sometimes, though, and then I hit both of the paired strings when I solo. It's a beautiful instrument; I'm really glad someone invented it. The 12-string has a different action than the 6-string and you have to adapt to it. It's stiffer so you have to execute everything properly, every single note.

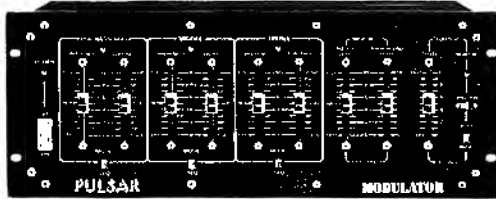
What type of double-neck are you using now?

It was made by Rex Bogue in Los Angeles. I had asked Gibson to make another one because the first one was custom. It had ebony fingerboards and I wanted bigger frets because I found them easier for pulling (though I no longer think that's a hard and fast rule). So they said they'd like to do something, maybe, if I'd like to endorse one. I said sure so they

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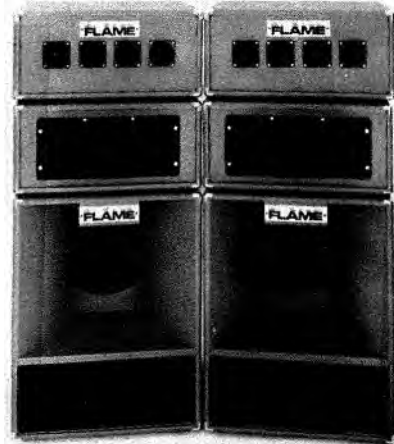
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agreed to make me a special guitar. I said I'd like this and this and this and this and it took them a year to do it — they had strikes and everything. Finally I got it but they had only done one thing I had asked and that was the writing of "Sweetest Is My Lord" on the necks. The one thing they'd done was the least important as far as the music. The electronics they hadn't done, the neck they hadn't done, the body shape they hadn't done, they hadn't even used the right wood.

On my Bogue double-neck there's a master volume so one control controls both necks or just one if that's all I have on. I also have individual volume controls so I can pre-set them; then when I hit the neck switch I'll be at a specific volume. But I can't go to a specific tone because the tone controls are for both necks together. To compensate for that I've got a pick-up switch, plus Rex took tappings off the coils so I can get sounds out of the pick-ups that are amazing. By putting them in phase or out of phase or opposing the coils together I can get more brilliance, roll the bass right off, bring the middle in, roll the top off, roll the bass in — there are all kinds of things I can do just by phasing the coils. I can get a lot of tonal range and response that I can pre-set on the neck. Secondly, it's got a pre-amp built right into it.

What type of amplifier are you using?

It's called a Boogie Amp (built by Prune Music in Mill Valley, California) and allows almost every note to sustain indefinitely without feeding back. I just happened to hit on the right combination. This amp is loud and it's all tube; I think you get more pure overtones with tubes. I used to use Marshall amplifiers but with my current band they would be too heavy. That was a problem I had with the previous band — the volume would sometimes become oppressive, just too loud, destroying the musical content.

McLaughlin

continued from page 105



This amplifier has three volume controls: For the pre-amp, the mid-amp, and one is like the output amp or something. Each one is very sensitive. The thing that is so beautiful is that I could sit right in a hotel room and have low volume, but still get heavy sustain just by altering the volumes. I would say it's the best guitar amp in the world and I've tried quite a few. But if you get into MacIntosh or Bose amps, which I might, then they're great. Rex is thinking of making me a guitar synthesizer. I like synthesizers; I have a little mini-Moog at home that I use.

Do you use any effects pedals?

I only use a few pedals: A De Armond volume pedal and a thing called a frequency shifter where I'm able to split the notes — the beginnings of a synthesizer.

What about picks and strings?

My picks I make out of plastic. They're shaped somewhat like a very small Indian head. One side is flat, the other is grooved so I can get a hold of it. They're very stiff and quite wide (approx. 1/16"). I use Darco strings: .008, .010, .012, .019, 0.29, .039. I just adopt these gauges for the 12-strings so that I have two 8's and two 10's on top, then a 12 and an 8 for the G, a 19 and a 10 for the D, a 29 and a 12 on the A, and a 39 and 19 for the E. I used to have to epoxy the windings because if I really pulled a string I'd pull the winding off. I went back to Darco and they've changed the windings and apparently been very successful.

How are you able to play so quickly?

Playing speed is all relative, really. If someone thinks I play fast they should hear John Coltrane. I mean, he just rips up and down that horn and the notes fall out like a cascade. It's all just a feeling and I'd like to be able to articulate that feeling on the guitar. You can do anything with work. Anything is possible and it's up to you. If you're willing to spend hours working, devoting and dedicating yourself to the articulation and execution then sooner or later you're going to come through.

What scales do you work from?

I practice all the scales. Everyone should know lots of scales. Actually, I feel there are only scales. What is a chord if not the notes of a scale hooked together? There are several reasons for learning scales: One, the knowledge will unlock the neck for you; you'll learn the instrument; second, if I say I want you to improvise over Gmaj7aug5, then go to Ebaug9b5 then to Bmaj7b5 — well, if you don't know what those chords are in scale terms you're lost.

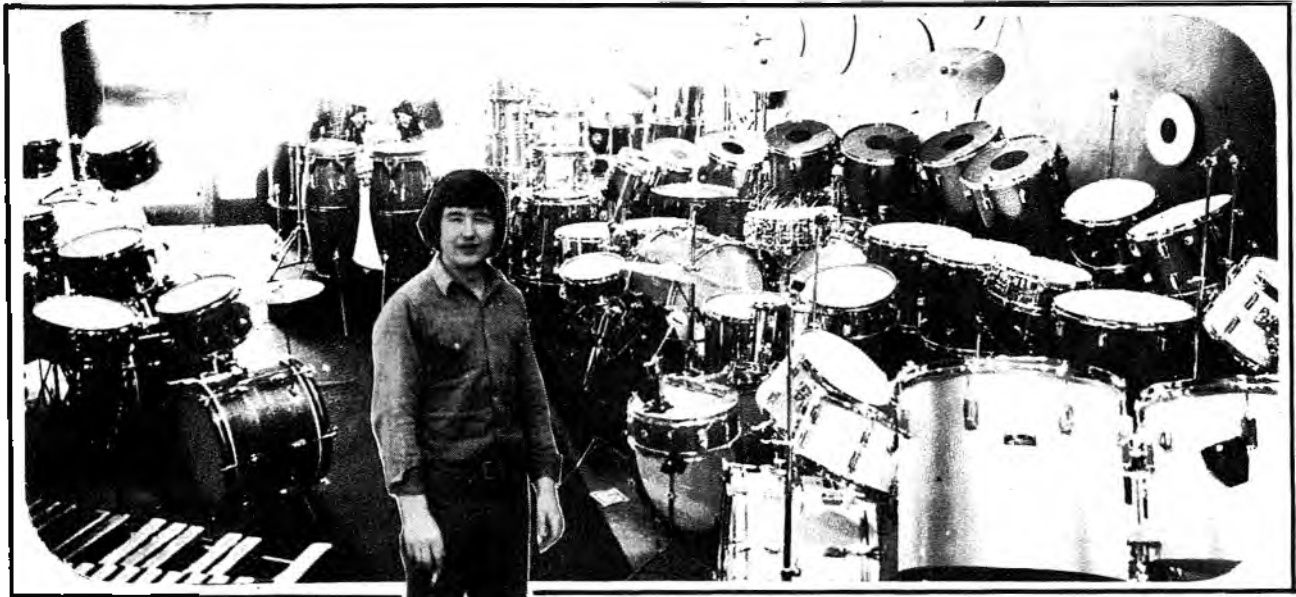
In classical terms there is the Dorian, Aeolian, Lydian, Ionian, Lochrian; then you've got the synthetic scales — Hungarian minor. And there are all the harmonic progressions, too. And you've got to know them. You can go to school and maybe get there faster but I didn't have a school to go to. All I had was chords and I had to unlock them. It's not all that difficult but you have to be ready to apply yourself, to do some homework for at least a year — longer, actually. I went through a period where I wanted to play everything in chords, so I had to find out substitutions and inversions and all that. You discover a lot of things when you do that.

What else is important in learning to play well?

You have to know rhythm because rhythm is of supreme importance. It's hard to say how you learn this — you can practice with a metronome or, preferably, a drummer. I used to use a cassette player and write down random sets of chords then play them rhythmically — 6/8, 4/8, 3/8, 7/8, 5/8, 9/8, 11/8, 21/8, anything you want. Eventually you start finding chinks in your knowledge and then some lights in the darkness.

The joy of music is like the joy a runner gets from running, and, musically, I'm running. If music doesn't carry any deep emotion then what's it for? You find notes that are more joyful to you and you find them at a fast tempo and people will get something from it.

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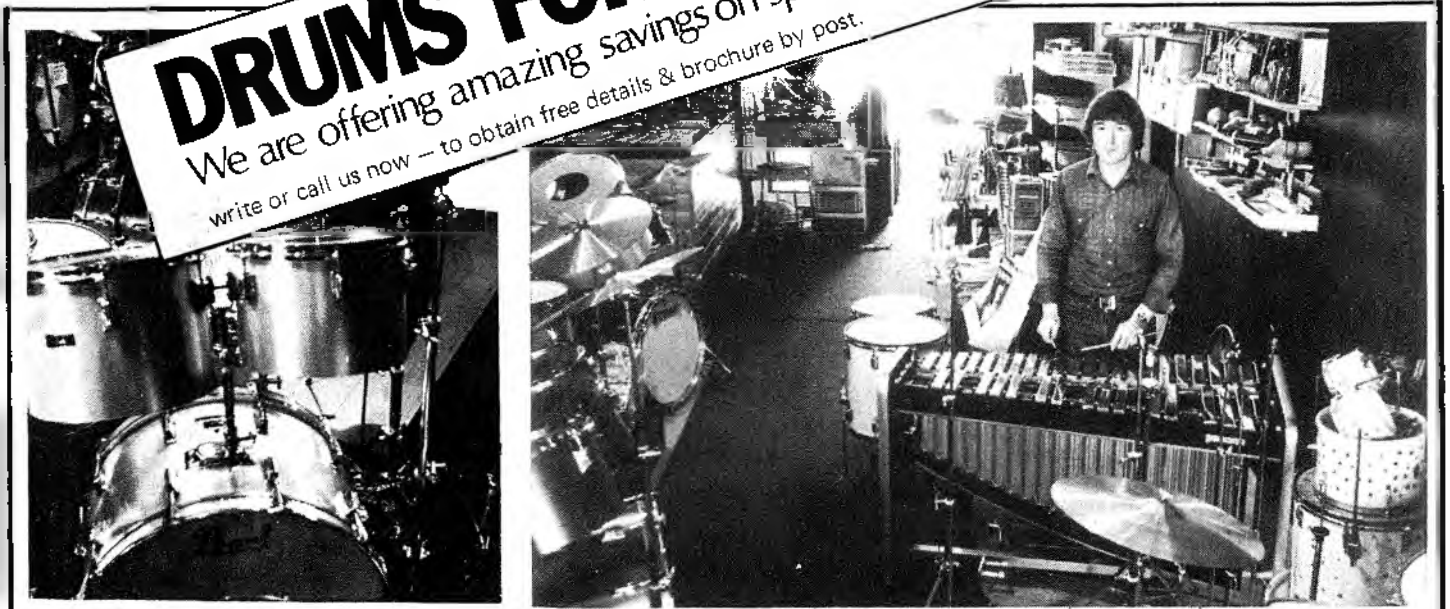
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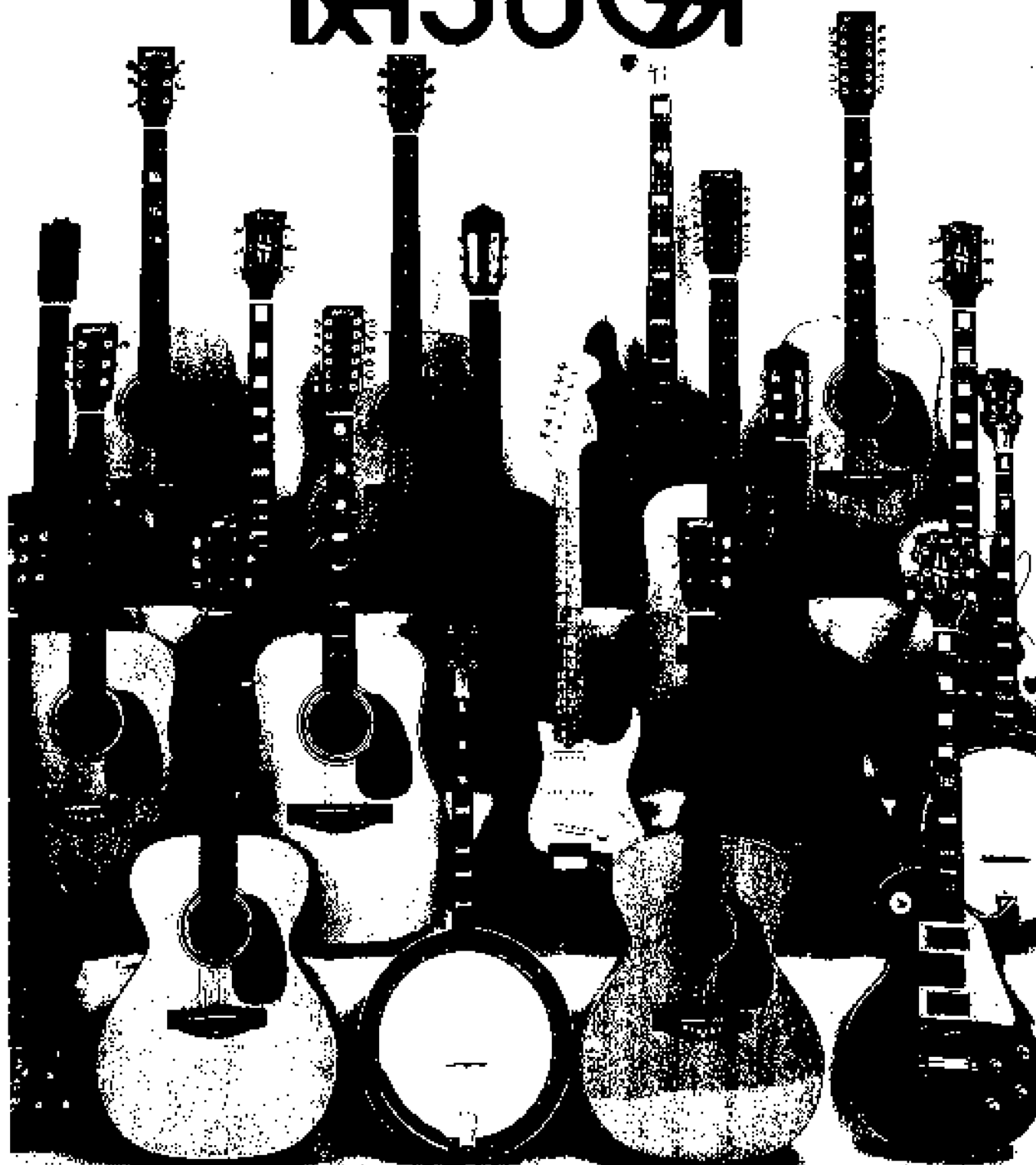
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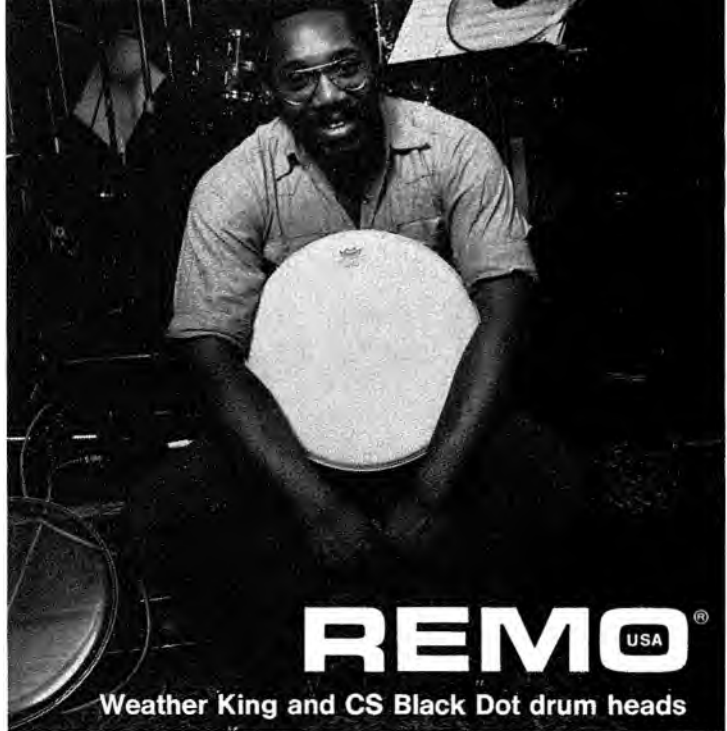


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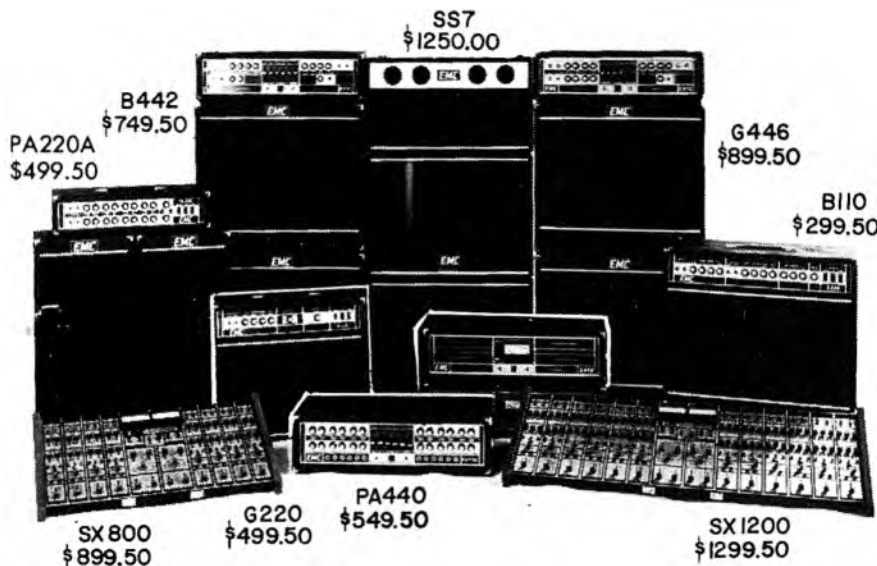
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Bill Nelson - Be-Bop Deluxe

by Tony Bacon



I was pleasantly surprised when I met Be-Bop Deluxe's Bill Nelson recently at his publicist's office. His quiet, relaxed nature seems somewhat at odds with Be-Bop's up-front music, of which you can hear some good samples on their new "Modern Music" album. We began by talking a little about the past.

Can you tell me a bit about the days before Be-Bop Deluxe? I know you were involved at one time with a studio called Holyground. Is that still around?

I'm not sure whether it's still going as Holyground. Mike Levon, the guy that used to run it, has moved. He used to live in my home town of Wakefield but he's moved, I think to Bradford, and I think he's teamed up with another guy so it may not still be Holyground as such. He's trying to make a bigger studio. The Holyground studio was started, I would think, about five years ago in Wakefield, and the way I got involved was quite interesting really. I was at Art College at the time and there was a handful of us that were into playing more adventurous music than was popular at the time, listening to John Peel's programmes on a Sunday afternoon, and buying all the imports before companies like CBS realised they could release music like that in England and make a killing on it. The only way you could get hold of the West Coast bands was through import stores — we used to travel miles from Wakefield just to get albums. Anyway, I can remember walking down this particular street in Wakefield where Holyground Studio was, we passed this window and I heard this, oh . . . Jefferson Airplane I think it was . . . coming from inside. I thought, "What's this!". This happened a few times, and we heard that there was something going on at this place, and so one night I went down there with a couple of friends to find a handwritten notice pinned to the door — "Holyground Studio." So I knocked on the door, Mike Levon came down and said, "Oh, come in, have some coffee." It was virtually his back bedroom as the studio. The landing had a glass partition in the doorway and a shelf on the landing with one Tandberg tape recorder on it! At the time, though, it seemed amazing to find someone who had long hair and knew the bands that we liked. He was a teacher and had a couple of friends, also teachers, who wrote songs, and they used to get together local musicians to play these songs that these two guys had written and record them, and then they saved up between them and had them pressed. The first thing that I think Holyground put out, on a label as such, was a folk thing they recorded in a local pub called Moody's Bar — all sort of traditional folk with one or two Dylan soundalikes thrown in. The album was called "Number 9, Bread Street" which was the number of the pub and the street that it was on, and it was done very, very cheaply — on a little portable machine, transferred onto tape and then sent away to

be pressed, a few copies. Then they progressed from that to doing an album called "A To Austr." which was the first one I was involved with — I was invited to sit in on the session, with lots of other people around. I played lots of acoustic guitar and a bit of Hawaiian guitar on one track, again on these two guys' songs.

Virtually a private pressing?

Yes, it was sold locally, and sold through the colleges as well, but all very limited — the cover was made in the screen printing department of the art college. I've still got a copy and it sounds good. It was on two-track. From there, they went on to do one called "Astral Navigations" on which I played on three tracks, the first time I'd played lead on any of Mike's records. The other side of the record was taken up by a band from Birmingham, Thundermother, who'd passed through and heard about the studio. At this time, I'd got my own band in Wakefield called Global Village, just a three-piece blues band. We weren't doing anything startling, a lot of Hendrix, Cream, Fleetwood Mac numbers and some early blues numbers, and I'd written some things of my own, some early things that weren't too sparkling. Anyway, we went down to the studio and did an acetate-type recording, pressed onto one of those hard acetate things, purely for our own amusement. I've still got a copy of that too. We did "Mr Fantasy" by Traffic, very amusing! After that I went into a gospel band as part of belonging to a local church that I got involved with, and after I'd finished with that I started writing songs, in a more personal sense I suppose you could say. Having got a collection of these together I put them down to form an album called "Northern Dream", which was paid for by some friends in the Wakefield Record Bar. It didn't really cost that much, we had the cover printed by the local newspaper and I drew the cover, and the inside photos were taken by a friend. It's been re-issued recently by the people at the Record Bar, because of the band (Be-Bop Deluxe) becoming more popular. The initial pressing was just 200 copies and that included an 8-page booklet of photos and credits and a lyric book — quite a package. The re-pressing doesn't have the book because we lost the plates. The album was also done in two-track — you know, bouncing from left to right. I think Mike's got four-track now; the last time I went down was when we'd done "Futurama"; and I took the tapes down to play him just before it came out. He'd just got a Teac four-track in. But it was always more than a studio, more of a family affair

almost. People would drift in and out, and you could always find any number of people down there willing to play on something — I'm sure Mike must still have some amazing tapes around. There's an awful lot that we've done there in the early stages of Be-Bop Deluxe and stuff from "Northern Dream" that we didn't have room for. I'm sure if he wanted to issue an album, say the "Early Be-Bop Deluxe" or something like that, he could do it easily.

You issued a single called "Teenage Archangel," before you signed with EMI, didn't you?

Yes, that was on Smile as well, Smile being the label that "Northern Dream" was on, and owned by the two people in the Record Bar plus myself as co-owner. But we recorded the single at a different studio, Box Studio, Heckmondwike, a little town about three miles from Wakefield, another strange place to find a studio. They had 16-track equipment and much more money had been put into it than into Holyground. Without putting Box Studios down at all, I think of those two projects (Northern Dream and "Teenage Archangel") "Northern Dream" has a slight edge, probably because it was done on a more 'friendly' basis, and the music seemed to relate to its environment.

Like gigs do?

Right. I mean you're put in front of a big important audience, like on a tour when you get to London and 90% of the audience are press, it alters your approach. Whereas you get us back up in Leeds University, say, where I'm from, and you know that people are gonna come along and enjoy it for the sake of the music and not be 'critical' — you know you're going to play better.

How much time did you actually spend at Box Studio?

Oh, just an afternoon. We could only afford that really. We demoed "Sunburst Finish" there just so that we could have a bit of a rehearsal before we did the actual recording at Abbey Road. We put it down on tape so that we could listen to the songs and see how they sounded. With the new album, "Modern Music," I did all the songs at home on my own Teac, just put all the songs down four-track — plastic bucket and a hammer for the bass drum and an old tambourine for the hi-hat, that sort of thing. But it sounds alright and it was presentable stuff for the rest of the band to hear, and they got the arrangements off much quicker.

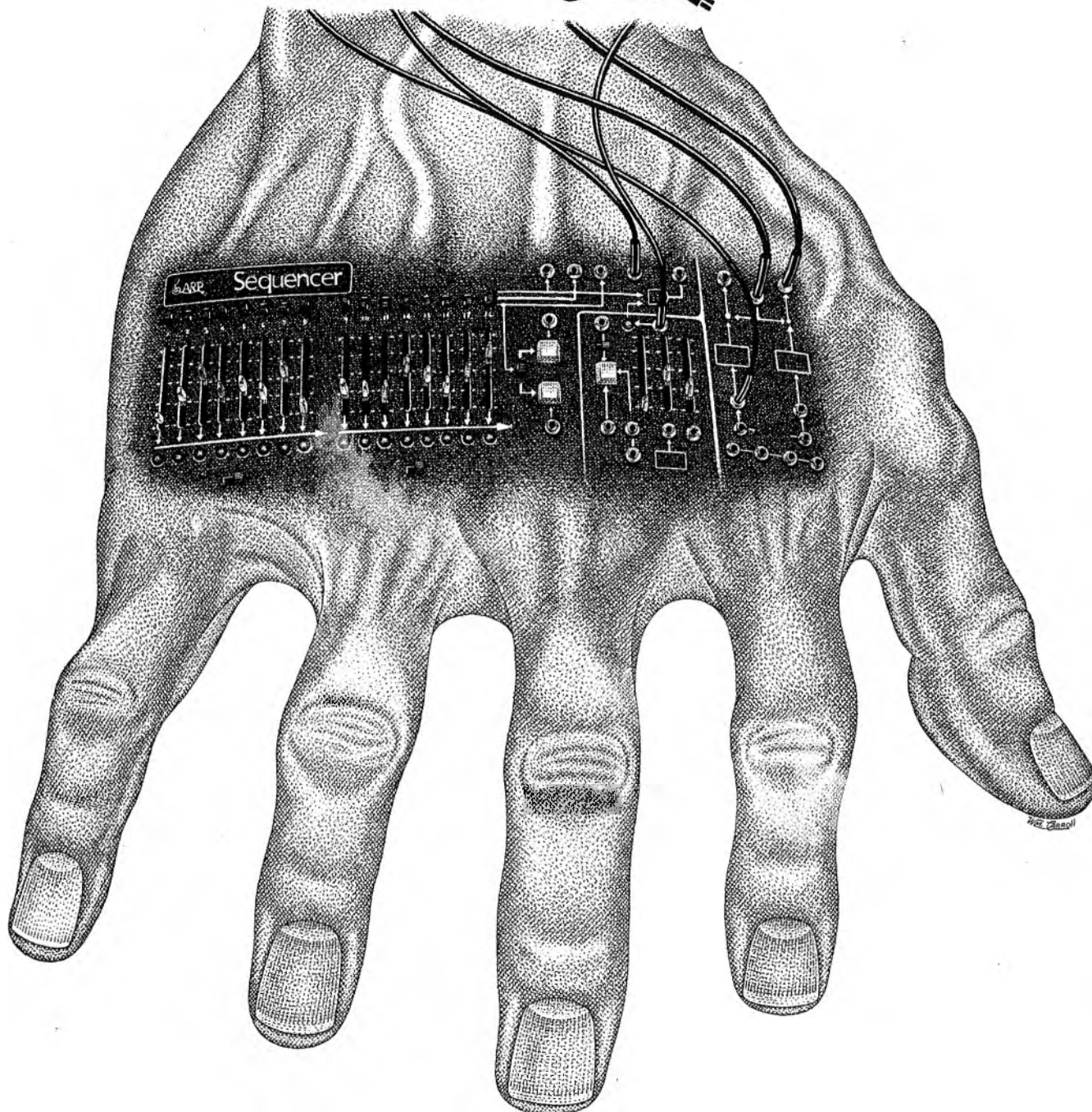
You see tape as a writing medium?

It's very essential, simply because of time. I don't get as much time to actually sit down and thrash it out and write sheets and sheets of lyrics and chord symbols or

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Be-Bop

continued from page 113

whatever. If I've got the song in my head and can just sit down and put it on tape, run off cassette copies and give it to the rest of the band, they can go off in their own time and listen to it. Then by the time we get round to rehearsing the material, they're familiar with it. It was difficult before, I used to sit down with an acoustic and strum away and sing — sounded more like a folk club in Bradford than a potential album track! I suppose every musician, once he gets to the position where he can afford a little money for home recording, dreams of the day when he can put out a little album of his own recorded in his back bedroom! And it can be done easily — that was proved by "Northern Dream," it didn't cost that much. If you can afford £300 or £400 you can do it, which is all that album cost in its first few pressings. It's being distributed in America now, which is quite amazing. When we were there, we got taken to various record stores for (laughs) "In-Store Appearances" as they call them over there, and lo-and-behold there's "Northern Dream" in the racks! *What was the States tour like?* The gigs were good, we went down really well. We're going back in October. We found that the audiences were good, but I hate the pressure of the business there, it's really a hard sell. We were there for eight weeks altogether, and we only had three days off from the whole tour. That soured me a lot because I felt that the most I was seeing of the country was airports and gigs. The gigs were alright because it's always a pleasure to play, that's the best part. It's the sitting around in between gigs and the travelling that's boring, you can't even go out and have a look at the place and get to know what it's like, so my judgements on America are very much formed by that.

Did the music go down well?

Very well. Better than I expected really. We were told "Don't be worried if you get booed off" and "American audiences hate support bands — you're likely to get things thrown at you" and all that sort of thing. We were all terrified, biting our nails and everything, you can imagine. Anyway, we got on in Los Angeles, where we headlined actually, and went down a storm. We went down better than the main band at a lot of the gigs. People seem to have got to know the band's music through FM airplay, and in Los Angeles, for instance, there's a real cult following. We walked onstage, having never been there in our lives before, and the whole audience stood up and cheered! Before that had happened we were really worried about even stepping onstage, but when you step out and there's a crowd up on their feet already, in a strange country, it's a great feeling. It looks good for us there in the future.

People have said to me that American audiences seem to listen to the music in depth, rather than worrying about, say, what colour socks the bass-player's wearing. Did you find that?

Well, it might have been due to some of the bands we were playing with, very boisterous headliners like Johnny Winter, who were into getting everybody off, jumping up and down on the seats, and we're not really that sort of band ourselves. I found the audiences were very demonstrative, very much into a kind of party atmosphere. They shout out a lot — if you do a good solo, they'd probably actually applaud it, which you rarely see over here. *What about British audiences, then?*

They're really conditioned by the press, not so much magazines like yours, but the Melody Maker and the New Musical Express — the weeklies. Whatever happens to be this week's trendy in-thing goes. I've seen kids at home that have been completely cut-off from the London scene — the only contact they have is through the weekly music press. They can read about bands there that they've never even heard and if it has a particular kind of push in the press, or there's a certain gimmick involved with it visually, you can find kids walking round the streets actually dressed like the singer, who they've never even heard, simply because they think it's what's happening. It's so sad. At the moment the weeklies are going mad on this punk-rock thing. All it is is pub bands, bands doing revivalist R 'n' B numbers that pub bands up North have been doing for ages. The pub scene up there has been going continuously because there's nothing else. There was a time about a year back when the Melody Maker did a whole thing on "pub-rock," the "new movement," and there's been nothing but pubs in Lancashire and Yorkshire to play in since the

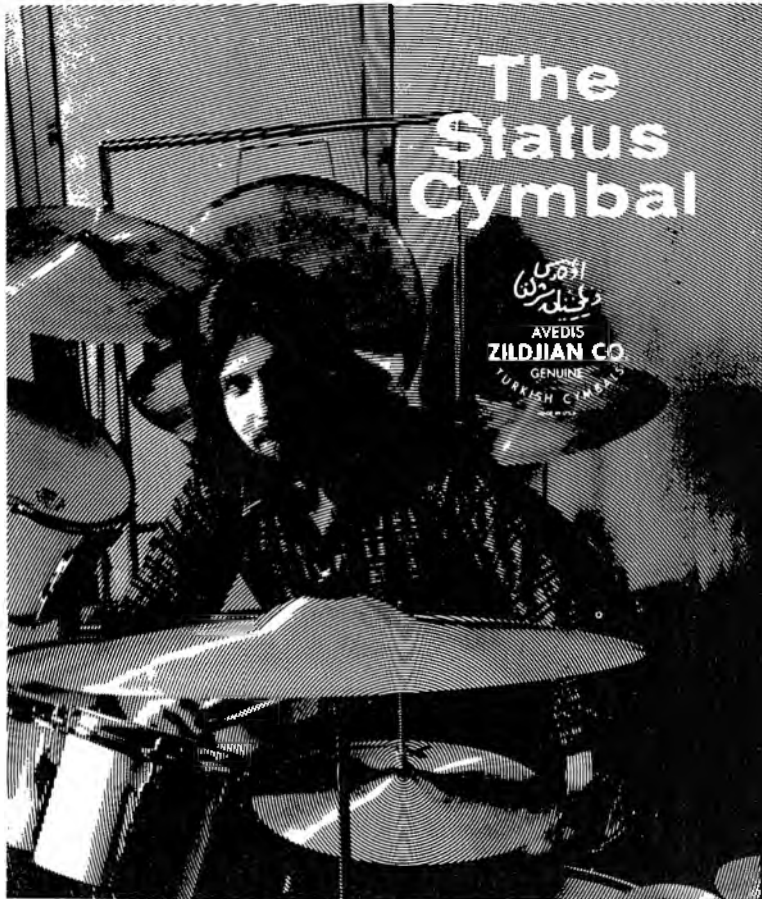
beginning. I started out in that and I played in bands that did really tough pubs in miners' villages where people insisted on hearing Buddy Holly and Eddie Cochran numbers, not because that was fashionable but because that's what they wanted to hear, that's all they know. These bands now are getting hailed as part of a new movement. Also the weeklies always seem to have to compare new things to something else, you find a new band coming along with some new ideas and they get compared to something else and get put down — "Oh, just a so-and-so rip-off" — and it isn't at all, it's just that their general knowledge is inadequate to describe it, so they just think of the nearest thing. In a lot of cases, it's the weeklies that are holding music back from progressing, instead of actually pushing forward something that's not going to be easy to get into, but given a bit of perseverance will be enjoyable. If they pushed that a bit more and tried to make that a bit more glamorous, the kids reading it would think "Oh well, it seems glamorous enough, let's give it a chance." I mean, there's no reason why thirteen and fourteen year olds shouldn't be into rock music, in its best, highest sense. There are new bands around, but they're not actually written about and publicised enough, not the good ones. The bad ones are — they just do something outrageous on stage.

What sort of audiences do you think Be-Bop go down best with?

Well, when we started it was colleges, but I'm glad to say we do go down with younger audiences more now. We get interviews with magazines like "Jackie" and "OK," which might seem easy to scorn, but for me it's like a pioneering thing almost, getting rock music in those papers, instead of the Bay City Rollers, and that's to be encouraged. At first I hated the idea, but then I thought, well, the only way you're going to change the face of the charts is to get to those sort of kids that buy singles, and get your music to them.

You've been very unlucky with singles. "Maid In Heaven", for example, was superb.

Yeah, everyone in the business said that. The record company said "Great single, it's going to go!" but the BBC wouldn't play it because it wasn't on their playlist. We had the same problem with "Ships In The Night," although they did change their mind and start to play it, but then we went away to the States, so we weren't here to push it any further.



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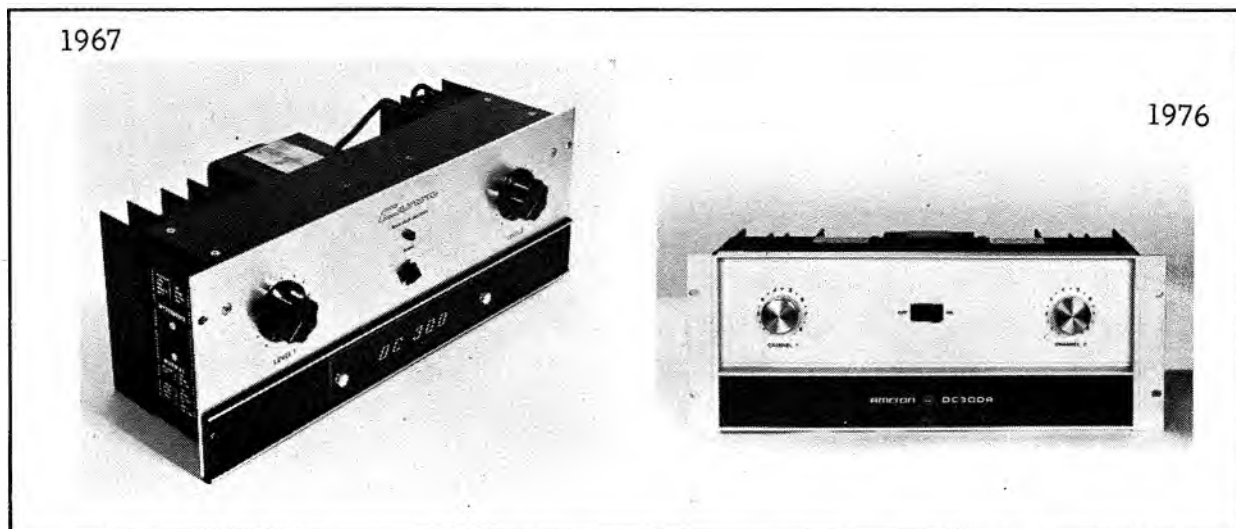
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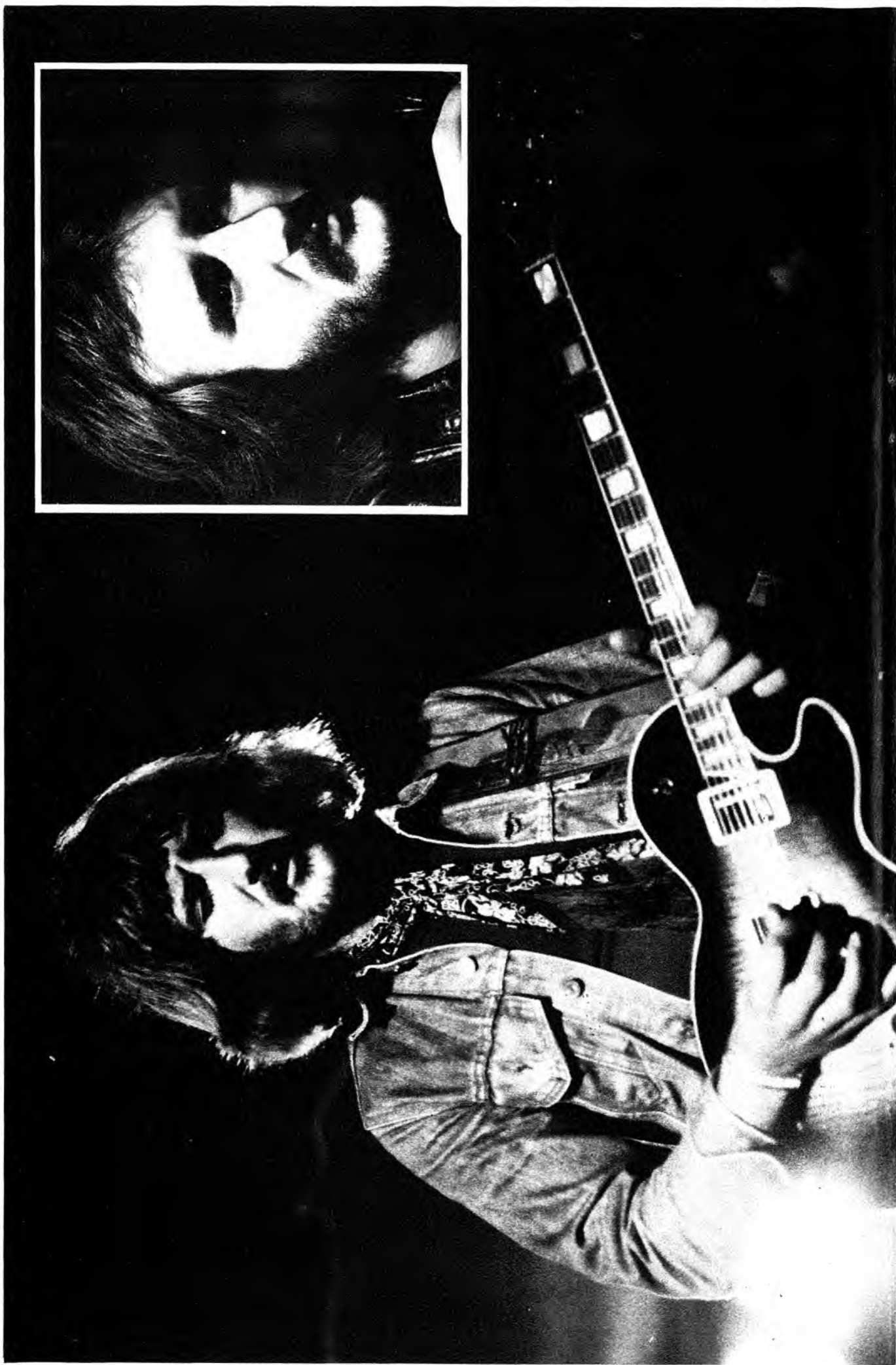
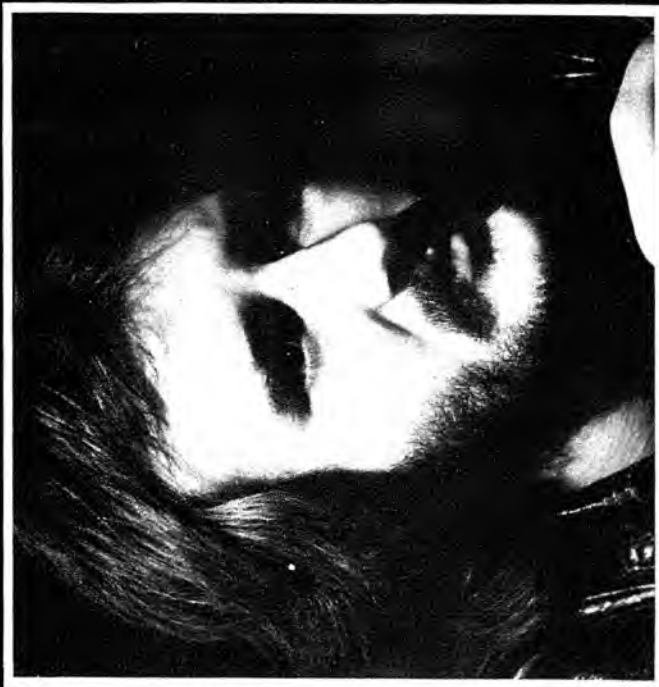
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AKKERMAN - A EUROPEAN GUITARIST

by Steve Rosen



Jan Akkerman, ex-lead guitarist of Focus, represents the new breed of European guitarists so long invisible under the veil of the English players. Where the islander tends to base his playing more on the American blues scene and his own contemporaries (legends such as Eric Clapton, Jeff Beck and Jimmy Page), the continental devotee has influences as far afield as J.S. Bach and Django Reinhardt. Because the European musician tends to be a bit more eclectic in his approach to the instrument, it has taken this country (the U.S.A.) longer to accept him within the ranks of the straight British and American rock guitarists. Jan Akkerman's technique and tone quality combine the subtlety and demand of the classical guitar (on which he is highly accomplished) with the roar and tenacity of the electric instrument (he places high in English instrumental polls each year). Born 28 years ago in the Netherlands, he is devoted constantly to the guitar and even as this interlude took place Jan cradled a newly-purchased Martin acoustic.

From his technique it is not hard to imagine that he began music at a very early age. At two years old he received a little piano without black keys (all tonal) and tinkered on this for several years until his father bought him a \$10 guitar on Christmas day. "Since that day I've played day-in day-out, year-in year-out." His father felt he should be properly trained and arranged a scholarship from the state. After five years of pursuing the theory of guitar Akkerman finally left though he does have a strong command of reading music and tablature (for the lute as well).

He finally acquired his first electric at age 5 or 6. It was an Egmond and according to Akkerman "a strange axe."

"It was made out of triplex and looked just like a piece of firewood. I'd just like to say here

that I can't play guitar but I make people crazy with my manoeuvres (laughs). My first amp was a radio, of course — an old messed up radio with high blood pressure which had the title 'amp' and managers back stage, keeping the wires in with these old wooden matches."

About four years after obtaining the Egmond, Akkerman began his first real band work with a group called the Friendship Sextet. Most of the members were in their 20's while he was a mere 10. This was mostly a weekend set-up due to the reluctance of his parents in having him spend any more time with musicians than was necessary. He began playing night clubs nearly 17 years ago and was involved in the first rock shows produced in Holland. Akkerman was playing rhythm and blues, Buddy Holly, and Fats Domino type material. Radio was of great importance as a source of music since he did not possess a record player. Piano was left by the wayside as it was not in keeping with his character.

"I'm kind of an ego-tripper, I guess. Guitar is my security; I mean the only security is in myself of course, but the guitar is the medium for it — this piece of wood with six ropes on it."

In 1968 Akkerman became involved with Brainbox when he'd already created a bad name for himself by skipping from group to group and sitting in with them at various night clubs. "Kind of a guitarophile." Brainbox was a hard rock sound in which Akkerman was using a Gretsch White Falcon with a Cordovox Leslie and a self-made amplifier.

"I didn't know how to make one, I just did it. It had two speakers and I had the Leslie miked up through two Elco speakers; they were Italian speakers something like JBL has, with the big ducts for the high tones. I miked that up stereo. You have that wheel turning around in the Cordovox, one on

the bottom, one in the middle, and one on top so actually it is triophonic. I was really into that, having the whole stage with cabinets like that and the sound turning all around like a rainbow."

The guitarist is still developing his usage of the Leslie. The Leslie was virtually forgotten when he left Brainbox because he felt it was not an original sound but after leaving the group he was replaced by two guitarists who both pursued this same sound.

In the meantime the main fount of music in Amsterdam (his birthplace) was jazz. "We never listened to English guitar players except maybe the Shadows and Clapton." When he heard someone like Jeff Beck playing it sounded dated because he was already playing in this style. "I was doing it before them, as simple as that." During this period players like Django Reinhardt, Tal Farlow, Bola Sete, Julian Bream provided the main sources of listening; more recently it has been guitarists like Larry Coryell.

But his playing has remained in a rock style with a different set of notes — European notes. Akkerman's playing is different from other guitarists in not so obvious ways.

"I'm different rhythmically, technically, harmonically, and also mentally. I might say so, yeah, I'm a technical player from what I hear around me, but just technique is not my trip. It's musical technique. Like playing beautiful things but also technically perfect. I'm not talking about speed because I have that also very much, but I'm talking about tone, about getting the tone out with the right amount of brilliance, the right attack of the pick, the right vibrato. Sometimes I attack the guitar and sometimes I play with my thumb and half the pick."

The Focus guitarist now uses an old Les Paul which has been

completely renovated. The entire body has been overlaid with maple; new half-medium thick frets have replaced the originals because he likes an edgy feel where the frets are square against the neck and not rounded. When the frets are curved he finds it too difficult to play. The neck has also been flattened and the action lowered severely. With the combination of the square frets and the flattened neck the result is a more accurately pitched instrument. Schallers have taken the place of the standard tuning pegs (he also likes Grovers) and the pick-ups have been rewired to attain more treble. In fact Akkerman uses as much treble as any other guitarist.

"I've tried using a Fender (for that treble sound) but it's not my guitar. Maybe I'd like a combination between one big humbucker pick-up and one Strat to get that brilliance. But I still want to get that belly sound: 'oomph,' that fat sound that really goes through your bones. I've not found a guitar yet than can do that, but the one I've got now is on the way. I've taken all the stuff off that Les Paul, all the pots that were all over, put a maple neck on it, then the humbuckers were put back on, the old tone and volume knobs, and the universal switch (three-way toggle control). I put a new bridge without the Tune-O-Matic: I like that better. Strings should be pulled and not drawn down to the body because it takes away the sustain. I use Ernie Ball, they're the best: .008, .011, .014, .022, .030, and .038. It's really thin but I like it like that because you have to play very clean on it, very secure like on a violin. You have to have the perfect touch. These thick strings do have an attack, but I like to have them smooth and still have that punch."

Though this extremely light string set is used Jan has no trouble with elasticity. He

vibrates his strings by sliding back and forth within a fret rather than pulling up and down. With a thinner string this technique gives a spacier sound. He does, however, use both techniques but finds once he is actually playing a song that the sliding technique is the one used. He uses the brown medium gauge Herco picks and changes strings about once a week.

Akkerman, as well as being an accomplished instrumentalist, is an experienced instrument builder. He designed a guitar for Framus, a hollowbody guitar, which combats feedback. The neck and bar (truss rod) run through the entire body and eliminates feedback. The shape is a cross between a Les Paul and regular hollowbody with a wide neck at the top so bending strings is easier in the lower positions. The head is precisely shaped so the strings do not touch each other and may ring without interference. String setup is the same as on the Les Paul.

In the same way he looks for the ultimate guitar sound Jan employs a unique amplification system. He used Crowns as slave amp and pre-amp in conjunction with six Leslies and two large Fender solid-state amps. The cabinets house JBL speakers which are powered by the two stereo Crown amplifiers (nearly 2400 watts). The Leslie's also contain heavy-duty JBL speakers and have been modified in other ways; the amps have been removed and driven directly into the speakers and drivers which produces a higher sound quality.

In addition to this Akkerman uses a small pre-amp to boost the treble (Colorsound). Jan is also working on a stereo phaser which puts the sound slightly out of phase from left to right and is highly accented by the powerful Crowns.

He does not use any foot pedals save for one which dictates the speed of the Leslie tremolo

and chorale. His studio equipment is also devoid of any effects and is virtually the same set-up as live except with half the power. "You know, this time I'm in love with that amp, and the next time I'm in love with another amp for that album — I'm changing constantly." One thing which has not changed for Akkerman has been the band. Focus is an adaptable vehicle and allows Akkerman to achieve all he wishes.

"Focus is for me one of the few groups who know how to catalyze love for music and voice. We get into the theatrics strictly through the music like with 'Hocus Pocus.' I wouldn't take my guitar off or anything like that but for the people that do, it's OK. Everybody has to make his own way up to heaven. I guess, I don't know what that has to do with guitar player; I don't feel for that. Geographically the guitar is a very difficult instrument. A piano is all before you. You see it laid there and there, black and white. On guitar you have these strange scales, and you have this one hand to make bass and melody and accompany, and that's really difficult. I think the guitar is geographically more difficult than the piano, especially when you read music. Just a few musicians know how to read well and to grab that chord and that chord."

"I've got my own hangups about the guitar. If people didn't like my playing that wouldn't be an excuse to quit. That would be alright. That's not what I'm looking for. I want to reach people with pure beauty. I want to make pure music. I may be the only one looking in that direction, I'm not sure. There's no one else I can think of. I told you I'm an ego-tripper but for the people. I feel I've got responsibility to the instrument in the first place. If you have a gift, you have to do something with it or for it. I work, I'm a labourer — what more can I tell you?"



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Synthesizers Unravelled: Part 5 by Graham Hinton

Most common synthesizer devices have now been described in this and it remains to patch them together to obtain usable musical sounds. The number of combinations and their variations of particular modules may or may not be endless, but they usually conform to some recognisable pattern. As an illustration of the processes going on, two of the most frequently used "instrument" patches will be discussed.

The first is the dynamic timbral modulation patch shown in Fig. 1, which is so general in application that nearly all mini-synthesizers are based on it. The reason for its popularity is that it is analogous to the physical processes occurring in the most simple musical instruments. First, there is a sound source — a string, reed(s) or an air stream — represented by one or more VCOs, this is modified harmonically by the body of an instrument with its various resonances, analogued here by the VCF.

One of the basic differences between acoustic and electronic instruments is that acoustic instruments are normally silent and have to be struck to make a sound, whereas electronic instruments generate continuous tones which have to shut off. For this reason, the VCA goes at the end of the chain to be used for envelope control (the envelope is normally implicit with the sound source in a natural instrument and therefore can be varied little). In any acoustic instrument, energy is given to a conditionally stable mechanical system (the sound source) which then tries to lose this energy and return to rest. The fastest way is to pass it into the instrument body — which doesn't want it either. The two thus interact until all the energy is lost into the surrounding air and thus perceived as a sound. This may sound complicated — it is — but the result is that NO acoustic sound has a constant timbre for its duration and to simulate these processes dynamic modulation must be used.

The modulation in question in this patch is timbral and is varied by controlling the VCF with a transient which could be the envelope, but it is better if it is independent. Because high harmonics die away faster than low harmonics in natural systems, it is common practise to use a VC Lowpass Filter and lower the cut-off frequency as the note progresses. This does not preclude other configurations (that depends on the final desired sound). This in fact is a fundamental difference between British and American designed synthesizers: all the American types use transients that first rise and then fall, while the commonly available British types do the opposite. With different

settings and modulation by synchronous or separate waveforms, this patch may be used to simulate a large range of instruments including trumpet, flute, bassoon and guitar. The other useful patch shown in Fig. 2 uses dynamic frequency modulation and/or dynamic pulse-width modulation to vary the harmonic structure without using a filter, leaving it free for other purposes, and can be used for the synthesis of brass, woodwind and tuned percussion-like sounds. Despite its great application, this patch is either difficult or impossible to realise

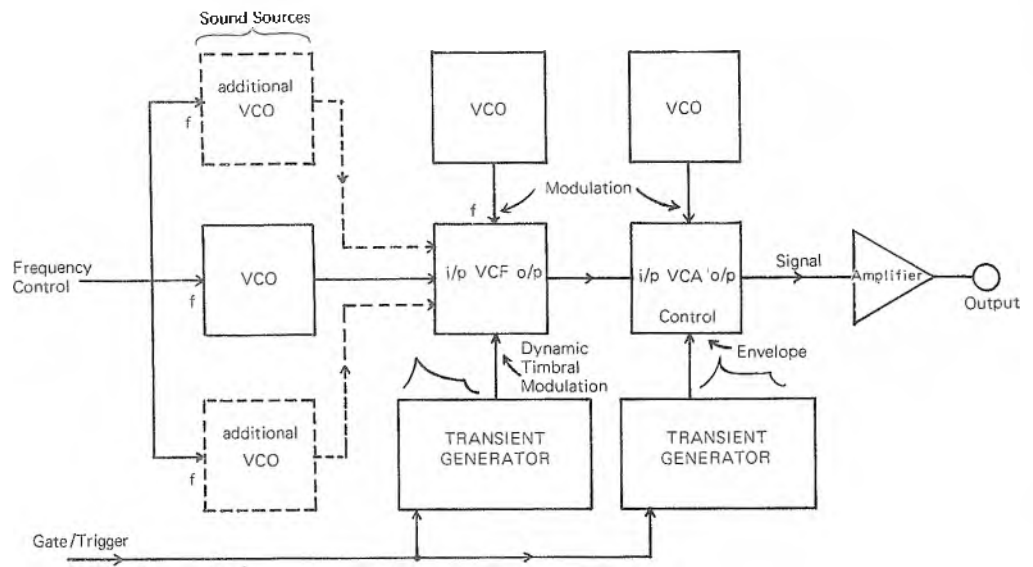


Fig. 1 Dynamic Timbral Modulation Patch.

on most currently available mini-synthesizers, as there are rarely two VCAs nor are they DC-coupled to permit the processing of control signals. Linear frequency modulation of the VCO is really necessary to prevent a rise in pitch with increased modulation depth. Dynamic PWM is also an economic way to add complexity to a tone, as different pulse widths have different harmonic spectra — the rule being that if the pulse is 1/n of the cycle, then every n-th harmonic in the spectrum is missing, (a special case is a squarewave — n=2 — which only contains odd harmonics). When

dynamically controlled this way, the individual harmonics of the pulse-wave will swell and fall, but the pitch remain constant. On larger systems, where several envelope shapers are available, different groups of harmonics can be generated separately (e.g. by frequency doubling with a ring modulator), given different filterings and envelopes and then summed together to make a composite sound. When methods like this are employed, it is very easy to use up every module in sight, no matter how large the system just to create one note. According to its complexity,

dynamic frequency modulation of the VCO is really necessary to prevent a rise in pitch with increased modulation depth. Dynamic PWM is also an economic way to add complexity to a tone, as different pulse widths have different harmonic spectra — the rule being that if the pulse is 1/n of the cycle, then every n-th harmonic in the spectrum is missing, (a special case is a squarewave — n=2 — which only contains odd harmonics). When

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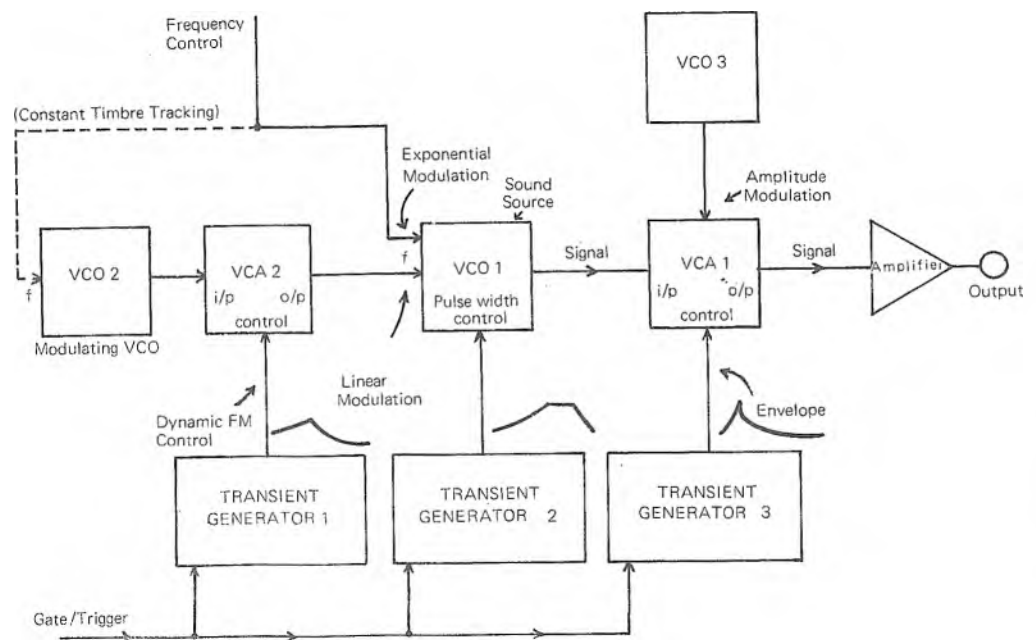


Fig. 2 Dynamic Frequency Modulation Patch.

a patch may be described as having a certain order, depending on the number of layers of control: the modules, linked in a chain between a manual action and the devices producing the sound. The simplest possible patch is one VCO connected to an output, called a zero order system, as no voltage control or modulation is being used. If a keyboard or another VCA were used to control the first VCO, then it would be a first order system and if a keyboard were used to control a VCO to modulate another VCO, that would be a second order system and so on.

In general, zero and often first order systems are so banal as to be of limited interest and system orders higher than four tend to be so complex that it is hard to perceive any intended control at all. First to third order systems tend to offer the right amount of complexity to produce an interesting sound.

It is very useful to record patches, and most manufacturers supply a mimic sheet representing the facia of their machine so that settings and connections may be marked in corresponding positions. This is fine for the rapid setting up of one particular model, but useless for transferring the patch to a different make or model. Other methods have included diagrams employing different geometric shapes to represent different modules, which are laborious to draw and soon exhaust the available shapes. The simplest and most effective way is to use block diagrams (as in this series), where each module is represented by a clearly labelled box showing any relevant control settings inside the box and the various interconnections by labelled, arrowed lines with sketches at various points of the waveforms to make the meaning clearer.

It is conventional for the signal flow to go from left to right across the diagram, although this may become distorted when notating loops and cross-connections; the important point is to convey the operation of the patch for reference at a later date. This system is independent of any machine or maker and is better for understanding what is actually happening in a patch and how it may be modified or extended.

One application receiving a lot of attention lately is the control of a synthesizer by means of a conventional instrument, especially the electric guitar. This is often attempted with a device called a Guitar Controller (not the same as a Guitar Synthesizer, which is a glorified set of effects boxes using synthesizer technology) and tries to extract the pitch and envelope

convert them to voltages to control VCOs and VCAs and hence on to standard synthesizer practice. The most common way of doing this is to fit resistors inside the guitar neck, between each fret, so converting the guitar into a kind of ribbon controller with an action even more clumsy than a standard monophonic keyboard. This is a good example of foisting something technically easy to produce upon the unwary musician. The system does not permit tone-bending and each string has the same pitch range, both of which are alien to any guitar playing style and defeat the object of translating guitar techniques into synthesizer sound — besides, it doesn't do the guitar neck any good.

A far better method is to use a Pitch Follower and an Envelope Follower, as shown in Fig. 3, this is also independent of the instrument used for control, but like all synthesizer "voices", it is inherently monophonic. For a guitar, the signal has to be fed into six bandpass filters (one

for each string) and then into six separate arrangements, like Fig. 3. This is immediately more complicated, expensive and requires exact setting up and tuning. When things get this complex, it is often wise to re-examine the motives for using a system like this anyway and to look for possible simplifications and alternatives.

One alternative to overcome the synthesizer's monophonic tendencies is the use of multi-track recording. Even though this type of work is common practice nowadays, recording each track separately requires far more discipline than the more usual recording of most tracks at once, overdubbing and mixing down — especially when the parts of a chord have to be "assembled" from individual tracks. One track is often used as a "click track", to aid timing much like a metronome. With this and several tracks for each polyphonic voice, it is quite easy to use up all the tracks of a 16 — or 24 — track recorder. The nearest equivalent to this

for live work is the use of large sequencers and backing tapes, which can be used very effectively but require extensive setting up and exact timing.

Synthesizer technology is years ahead of the application and it continually accelerates without looking round to see if anyone is catching up, or even following. This series of articles has hopefully done something towards providing a groundwork for catching up; obviously, the subject has been lightly dealt with in a series of this nature, when books could be written on it. Actually, books have been written on it, but they are always out of date by the time they are printed. The best way to achieve a design/application feedback and disseminate contemporary thought is through a magazine like this, where letters can be answered publicly.

What do you want to know about synthesizers? How do you want to use them? The technology and expertise are here. Use them.

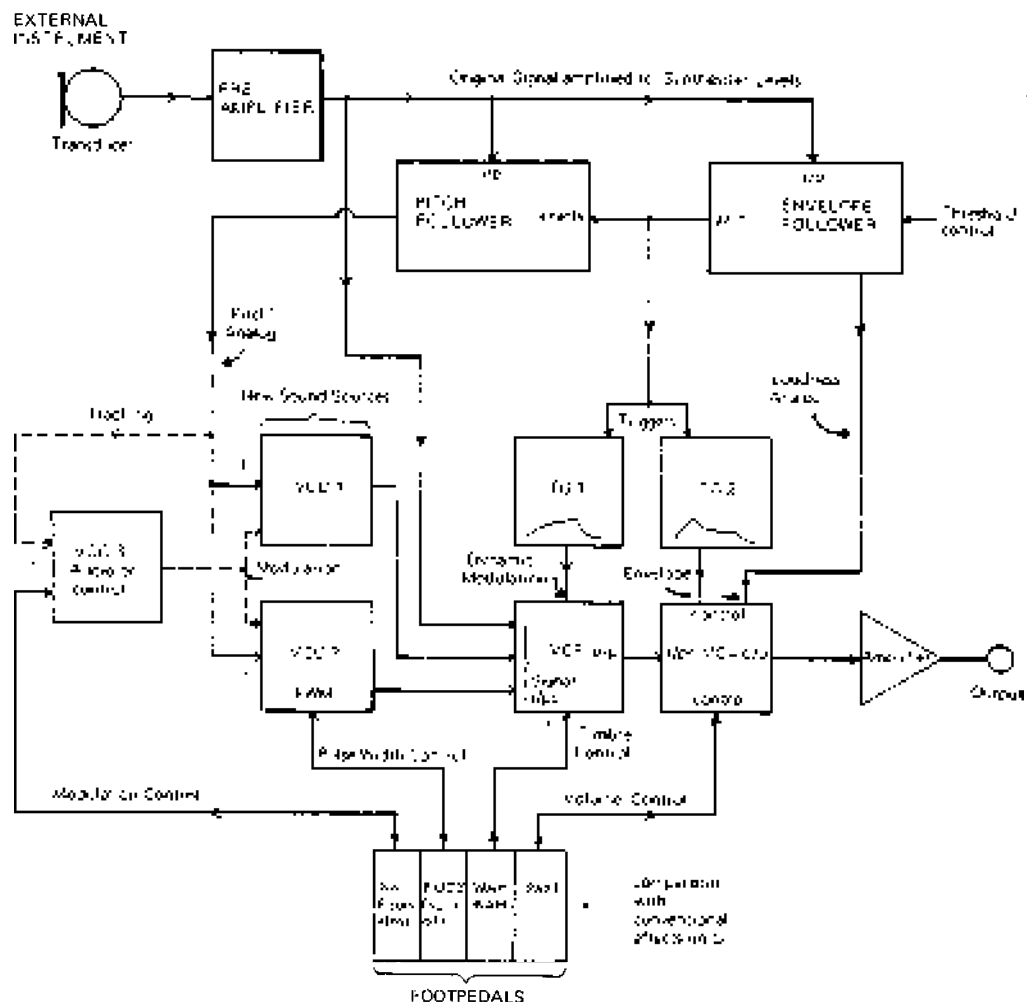


Fig. 3 Typical Instrument Control and Processing

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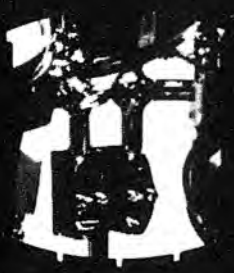
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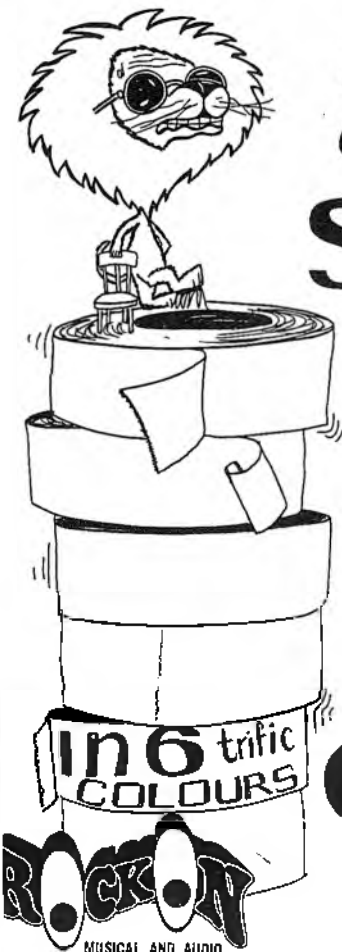


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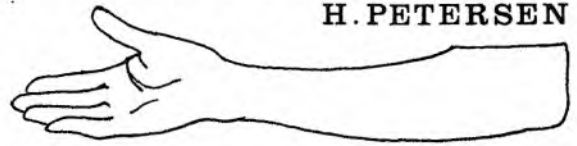
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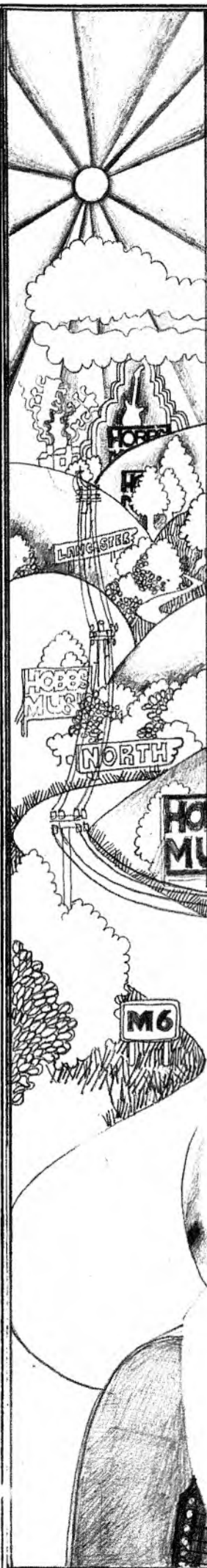
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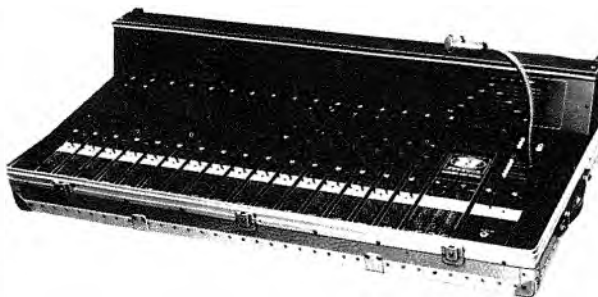
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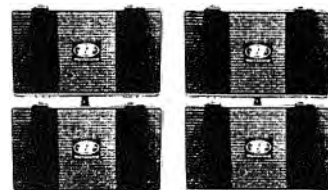
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The PC-10 is light enough to keep you on the move and rugged enough to take it. Its die-cast frame is built into a special shock mount housing for extra durability no matter what the recording conditions.

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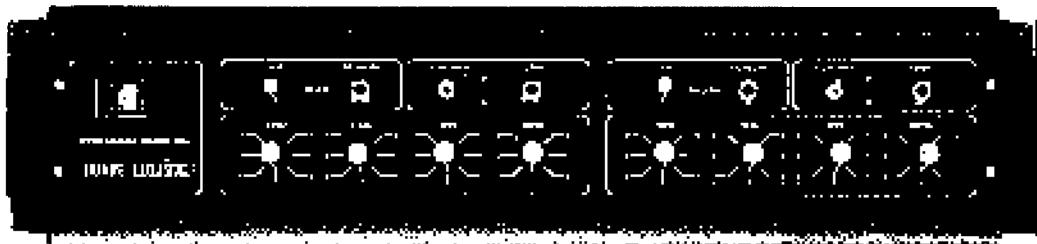
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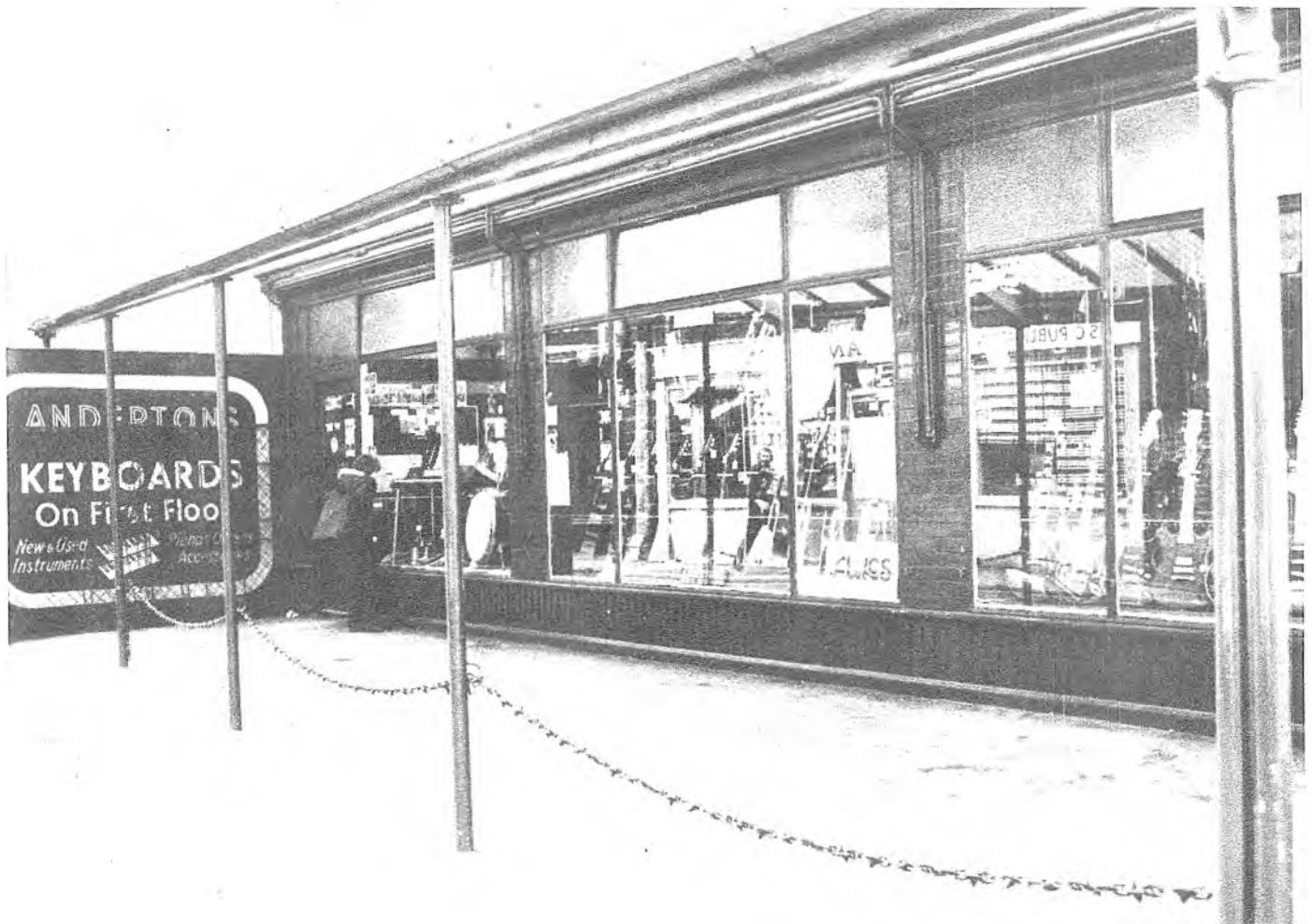
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ANDERTONS (Guildford)



It's always nice to find an out-of-town musical instrument shop that stocks more than violins, sheet music and classical guitars. Andertons of Guildford is just such a shop, stocking a hell of a lot more than shops three times its size. Opened on the anniversary of D-Day, 1964, on a "shoestring budget", the shop has grown in stature to the giant it undoubtedly is today.

Peter Anderton began his career in the music business when he was still at school, working part-time in a Hammersmith music shop during the early days of the beat

boom. Although he was only part-time, he began to do a lot of the buying for the shop and got to know many of the reps, manufacturers and suppliers.

"When I was due to leave school," he recalls, "I didn't really know what I wanted to do, and my father, who was a drummer, suggested opening a music shop. For some reason which escapes me, we settled on Guildford! It took me a while to get used to it - everything is taken at a much slower pace - but now, it's tremendous and a really nice place to live. With the new roads, it's not far from London and it's handy for the coast,

and these things make up for quite a lot. The size of population is a disadvantage but, over the years, we've built up a good relationship with our customers. In fact, it never fails to amaze me - people will come down here from London, Cornwall, the Midlands and all over the country. I think it's because they don't get treated like crap - there's no hassling customers here. We get a good feedback from customers. We try and aim it on a friendly basis and we only sell lines we believe in."

The ground floor has an enormous counter with microphones, strings and a million accessories - in fact there is between ten and fifteen thousand pounds worth of stock in accessories alone. As Peter is an ex-drummer, there is, naturally, a wealth of percussion carried, with names like Premier, Ludwig and Arbiter Auto-Tune predominating, and a vast array of cymbals, stands, heads and fittings. Guitars are too numerous to mention, varying from Japanese copies to Fenders, Gibsons and Rickenbackers. A large display of amps including HH, Vox, Fender, Yamaha and Marshall take up one end of the ground floor.

The first floor of Andertons is given over to keyboards - pianos, organs and synthesizers of all makes and sizes. To save hernias and strained backs, a hydraulic lift has been installed alongside the keyboard showroom for winching these monsters up to the first floor. As pianos and home organs are more for the "mums and dads" market, as Peter affectionately calls it, the plan is to open another shop in the town centre, exclusively for this market.

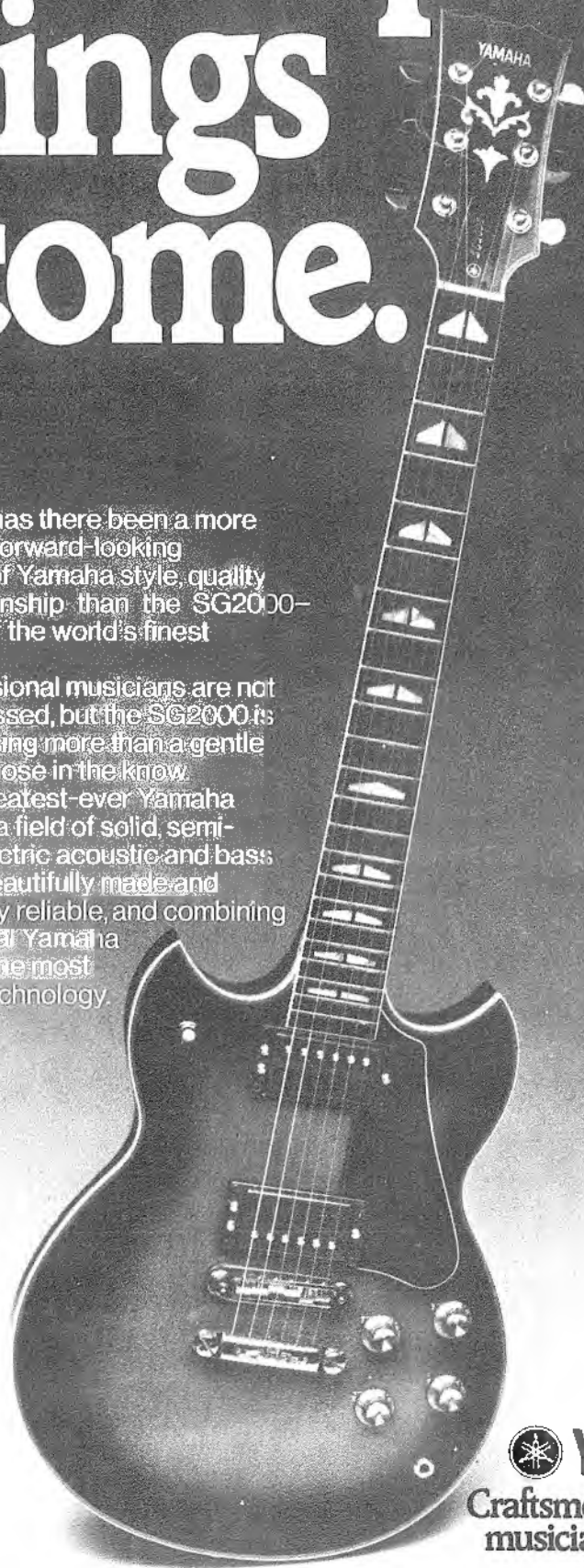
"We've always been a provincial music store," he explained, "and we have a good trade in educational instruments and home organs that hasn't really been exploited yet. We're going to split the markets and turn this shop into a professional group gear centre. We'll keep the keyboards upstairs but it will be portable organs, synthesizers and ancillary equipment like rotary speaker cabinets and the like - again, keyboards for the professional. At the other end of the market, we have a view to opening a more general "high-class" store with soft lights and sweet music. I do feel a certain rapport with a lot of the classical players who tend to look for a store with the right en-

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Dealer of the Month

vironment."

Peter likes to keep in touch with things and tends to spend a lot of time on the shop floor.

"We do try and be abreast of trends," he explained. "I'm on the floor a lot because I like to keep in touch - you have to be on the floor and right in the middle of things to be able to know what's

going on. If I'm off the floor for a couple of weeks, I begin to notice myself getting a little out of touch. I still handle all the drum sales myself, and we have a good keyboard player and a nice guitarist on the staff, so I think we're well-covered."

Peter is particularly excited about a forthcoming "Andertons

Catalogue" which he describes as "a major step forward". It will list all the goods available through Andertons and should certainly increase their already booming mail order business.

On the subject of P.A. systems: "The P.A. market is almost a specialist game in itself. We're in the middle-upper P.A. bracket -

we aim at systems costing up to £5,000. We don't really want to get into the bigger stuff, because, by and large, it tends to become uneconomical not to hire one, if you're talking about the big touring rigs, and the hire companies take care of that side of things very well."

Although there is a small workshop on the premises, it is basically for simple adjustments and setting up on all instruments. Their larger electronic workshop is separate from the shop.

"If the engineers are on the premises, they tend to get their brains picked by standing around talking to customers. It works better to keep the two separate. Another point I feel strongly about is that I see a lot of shops where guys, who are not professional repairers, attempt things like re-frets which is ridiculous. I don't let anyone here touch anything we can't cope with. This may sound silly, but we send a lot of our instrument repairs up to Manchester! Gordon Smith up there is one of the best, and we have a van travelling up twice a week. His workmanship, to me, is second to none - it gives me the confidence that we're providing the best service we can."



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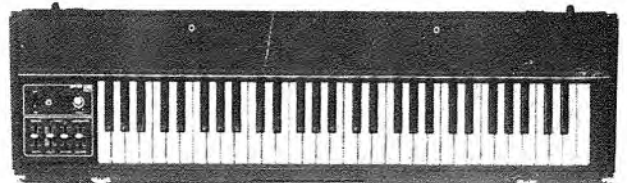
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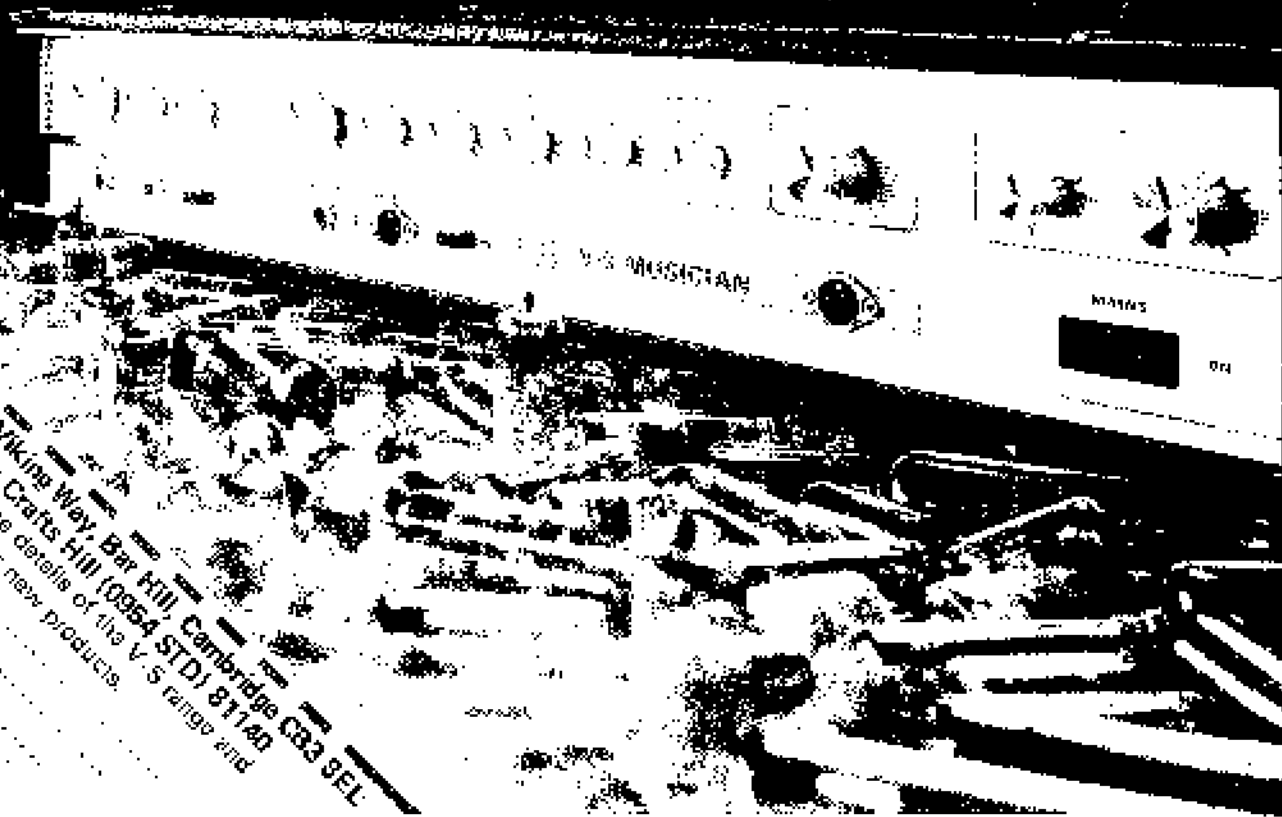
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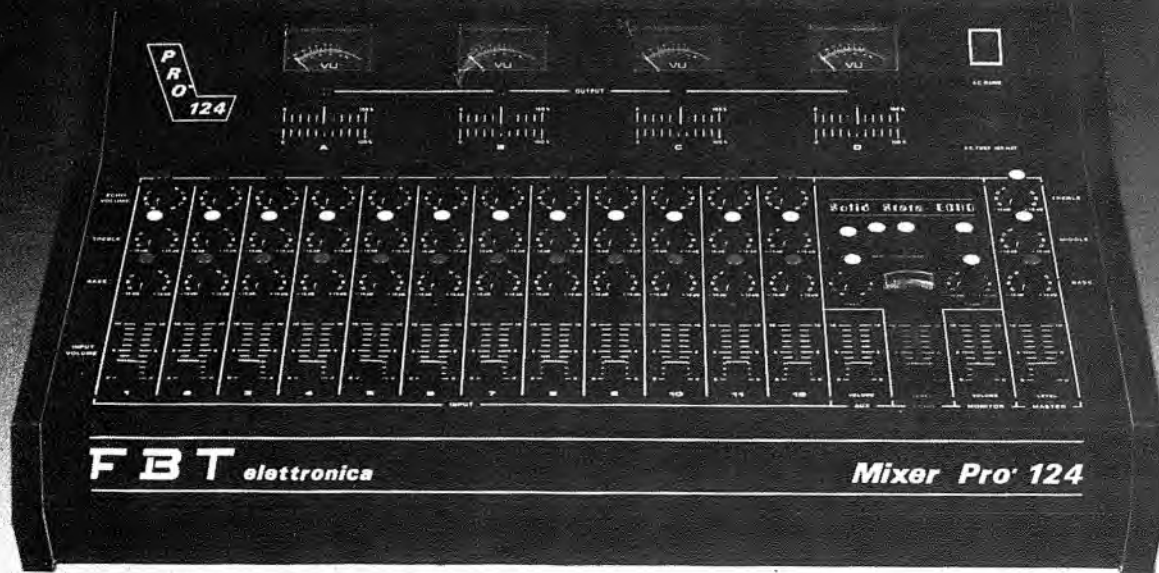


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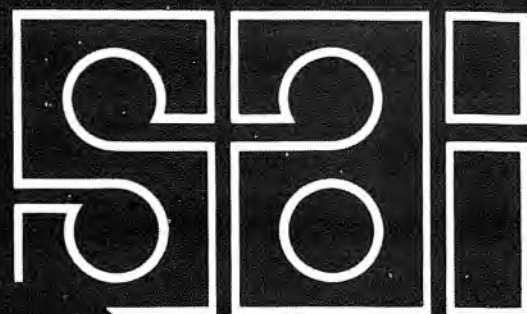
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Come and see for yourselves.

SOUND ADVICE INSTALLATIONS CO. LTD.
Regent St Showroom, Coppull, Chorley, Lancs.

Just off the M6 - Junction 27. Late night opening Mons & Weds till 8 pm.
Ring Steve or Bob on 0257 791645

PRICE SCANNER

Compiled by Tony Bacon

I.M.'s Price Scanner
aims to be the most comprehensive guide to the retail prices of musical instruments and equipment available.

All our new retail prices are exclusive of V.A.T. and while we have taken exhaustive care to ensure that the prices are correct, we'd be obliged if you could let us know of any alterations, additions or deletions necessary. Unfortunately we have to disclaim responsibility for any problems arising out of any inaccuracy in this price guide.

SOUND EQUIPMENT

AMEK

X SERIES	
8/4	640.00
12/4	790.00
16/4	940.00
16/4/2	1036.00
8/2	575.00
12/2	730.00
16/2	880.00
2/2	1036.00

JOHN BIRCH

PENETRATOR	
12" Crescendo	95.00
12" Gauss	108.00
15" Crescendo	140.00
15" Gauss	170.00

BOOSEY & HAWKES

AMPEG COMBOS	
VT40 60w v/v 4 x 10	357.40
VT22 100w v/v 2 x 12	419.44
G212 120w tran. 2 x 12	432.41
G410 120w tran. 4 x 10	465.74
G412 120w tran. 4 x 12	494.44
BASS COMBOS	
B115 120w tran. 1 x 15	388.89
B410 120w tran. 4 x 10	450.93
PIGGYBACKS	
B15S 60w v/v 1 x 15	450.93
B15N 30w v/v 1 x 15	370.37

AMPS	
HDSVT 300w valve	518.52
HDA4B 100w bs v/v	325.15
HDB25B 55w valve	263.89
HDA4 100w valve	356.48
HDA2 60w valve	323.15
HDA6B 240w tran.	341.67

SPEAKERS	
DC50 240w 8 x 10	325.93
EXB4B 240w 2 x 15	
Altec	483.33
EXB25B 120w 2 x 15	
Reflex	186.11
EXV4 120w 4 x 12	
inf.	238.89
EXV2 120w 4 x 12	
Ducted	236.11
EXV6B 240w 2 x 15	
a.d.p.	286.67
EXVT22 100w 2 x 12	159.26

OUTFITS	
SVT 300w + 2 (8 x 10)	1170.37
V-4B 100w bs.	
+ 1 horn	806.48
B-25B 55w bs + 2 x 15 reflex	450.00
V-4 100w + 2 (4 x 12)	834.26
V-2 60w + 4 x 12	
d ref.	559.26
V-5B 240w + 2 x 15 d.p.	608.33

PA EQUIPMENT	
CSR5 Mixer	719.44
A120 Slave	390.74
S48 Columns	211.11

BOSE

1800 Amplifier	610.00
800 spkr. pr. + ea	470.00
800 spkr. pr	400.00
800 eq.	70.00

BRØDR JØRGENSEN

RHYTHM UNITS	
TR33	144.81
TR330	106.76
TR55	165.02
TR65	164.14
TR77	258.03

COMBO AMPS	
JC60	276.64
JC80	314.57
JC120	390.31
JC180	434.29
CA40	198.11
MPA100	T.B.A.

MIXER AMPS	
PA80	234.56
PA120	355.61
VX55	225.58

REVO SOUND SYSTEMS	
Revo 30	213.90
Revo 120 c/w console kit	558.00
Revo 120 c/w combo kit	567.45
Revo 250 c/w console kit	797.51
Revo 250 c/w combo kit	806.89
Revo 150	T.B.A.
RC1	44.28
CS	10.92
C10	15.05
CK1	26.27
RS10	8.71
RR2	25.54

CABS, COLS & SPEAKERS	
C2030	120.33
C2038	141.72
C2538B	158.02
RB120 (S & DS)	328.89
SR120 120	167.24

EFFECTS UNITS	
DC50	T.B.A.
DE201	289.63
AD50	45.02
AF60	26.13
AF100	29.23
AG5	37.35
AP2	39.37
AP5	74.55
AP7	64.95
AS1	27.90
AW10	33.85
CE1	105.69
DP1	5.46
FS1	4.73
FV1	23.17

CANARY MIXERS

'B'SERIES MIXERS	
12/1	496.00
12/2	573.00
15/2	697.00
18/2	858.05
10/4 mini studio	531.00

FREIGHT CASES	
12 ch	31.00
15 ch	38.75
18ch.	44.00

A'SERIES CUSTOM MIXERS	
20/6/2	2860.00
16/8	2600.00
24/2	1700.00

CROSSOVERS	
2 way stereo	68.19
3 way stereo	79.04

CARLSBRO

AMPS	
Marlin Mk. II	163.00
Slave Mk. II	90.00
Scorpion	114.00
Stingray Mk. II	126.00
Stingray Super Mk. II	156.00
Stingray Combo Mk. II	199.00
Mk. II	229.00
Bass Combo (Stingray Amp.)	269.00
Bass Combo (Stingray Super amp.)	299.00
Wasp	68.00
Hornet	81.00

SPEAKER UNITS	
4 x 12 B/L 120w	181.00
1 x 18 100w	125.00
Bass Bin 1 x 15 100w	151.00
Bass Bin 2 x 12 100w	186.00
Mini bin 100w	146.00
2 x 12 PA 120w Pr.	168.00
1 x 12 1 horn	165.00
2 x 12 1 horn 120w Pr.	206.00
2 x 12 1 horn 240w Pr.	231.00

EFFECTS UNITS	
Mantic	150.00
Reverb Unit	73.00
Fuzz unit	15.00
Wah-wah pedal	15.50

Was-swell pedal	16.75
Wah-fuzz pedal	21.00
Phazer	27.25
Super Phazer	39.50

CBS/ARBITER

GUITAR AMPS	
Dual Showman Rvb. 2 x JBL 130F	719.00
Dual Showman Rvb. 2 x JBL 140F	747.10
Dual Showman Rvb Top only	424.70
Dual Showman Rvb cab 2 x JBL 130F	348.75
Quad Rvb. 4 x Fender 12"	539.00
Quad Rvb. 4 x JBLD 120F	768.50
Super Six Rvb. 6 x Fender 10"	517.70
Vibronic 1 x JBL D130F	488.25
Super Twin, 180 watts Twin Reverb, 2 x Fender 12"	457.25
Twin Reverb, 2 x JBL D120F	586.80
Bandmaster, 2 x Fender 12"	449.50
Bandmaster, 2 x JBL D120F	564.20
Bandmaster, Top only 2 x Fender 12"	291.40
Bandmaster, cab 2 x Fender 12"	198.40
Super Reverb, 4 x Fender 10"	395.25
Super Reverb, 4 x JBL D110F	610.70
Pro Reverb, 2 x Fender 12"	367.35
Vibrolux, 2 x Fender 10"	305.35
Deluxe Reverb, 1 x Fender 12"	251.10
Princeton Reverb, 1 x Fender 10"	193.75
Princeton, 1 x Fender 10"	141.05
Vibro Clamp, 1 x Fender 8"	83.70
Champ, 1 x Fender 8"	75.95

BASS AMPS	
Bassman 100	498.00
Bassman 100, Top	277.45
Bassman 100, cab	263.50
Bassman 50, 2 x Fender 15"	413.85
Bassman 50, 2 x JBL D140F	650.25
Bassman 50, Top	215.45
Bassman 50, Cab.	232.50
Bassman 10, 2 x Fender 10"	316.20
Musci-master, 1 x Fender 12"	122.45

P.A. SYSTEM	
PA100 + 8 x Fender 8"	492.90
PA100 Top	322.40
PA100 S4-B Col, 4 x 8	212.35
High freq. horn	65.10
PA160 + 4 x SC3-10 cols	905.20
PA160 Top	547.15
PA160 SC3-10 Col	108.50

CERWIN VEGA

VOCAL REINFORCEMENT SYSTEMS	
V32 300w 12" +	345.00

ALL PRICES ARE WITHOUT VAT

V33 300w 18" +	385.00
V35 300w 18" +	825.00
V36 400w 18" +	540.00

MUSICAL INSTRUMENT SYSTEMS	
G32 200w 12" horn loaded	265.00
B36 300w 18" folded horn	315.00
B36MF 300w 18" folded horn	395.00
B48 300w 18" folded horn	415.00
B48MF 400w 18" 12" folded horn	475.00

SOUND REINFORCEMENT COMPONENTS	
L48CF 500w 18" piggyback	425.00
L48SE 500w 18" folded horn	545.00
L48D 200w 18" RMH-1 100w rad. horn	325.00

STAGE MONITORS

SM12-2 150w	225.00
SM15-2 200w	285.00
SM18-2 300w	325.00

PRECISION PLAYBACK	
214 26 x 15 x 15	185.00
218 30 x 24 x 16	335.00
215 36 x 24 x 24	295.00

CHINGFORD ORGAN STUDIOS

Softon Cabinet	425.00
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CITRONIC LTD.

Stataline II Kansas, st.	346.00
Stataline II Iowa st	430.00
Stataline II Texas, st	524.00
Stataline II Delaware, mono.	230.00

MODULES	
SMPS05 Ster Mix Pre/Amp	117.00
MMP303 Mono Mix Pre/Amp	59.00
P50 65 w amp	44.00
P100/100 Ster Amp	99.00

CLEARTONE

CM1	
2x15 Ld. cab. 120w	122.21
2x15 Bs. cab. 120w	118.62
2x12 Ld. cab. 50w	97.50
4x12 Ld. Cab. 100w	129.00
4x12 Bs. cab 100w	129.00

PA CABINETS	
2x10 col. 80w. Pr.	100.11
4x10 col. 120w. Pr.	142.26
Horn cab 2x12 col. 100w Pr.	81.57
6x10 col. 150w Pr.	127.87

SOLID STATE	
50w L&B	118.84
100w L&B	127.57
50w PA	118.84
100w Mst. PA	153.50
100w Slv.	111.36
250w Slv.	191.60
8 Ch. Mx.	257.41
50w Combo Amp	173.05

CELESTION SPEAKER	
G12 M25W	15.33
G12 H30W	18.28
G15 M50W	22.98
G18 C100W	41.23
S10 15W	5.49
G15 Twin Cone 50W	25.07

MAXIMIN CABS	
210 50w	65.16
410 100w	85.39
212 100w	105.62
152 100w Bin	116.87
100w Combo Amp	196.91

J.T. COPPOCK

ELGEN	
100w Id	115.27
100w bs	115.27
100w ster.	127.31
100w ster. slv.	104.62
100w PA.	119.90
100w PA. slv.	80.09
50w G/P	80.08
50w combo w/verbr	159.26
50w bs combo	137.07
fld. bin. cab FH10A	184.44
50w bs. combo fld. bin. cab FH100A	165.74
1x15 cab 150w	168.05
1x15 cab 100w	146.29
4x12 cab	114.81
4x12 cols. pr.	177.31
2x12 cols. pr.	113.42

CUSTOM SOUND

AMPS	
CS700MXR 12ch. st.	386.80
CS700A 150w 5ch PA	176.70
CS700B 150w twin reverb	147.25
CS700BM 150w bassmaster	137.96
CS700C 150w slave	100.75
CS700CV 150w slave v/v	116.25

COMBOS	
CS700D 75w	201.50
Twin reverb CS700DB 75w	220.10
Bassmaster 2ch. CS700E 100/150w	238.70
bin reverb CS Truckster 54w twin input	77.50

LOUDSPEAKER ENC	
CS7212 100w 2 x 12	74.40
CS7212S 100 2 x 12 twin cone	93.00
CS721 2H 100w 2 x 12 + Horn	96.10
CS7115 75w 1 x 15 bin	96.10
CS7115S 100w 1 x 15 bin	120.90
CS7115B 100w 1 x 15 bin bass	124.00
CS7215 150w 2 x 15 All purpose	139.50
CS7215S 200w 2 x 15	186.00
CS7215B 200w 2 x 15 bass	192.20

CS7015FH 75w 1 x 15 folded horn	114.70
CS7015FHS 125w 1 x 12 V-barille	145.70
CS7412 200w 4 x 12 V-barille	151.96

MONITORING	
CS7WM 50w wedge monitor	49.00
CS7WMS 60w wedge monitor	58.90

DB MUSICAL

KUSTOM AMPLIFICATION	
IL 30w combo	230.59
IL 60w combo	384.23
IL1130w piggyback	554.13
IVL system	1023.77
IVL stacks system	1170.85
ivl amp 130w	316.51
ivl cab	289.24
IVL amp 275w	530.85
IVL cab	435.40
IVLS amp 275w	607.23
IVLS cab	592.57

BASS AMPS	
I B 30w	223.62
I B 60w	356.80
I B 60w amp	237.32
I B cab	161.36
III B 130w piggyback	513.98
III B130w amp	278.23
III B cab	278.23
IV B 275w system	885.48
IV B 275w amp	690.54
IV B cab	435.40
IV B Sro system	1140.64
IV B sro cab	592.

EPICENTRUM

MODULAR RANGE	
Reflex bin ATC	
1 x 12	142.50
Reflex Bin ATC	
2 x 12	207.91
Lower Mid Bin ATC	
2 x 12	185.00
Upper Mid hf horns	
Double Upper Mid hf horns	275.00
Acoustic Lens, RCF	261.45
3-way full range Bin Empty Module	90.00

E.S.E. S.EQUIP.

1002 N/S	224.75
1005 AP200	187.54
1008 S/L200	187.28
1007 PA200/R	204.50
1010 PA100TC	133.00
1011 PA100S	133.00
1012 PA60TC	83.03
1013 PA60S	83.03
1015 B200	225.00
1018 FH200	225.00
1022 S120	155.00

(BINSON SALES) SPKR, CABS, VLT, REGS

30w Col.	97.00
60w Col.	166.00
120w Col.	253.00
60w Col.	126.00
100w Col.	215.00
60w Col.	149.00
100w Col.	162.00

AMPLIFIERS	
50w ster.	185.75
100w ster.	293.50
50w ster.trans.	281.50
100w ster.trans.	318.75
6 Cha.Mx.	210.00
8 Cha. Mx.	234.00
6 Cha. Mx.	223.50
4 Cha. Mx.	187.00
4 Cha. PA Mx.	231.00
6 Cha. PA Mx.	282.00
8 Ha. PA Mx.	275.50
100w Slv.	161.00
10 Cha. PA Mx.	635.00
16 Cha. PA Mx.	781.50
100w Comb.	336.87
200w Comb.	336.87
100w Amp & Cab	427.00
200w Amp & Cab	487.50
100w6 Cha.Mx.	618.67
200w6 Cha. Mx.	659.00
100w8 Cha.Mx.	659.04
200w8 Cha.Mx.	686.50

F.A.I.

Minstrel	24.75
Maestro	45.00
Bass Fiesta	55.00
Phase 50	63.00
Super 50	63.00
Phase 100-2	72.00
Super 100	76.80
Model 120-6	89.80
P100 Slave	42.00
P200 Slave	53.00
FAL 50	33.00
FAL 120	33.00
PA 200 Cols.pr	136.00

FARFISA

RSC 350	558.46
RSC 150	323.07
DR 200	487.69
OR 70	262.00

FELDON AUDIO

All prices subject to currency adjustment.	
EVENTIDE CLOCKWORK DL201 Flanger	425.32
FOL 1745M Digital delay line	2744.30

M102 B 10/2	P.O.A.
M162 16/2	P.O.A.
M162 FC 18/2	P.O.A.
M162 B 16/2	P.O.A.
POWER AMPS:	
IC108 S	
100 W/8 ohms	P.O.A.
IC116 S	
100 W/16 ohms	P.O.A.
IC204 S	
200 W/4 ohms	P.O.A.
IC208 S	
200 W/8 ohms	P.O.A.
IC404 S	
400 W/4 ohms	P.O.A.
IC402 S	
400 W/2 ohms	P.O.A.
IC602 S	
800 W/2 ohms	P.O.A.

WEDGE MONITORS	
W12 50 W	P.O.A.
W12JBL 100 W	P.O.A.
W15SCH 100 W	P.O.A.
JBL	
W15 RH 200 W	P.O.A.
JBL	
HORNS	
JBL2420	
H.F. radial	P.O.A.
JBL2482	
M.F. radial	P.O.A.

BINS	
B15 15" 200W GAUSS reflex	P.O.A.
MARTIN 15" 200W GAUSS	P.O.A.

H.H. ELECTRONICS

INSTRUMENT AMPLIFIERS	
VS Musician Reverb 100w	150.97
VS Musician 100w	130.97
VS Bassamp 100w	124.23
VS Footswitch	13.83

COMBOS	
VS Musician Rev. Combo 2 x 12	212.35
VS Musician Combo 2 x 12	198.85

SPEAKERS	
412BL Ld.Bs. & 4 x 12 200w	158.87
215BL Ld. Bs. & 2 x 15 200w	172.25

PA AMPS	
MA100 5 channel + Rev. 100w	149.17
MA100S 5 channel 100w	138.41
S130 Slave 100w	89.90

PA SPEAKERS & HORNS	
212 DC 2 x 12" 100w	89.14
412DC 4 x 12" 180w	99.24
Mini-horn 50w	62.77

UNIT P.A.	
Radial horn 100w	110.67
115 Bass Compact 1 x 15" 100w	107.99

MONITOR SYSTEMS	
Monitor combo 12" Monitor extension	137.17 76.72

ECHO UNITS	
Echo unit	134.85
Muio echo	145.70

AMPLIFIERS	
DR504 AP 50w	115.00
DR103 AP 100w	149.00
DR201 AP 200w	189.00
DR112 PA 100w 6ch	158.00
DR203 PA 200w 5ch	214.00
STA100 slave 100w	118.00
STA200 slave 200w	174.00

V.50-S Spkr.	81.48
V.100	140.74
C 50	186.11
PA.50	133.33
PA.50-S PA Spkr.	128.37
PA100	157.40
PA 100S PA Spkr.	225.93
ZENTH CD8SD	28.89
Z3	19.55

JENNINGS

AMPS	
V.30 30w	163.00
AP.50 50w	174.00
V.100 100w	145.00
AP.100 100w	118.00
FR.50 50w	79.00
FR.100 100w	96.00
SPEAKERS	
B.1. 1x18"	95.00
B.2. 2x15"	15.00
B.3. 1x18"	78.01
B.4. 4x12"	135.00
T.50 2x12"	83.00
P.A.	
P.A.100	148.00
2x12 col/horn	109.00
2x12 col	90.00

KEMBLE-YAMAHA

PA & ENSEMBLE SYSTEMS	
PM200	270.37
PS75B	440.00
YPA1508	731.48
PS100	478.85
YPA200	747.22
PS100B	554.63
YPA200B	825.00
PM300	398.15
PM400	495.37
PS400 Pr.	1080.00
YPA800	1595.37
EM70A	120.37
ES90A Pr.	60.18
YES700A	780.55
EM90A	137.95
YES900A	198.15

LEAD STACKS	
YTA100A	420.37
YTA200A	570.37

BASS STACKS	
YBA100	472.22

HORN	
YHS100	232.41

ROTARY AMPS	
RA50	362.04
RA100	580.18
RA200	845.37

G & B SERIES COMBOS	
G25112	141.33
G50112	221.30
G100B212	304.63
G100115	341.67
G100110	402.78
9B0115	262.04
B100115	352.78

ACOUSTIC COMBOS	
134 125w 4 x 10	339.50
135 125w 2 x 12	339.50

ACOUSTIC BASS COMBOS	
136 125w 1 x 15	313.34
ACOUSTIC AMPS	
150 125w	238.40
270 375w	417.87
480 170w	326.94
470 170w	417.97

CABS	
C400 4 x 14 100w	125.55
C420 4 x 12 120w	142.80
C440 2 x 15 120w	142.80

COLUMNS	
C460 PA 2 x 12 100w pair	131.92
C470PA 4 x 12 200w pair	252.65

LEM

Lem Audio road po.	429.68
912 amp 4x12 cab.	336.11
911 bs.amp 2x12 cab	333.06
Telescopic stand	22.41
LG 300 PA cab.	282.54
LG 100 PA cab.	179.51
LG 60 PA cab	104.97
Flight cs.	27.50
Vtg. reg.	58.53
180w amp	145.14
100w amp	103.12
Rack	53.47
Studio Lem Mxr.	391.94
Baby Lem mxr/amp	229.17
Prp. Lem mxr.	190.97
Saturn GR50 tp.	91.67
Saturn 850 tp.	76.39
Mars GR30 combo	99.31
Mars B30 combo	84.03
Venus G20 combo	61.11

LESLIE SPEAKERS

110	212.48
110	372.48
115	440.00
147	480.00
147 RV	575.12
480	480.00
480	575.12
VS	528.88
710	804.48
770	555.52
850	421.28
825	407.50
910	551.00
910	735.25
9420 Pre-amp	89.75
9370 Pre-amp	84.48
9340 Pre-amp	52.48
9875	66.85

LIVINGSTON

SPEAKER CABINETS	
2 ch.	120.0
2 ch.	150.00
2 ch.	120.00
3 ch.	120.00
3 ch.	150.00

L.S.E.

101 pwr. amp	87.00
102 2-ch mix	
& pwr. amp.	135.00
105 5-ch mix	
& pwr. amp.	145.00
4000/M8-ch mix	372.00
8000/M8-ch mix	493.00
8000/Mp mix	92.16
5112 s cab.	94.0
5210 s cab.	34.10
412 s cab.	101.50
110s cab	32.85

MAINE

AMPLIFIERS	
Artist 100w	150.34
Standard 100w	124.00
Booster 100w slave	89.90

CABINETS	
212 Lead 2 x 12 70w RMS	89.90
412 Lead 4 x 12 140w RMS	147.25
115C bass bin 15" powerall 125w RMS	175.00
115A Bass Bin 15" Aitec 150w RMS	238.89

AMPS	
85	266.85
65REV	322.77
HD 130	333.45
HD 130-Rev.	391.29

SPEAKER ENCS	
115RH65	234.06
212RH130	287.55
412GS	316.29

REPLACEMENT SPEAKER CHASSIS	
F10GA 35w 20oz. Ferr.	26.10
A10-G/HD 65w 18oz. aln. V.	35.62
A12-G 65w 18oz. aln. V.	38.78
A12-G/HD 75w 28oz. 28oz. aln. V.	56.52
A12-RH 75w 28oz. 28oz. aln. V.	56.52
A15-G 75w 28oz. aln. V.	63.89
A15-RH 75w 28oz. aln. V.	63.89

N.B. AMPLIFICATION

Nolan 100w.amp.	105.00
Nolan 50w.amp.	75.00

NOLAN SESSION MSTR.

Rev. Comb.	164.25
Nolan 4x12 P.A. cabs (pr.)	176.00
Nolan 2x12 P.A. cabs (pr.)	117.00
Nolan 4x12 Ld/Bs	123.75
NOLAN DUAL C. HORN 2x12 (pr.) Cabs	162.00
Flame 50w amp.	67.50
Flame 50w. 2x12 Combo.	115.25

NEXUS

101A	111.48
1200	233.33
PDSA Mixer	253.30
TC10	46.25
TS300 30w combo	124.43
SA500 60w combo	180.03
PMX600 Prof Mixer	1179.60
PMX1600 Prof Mixer	1689.63
Vorg 102	281.46
Vorg 052	227.48
PB 7100 AS 100w Bass Amp.	341.75

NICHOLLS

HORN SYSTEMS	
2x12 shpd. cab. 2 Middax hns 150w	132.78
4xMiddax hn. cab.	119.81

SPKR SYSTEMS	
2x15 bs.ref.	154.26
1x18 100w G.Bs. cab.	92.16
2x12 100w G shpd. cab.	91.31
2x12 100 C cab.	82.25
4x12 400w G cols.Pr.	236.58
4x12 200w C cols.Pr.	211.20
4x12 200w G cab.	134.23
4x12 100w C cab.	106.66

ITEM

8-ch. mxr.	152.67
200w slave	153.39
120w slave	115.12
6-ch. 120w PA	173.15
200w SL	162.74
120w SL	120.44

NOVANEX

MIXERS	
M2	311.12
M2	374.31
M122	500.70
M162	627.09

MIXER AMPS	
130B 120w 6ch	271.71
104B 120w 6ch	331.47

SELF-CONTAINED MIXERS	
100A 6ch mini	171.93
130A 6ch pro	210.89
101R 15ch pro	947.10

SLAVES	
111/80 80w	175.00
103T 200w tran	162.12
103T 200w tran	255.67

P.A. CABS	
106 4 x 12 col	171.39
107 2 x 12 60w mon	105.51
107/2H 2 x 12 + 5 lbs. Mon.	1761.49
127/2H 1 x 15 + 2 horns	16

2826 Omnipressor	415.70
H910 harmonizer	892.40
PANORA	
A-080-180 & 9m/sc	
df-1 o/d/p	1755.39
Additional delay	
modules	268.00
Additional output	
modules	301.50
(Above equipment also	
available for hire)	
ORTOFON	
G0741	8281.24
DSS 731	4212.68
DSS 732	3602.95
STL 732	1086.43
CPS 741	3126.25
SM 721	498.87

FM ACOUSTICS	
E2-E4 Network	
in housing	55.56
E2-E4 Network 3-way	
DS Driver	38.89
D4 Driver	52.78
D2 Mullinell driver	52.78
FM C35 15 cell horn	281.48
FM C8 HF horn	28.70
FM C7 ESThn.	19.75
FM C5 EST hn.	21.30
SSH Distort. booster	37.95
SSH Phase-Inter	52.30
SSH Vof super pedal	82.41
SSH E-1 df pedal	66.67

HORNS	
1212FX100w FM	230.59
1212GX200w Guass	190.74
1315F100w FM Bs.	114.81
1315G200w	
Guass Bs.	156.48
1317X200w Radial	131.48
1323X200w6 cell	173.15
1338X400w 15 cell	303.70
1345X200w H.F.	104.63

GOODMANS	
POWER RANGE	
Audion 8P 8"	7.05
Audion 8PA 8"	7.14
Audion 10P 10"	7.35
Audion 12P 12"	18.26
Audion 12P-G 12"	19.79
Audion 12P-D 12"	20.86
Audion 15P 15"	26.83
Audion 18P 18"	45.59
Audiomax 12AX 12"	47.07
Audiomax 15AX 15"	52.30
DB50	74.11

GUILD	
GUITAR AMPS	
Model One 30w 1x12	
rev. trem.	151.59
Model Two 50w 2x10	
rev. trem.	180.51
Model Three 80w 1x15	
for bass/gtr/org	195.02

MALCOLM HILL ASSOCIATES	
MODULAR DESKS	
16/2 A series	P.O.A.
16/2 B series	P.O.A.
16/4 B series	P.O.A.
16/2 C series	P.O.A.
16/4 C series	P.O.A.
16/8 C series	P.O.A.
16/4 D series	P.O.A.
16/8 D series	P.O.A.
24/16 F series	P.O.A.

NON-MODULAR DESKS	
M102 10/2	P.O.A.

NCA108 solid state 200w	
	178.00
COMBOS	
SA212 50w 2x12	168.00
SA212R 100w 2x12	217.00

CABINETS	
SE4121 50w 4x12	123.00
SE4123 100w 4x12	135.00
SE4122 150w 4x12	152.00
SE4128 200w 4x12	189.00
SE4124 50w	
4x12col.	118.00
SE4125 100w	
4x12col.	141.00
SE4126 150w	
4x12col.	156.00
SE2123 30w 2x12	
monitor	71.00
SE2124 75w 2x12	
monitor	90.00
SE2125 100w 2x12	
monitor	116.00
SE2120 100w mini-bin	
2x12	143.00
SE320 200w Horn-bin	
4x12	189.00
SE2150 150w bass reflex	
bin 2x15	155.00

MIXERS	
Type 'B' st. 8ch.	419.00
DRD001 Hwatt sound	
mixer	233.00
Type 'C' st. 16 into 4	1200.00

HÖHNER	
MARLBORO AMPS.	
GA2	48.33
GA3	56.49
GA4	113.02
GA5	126.05
GA6	109.07
G801 5B	133.73
1500 B amp.	181.80
1500 B head	96.16
1500B speaker	85.65
PA50 4ch. PA amp	128.47
P100w slave	128.43
SM600 7ch. mixer	128.47
SC4 10H 4"	
10 col	122.17
OSB11 Quadrasound	58.93

SPEAKERS	
M62 8"	5.23
M10L 10"	24.86
M10N 10"	11.57
M12L 12"	39.21
M12N 12"	27.04
M12Q 12"	13.29
M15D 15"	66.90
M15L 15"	50.14
M15N 15"	21.34
M15Q 15"	12.67
M600 horn + driver	12.67
M1200 horn-driver	44.77

HÖHNER AMPS	
Schaller Solo Unit	
Amp.	83.78
Orgaphon 62	540.23
Orgaphon 130	385.88
OTS 130 speaker	293.24
Orgaphon Box 80	
spkr	171.80
OTS 100 speaker	282.96

SCHALLER EFFECT UNITS	
Rotosound	102.68
Reverb unit	92.13
121 Volume pedal	13.84
Wah-Wah volume	
pedal	31.43
Wah-Wah-fuzz pedal	41.62
Treble/bass boost	29.82
Fuzz-Distortion Unit	21.76
Fuzz sustainer	29.07
FF1 rem. cont.	7.96
FF2 rem. cont.	9.54

HORNBY-SKEWES	
MILES PLATTING	
V.50	89.21

370 375w	360.43
450 170w	326.94
ACOUSTIC CABS	
104 B x 10	195.65
105 4 x 12	195.65
201 2 x 15 Altec	
4 nn.	470.28
404 6 x 12	261.00
405 4 x 12 + horn	313.35
ACOUSTIC BASS CABINETS	
105 2 x 15	214.46
405 2 x 15	261.00
301 Vega 1 x 18 bin	397.56

ACOUSTIC PA AMPS	
870 170w 6ch	522.59
850 255w 8ch temporarily	unavailable
ACOUSTIC PA MIXERS	
890 6 ch mixer	
+ snake	2612.96
880 12 ch mixer	1464.22

ACOUSTIC PA ENCLOSURES	
804 2 x 12, 2 x 8	
2 x SIB	170.00
807 Full range vocal	208.72
808 2 x 15, 2 x Horn	
2 x SIB	444.66
809 Horn enclosure	234.88
810 4 x 12 bass enclosure	339.50
811 Horn Enclosure	313.36
812 4 x 15 bass enc	417.98

MACINNES	
AMPS	
IC150	353.00
D60 60w	227.00
D150A 140w	375.00
DC300A 500w	608.00
M600 1350w	1800.00
M2000 2700w	3050.00
VFX-2	275.00
OC150A	322.00

KEYNOTE MUSICAL INSTRUMENTS	
Vortex 600	393.22
Vortex 595	323.81
Vortex 1580	514.35

KNELLER	
WASHBURN AMPS	
PA475 P.A. amp	124.00
GT275 Gtr. amp	102.00
GT275R Str. amp	
- rev	117.00
CB275 Gtr. combo	199.00
CB275B bass combo	190.00
Banjax 6 channel	
mixer	118.00
Pam10 10 channel	
mixer	198.00
SL75 Slave	88.00
PM75 Monitors	165.00

WASHBURN SPEAKERS	
F12P Front	
ported (pair)	135.00
F212P front.	
ported	99.00
F15 Front	
15" Bin	98.00
FB13 Rear, 15"	
bin	145.00
FB18 Rear, 18"	
bin	165.00

ROAD AMPS	
To be announced	
LANEY	
AMPLIFIERS.	
A500 lead-bass	119.00
A510R lead (Reverb)	135.47
A540PA PA 5 ch	122.75
A570 Slave	67.65
A100 valve	131.75

COMBOS	
K20	48.05
K40L Lead	120.13
K40B Bass	120.15
K70 Twin Reverb	167.40
K120Twin Reverb JBL	275.00

COMBOS	
Musician 100w Twin	
2 x 12	240.25
Musician Super 100w Twin	
2 x 12 JBL or Altec	455.55
FOOTSWITCHES	
For Artist Amp *	
Lead & stereo jack	6.52
For Musician amp *	
Lead & Mono jack	6.20

MATAMP (RADIOCRAFT)	
AMPLIFIERS	
120w valve	145.80
120w valve slave	141.75
Mk1 Trans PA	172.50
Mk2 Trans PA	202.50
100w Trans slave	142.50
Mixer 6ch	142.50

LOUDSPEAKERS	
MAA 112	107.25
MA412	131.25
MA115 D60	113.25
MA115 G60	110.25
MA115 D100	142.50
MA115 G100	139.50

AMPS	
IC150	353.00
D60 60w	227.00
D150A 140w	375.00
DC300A 500w	608.00
M600 1350w	1800.00
M2000 2700w	3050.00
VFX-2	275.00
OC150A	322.00

SPEAKERS	
ES212 75w	598.00
IMA Dist Analyser	555.00

MIXERS	
16/2	1285.00
16/4	1397.00
100ft. m/core + s box	320.00

MM ELECTRONICS	
MIXING CONSOLES	
MP175 12ch	250.00
MP175 9ch	204.00
MP175 15ch	310.00
MP185 super 16	480.00
MP175 8ch 4tr	350.00
MP175 12ch 4tr	390.00
MP275 12 ch mix cons	390.00
MP285 super 16	630.00

WASHBURN AMPS	
PA475 P.A. amp	124.00
GT275 Gtr. amp	102.00
GT275R Str. amp	
- rev	117.00
CB275 Gtr. combo	199.00
CB275B bass combo	190.00
Banjax 6 channel	
mixer	118.00
Pam10 10 channel	
mixer	198.00
SL75 Slave	88.00
PM75 Monitors	165.00

WASHBURN SPEAKERS	
F12P Front	
ported (pair)	135.00
F212P front.	
ported	99.00
F15 Front	
15" Bin	98.00
FB13 Rear, 15"	
bin	145.00
FB18 Rear, 18"	
bin	165.00

ROAD AMPS	
To be announced	
LANEY	
AMPLIFIERS.	
A500 lead-bass	119.00
A510R lead (Reverb)	135.47
A540PA PA 5 ch	122.75
A570 Slave	67.65
A100 valve	131.75

M1245 stereo	734.03
M164S stereo	947.92
ECHO-REVERB UNITS	
ER300	82.64
ER500	131.25
ER800	204.17
Snake	204.17

LINE SOURCE MIXERS	
X41R	144.87
X61R	204.17
LINE SOURCE POWER GENERATORS	
LS75	206.12
LS100	260.56
AUT3	41.07
AUT6	51.33
AUT10	61.80
P15	81.20
P25	101.74

UNIVERSAL	
U30	167.07
U50	212.82
U70	251.81
U80	280.98
U100W	364.59

REVERB COMBOS	
RG30	172.67
RG50	222.64
RG80	286.81
RG100W	368.48

BASS COMBOS	
B35	167.07
B70	242.09
B100w	379.03

EFFECTS PEDALS	
FUZZ/WA/S100	28.20
LINE POWER GENERATORS	
L30	120.40
L50	170.14
L75	227.50
L100	290.98
L125	339.31
LM30	111.07
LM40	135.34

AMPLIFIERS	
GRAPHIC RANGE	
112/120 200w	164.92
112/80 80w	175.00
4 x 4 ohms	208.25
4 x 12 4 ohms	220.87
4 x 12 8 ohms	220.87
2 x 15 4 ohms	197.62
2 x 15 + Hyperbolic	248.00
horn 4 ohms	201.50
6 x 10 4 ohms	201.50
horn 3 ohms	317.75
8 x 10 4 ohms	348.75
1 x 18" stackable	286.75
4 ohms	286.75
1 x 18" folded horn	356.60
4 ohms	

CUSTOM REVERB RANGE	
129 50w custom revb	211.77
120/100/100w custom	227.07
revb.	
LOUDSPEAKER CABS	
LEAD/ORGAN	
109 4 x 12 100w	171.39
109/200 4 x 12	212.85
200w	
107/2H 2 x 12	
+ horns	105.51
127/2H 1 x 16	
+ horns	165.84
131/2H 1 x 15	
60w i.h.l	159.51
131/2H 1 x 15	
100w i.h.l	175.47
109 4 x 15 mini	
120w	171.39
109/200 4 x 12 mini	212.85
200w	

COMBOS	
GRAPHIC RANGE	
115 80w	256.83
115/80w revb	308.28
115/120 120w	326.97

CUSTOM REVERB RANGE	
125 50w	297.84
125/100 100w	348.46

215M	518.83
215S	194.44
115M	172.22

ALL PRICES ARE WITHOUT VAT

41 157 H F Horn	65 55
41 481 4-cell disp. Horn	72 10
50 463 4Khz Horn	50 45
56 123 10-cell Horn	289.80
58 129 15-cell Horn	550.30
68 458 500 dividing network	37.80

AMPS & COMBOS	
Vox Escort (Batt.)	32 65
Vox Escort (Batt./Mains)	43 54
AC30 Combo	232.50
AC50 Amp	132 17

SPEAKERS	
1 x 16	111 96
2 x 15	116.62
2 x 12	93 30

WEBLAND	
BGW AMPLIFIERS	
250B	357 00
5000	587 00
750A	697 00
202	397 00

W.E.M.	
Capicat echo	70 37
Halle cat echo	231.48
Clubman amp	42 00
Westminster	48 40
Westminster 'k-brd'	48 40
Westminster bs	52 80
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 ld	148 15
Dominator 50 'k-brd'	152 78
Dominator 50 amp/top	92 59
Dominator 100 rev transistor	198 07
Dominator 100 stan.	185 56
GX40	77 78
GX100	101 85
AX40	77 78
AX100	101 85
Slave pwr. stage	87 96
Bandmixer	129.63
Reverbmer	194.44
Audiostr.	275.93
Pre-amp. l.v.	48 80
Super dual 12	74 07
Super 40	74 07
Starfinder bs	87 96
Starfinder twin 15	106.48
Super starfinder 200	148 15
Starfinder super80	115 74
Aggressor	120 37
1x12"	40 40
1x12" vol. con.	49 60
2x10"	41 60
2x10"/horn	49 60
4x10"	80 19
8x10" diffuser	92 59
Club 2x12"	60 19
Club 2x12"	75 93
Club system	74 07
Band system	87 96
Foot monitor	97 22
Intruder reflex bin	134 26
Vendetta sys MkII	142 52
4x12" A super	90 74
X39 reflex bin	263 89

W.M.I.	
AMPLIFIERS	
CM 8	15 69
K 66	27 73

ZOOT-HORN	
FF-1 4way PA cabinet (full frequency)	P.O.A.

BASS BINS	
B81 200W x15" Gauss	P.O.A.
B82 400W 2x15" Gauss	P.O.A.

MID BINS	
M81 150W 2x12" ATC	P.O.A.
M81 400W 2x12" Gauss	P.O.A.

HORN UNITS	
HUB 60W JBL	P.O.A.
ST203 Super tweeters	P.O.A.

MONITORS	
F85 75W	P.O.A.
F86 150W	P.O.A.

YVM-6 6ch 100w	234 00
YPM-1 100w	99 00
YSC-7A 4 x 8	
YSC-8 6 x 8 cal	216 00
Xover pr	180 00
YSC-9 1 x 15, 1 x 12 + hn xover pr	438 00

ACCESORIES	
YSP-1 Subiance Projector	57 00
5 "super tweeters"	57 00
YM-1 Mon. cab 2 x 8, 2 tweeters	63 00

ORGANS & SYNTHS	
K249	575 99
K217	749 99
K205	2289.99
Davalisint	225 00

ELECTRIC PIANOS	
Grand	750 00
Baby Grand	850 00

ELKA POSTABLE	
ORGANS	
Capri 101	355.29
X55 (+ pedalboard)	806 20
X55P (p.b. + piano)	858 82

ELKA CONSOLE	
ORGANS	
Capri 101C	355 29
Minuetto 99/MT	473.48
Capriccio 11/O	656.59
Capriccio 33/O	1018.89
Noiturne 44/O	1033.26
Noiturne 66/O	1250.63

ELKA ELECTRONIC	
KEYBOARDS	
Elkapiano 88	
(+ legs)	234.92
Elkarpasody 490	277 34
(+ legs)	
Elkarpasody 490	288.93
(+ legs)	
Elkarpasody 610	484.54
(+ legs)	
Strungbass p.b. for 610	57 38
Support for X65 + Rnapsody	21 34

ELKA AMPLIFIED ELEC.	
KEYBOARDS	
Elkapiano 88/A	421.01
Elkarpasody 610/A	584.26

ELKA ELECTRONIC	
ACCORDIONS	
Elkavox 77 (piano)	1284.44
Elkavox 77	1372.91

ELKA RHYTHM BOX	
Rhythm Machine	123.58

ORLA ELECTRONIC	
ORGANS	
Chicago 37/12	109.21
Chicago 49	113.21
Tiffany 3	124.67
(5 rhythms)	
Tiffany 4	129.50
(6 rhythms)	
Companion P37/12	166.64
Companion P21	145.59
(6 rhythms)	
Companion P21A	166.64

DIAMOND KEYBOARD	
2100 Diamond 70	171 56
2200 Little Brother	237 96
2400 AXKE	446 30
2700 Pro-soloist	562 67
2900 Explorer	450 00
2800 Odyssey	850 93
2600	1890.74
2601 Sequencer	488.89

DALLAS	
ORGANS (ELECTRIC REED AND ELECTRONIC)	
Chord	30 00
Chord	44 00
Little Duchy Electronic Chord	123 00
Electronic Chord	148 00
Electronic (rythm box)	229 00
New Chord (Pat)	26 00
Org Chord I (Pat)	24 00
New Chord I (Pat)	22 50

CAVENDISH	
1000	422 24
2000	617 76

HORNBY-SKEWES	
EKO ELECTRONIC	
CHORD ORGANS	
3160 Tivoli 18R	132.44
3181 Tivoli 18A	150.22
3200 Tivoli 49	142.22

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Elkarpasody 610	484.54
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Strungbass p.b. for 610	57 38
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ELKA ELECTRONIC	
ACCORDIONS	
Elkavox 77 (piano)	1284.44
Elkavox 77	1372.91

PORTABLE	
Melodic 260 LK	912 00
Prestige 330 LK	976 00
Prestige 330 LK	1040 00
Prestige 350 S	1040 00
Prestige 350 L	1072 00
Prestige 350 LK	1136 00
Privilege 400S	1216 00
Privilege 400 L	1248 00
Privilege 400 LK	1312 00

ACCESSORY PRODUCTS	
Auto-vari 64	
Rhythm unit	213 00
Hammond Synthesizer S7-100	422 24

CAVENDISH	
1000	422 24
2000	617 76

HORNBY-SKEWES	
EKO ELECTRONIC	
CHORD ORGANS	
3160 Tivoli 18R	132.44
3181 Tivoli 18A	150.22
3200 Tivoli 49	142.22

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(+ legs)	
Elkarpasody 610	484.54
(+ legs)	
Strungbass p.b. for 610	57 38
Support for X65 + Rnapsody	21 34

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Elkavox 77	1372.91

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Companion P21	145.59
(6 rhythms)	
Companion P21A	166.64

WURLITZER	
305 Sprite Fwd	427 00
320 Sprite Fwd	610 00
360 Sprite Fwd	764 00
375 Sprite Fwd	376 00
400 Sprite Fwd	999 00
415 Sprite Fwd	1207 00
429 Fruitwood	881 00
452 Chapel Wn	1412 00
5450 Chapel Wn	1309 00
5550 Chapel Wn	1740 00
605 Centura Wn	2227 00
800 Centura Wn	2442 00
802 Centura Wn	2442 00
805 Centura Wn	2884 00
4700 Concert Wn	3931 00

PIANOS	
200E P. Black	490 00
M106 Wn	1001 00
2109 Fwd	661 00
2216 Fwd	788 00
2125 Wn	838 00
2650 Wn	915 00
2924 Wn	745 00

ROSE-MORRIS	
24 x 14 bass	236 11
22 x 14 bass	203 70
20 x 14 bass	194 44
14 x 9 tom	115 74
13 x 9 tom	111 11
16 x 16 tom	175 88
12 x 8 tom	107 41

ROSE-MORRIS	
24 x 14 bass	236 11
22 x 14 bass	203 70
20 x 14 bass	194 44
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13 x 9 tom	111 11
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12 x 8 tom	107 41

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12 x 8 tom	107 41

ROSE-MORRIS	
24 x 14 bass	236 11
22 x 14 bass	203 70
20 x 14 bass	194 44
14 x 9 tom	115 74
13 x 9 tom	111 11
16 x 16 tom	175 88
12 x 8 tom	107 41

ROSE-MORRIS	
24 x 14 bass	236 11
22 x 14 bass	203 70
20 x 14 bass	194 44
14 x 9 tom	115 74
13 x 9 tom	111 11
16 x 16 tom	175 88
12 x 8 tom	107 41

ROSE-MORRIS	
24 x 14 bass	236 11
22 x 14 bass	203 70
20 x 14 bass	194 44
14 x 9 tom	115 74
13 x 9 tom	111

CM30 Combo/rev.	213.00
PA100 6ch. 100w	149.22
PA150 6ch. 150w	168.99
PA200 6ch. 200w	189.00
POWER SLAVE AMPS	
PS100 100w	106.92
PS150 150w	119.43
PS250 250w	148.50
PS300 Stereo	185.22
ENCLOSURES	
A200	157.68
A150	222.59
A150H	280.80
A250	277.50

PA ENCLOSURES	
S50 1' x 12" 50w	59.85
S100 2' x 12" 120w	89.82
S150 1' x 15" 100w	197.89
S200 4' x 12" 240w	157.65
M50 1' x 12" 60w	61.74
H50 HF 50w	66.45
CONCERT RANGE PA ENCLOSURES	
B12	196.20
B15	240.12
B30	398.58
H100E	156.30
H100V	206.50
T70	171.48
L100	314.85
MONITOR ENCLOSURES	
M100/12 100w	130.77
M100/15 100w	127.86
M200/15 200w	184.98

MIXING DESKS	
D8 Stan. mono Bch.	185.79
D8 D/Lx mono Bch.	229.80
D16 stereo 16 ch.	870.00
D24 stereo 24ch.	1275.00
WING TRAYNOR	
AMPS	
YGM-3 Studio Mate	114.00
YGM-4 Guitar Mate	132.00
YGL-3 Mark 3	252.00
YBA-2B Bass	
1 Mate 1 x 15	114.00
YBA-4 Valve 1 x 15	177.00
MODULAR AMP/CAB SYSTEMS	
YBA-1 Bass Master amp	109.00
YRM-1 Reverb Master amp	132.00
YS15P 1 x 15	99.00
Ported cab	99.00
YF-15 2 x 15	120.00
Cab	120.00
YF-10 4 x 10	120.00
Cab	120.00
YBA-1A Mark II amp	139.00
Cab	139.00
Y-212 2 x 12	106.00
YCV-212 2 x 12	174.00
Horn-loaded cab	174.00
YF-12 4 x 12	150.00
Cab. only	150.00
YF-18 1 x 18	132.00
Ported cab	132.00
YBA-3 Custom amp	156.00
YC-810 8 x 10	139.00
Cab	139.00
Y-212 2 x 12	106.00
YCV-212 2 x 12	174.00
Horn-loaded cab	174.00
YF-18 1 x 18	180.00
Relex	180.00

P.A. SYSTEMS (SOLID STATE)	
YVM-3 Voice Mate	99.00
YVM-4 4ch amp	150.00
YSC-2 4 x 12	144.00
col pr	144.00
YSC-3 4 x 18	114.00
col pr	114.00

BRDR JØRGENSEN	
ROLAND SYNTHESIZERS	
SH1000	463.81
SH3A	487.87
SH2000	554.00
SH5	519.58
SYSTEM 100	
101	399.75
102	345.12
103	203.41
104	237.23
109	89.59
SYSTEM 700	
Keyboard	351.55
Main Console	2669.84
VCO Bank	1928.41
VCF/VCA Bank	1262.88
Phaser/Delay	725.40
Mixer/Converter	712.85
Sequencer/Controller	838.92
Total	8388.95
PIANOS	
EP2Q	378.04
EP3Q	461.15
RS101	453.16
RS202	475.28
MP700	171.48
HP6 Octave	T.B.A.
HP7 Octave	T.B.A.
KB2	56.58
KS10	44.57

Rhodes Suitcase piano	
88 note	1419.80
Rhodes Suitcase piano	
73 notes	1255.50
Rhodes Stage piano	
88 note	891.15
Rhodes Stage Piano	
73 note	818.40
Spr. Satellite spkrs.	899.00
Rhodes Piano Bass	457.25
HAVEN ORGANS	
200	549.00
201	654.00
202	996.00
203	1198.00
61 Portable	1106.49
CRUMAR KEYBOARDS	
Multiman	462.00
Multiman	462.00
P/board	45.00
Stringman	369.00
Organizer	398.00
Jazzman	305.58
Brassman	320.00
Compacstring	230.00
Compacbrass	212.00

CBS/ARBITER	
Rhodes Suitcase piano	
88 note	1419.80
Rhodes Suitcase piano	
73 notes	1255.50
Rhodes Stage piano	
88 note	891.15
Rhodes Stage Piano	
73 note	818.40
Spr. Satellite spkrs.	899.00
Rhodes Piano Bass	457.25
CRUMAR LTD.	
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P/board	45.00
Stringman	369.00
Organizer	398.00
Jazzman	305.58
Brassman	320.00
Compacstring	230.00
Compacbrass	212.00
J.T. COPPOCK	
ELGAM ELECTRONIC ORGANS	
244	445.37
244C	504.62
237C	300.00
237C	361.11
249C	152.77
249	281.48
249R	326.00
610	249.00
610R	298.14
3049 OL	189.81
3049 DLR	238.88
2048	145.37
1048	112.98
1037	87.96
ELGAM ELECTRONIC PIANO	
Glyby	310.18
Portable	184.25

ORLA CONSOLE MODELS	
Fantasy 37/12 (6 rhythms)	178.00
Fantasy 37/12A (6 r. + autobass)	199.02
Fantasy 20 (6 rhythms)	178.00
Fantasy 20A (6 r. + autobass)	199.02
Fantasy 27 (10 rhythms)	228.11
Fantasy 27A (10 r. + autobass)	250.82
TWO-MANUAL MODELS	
Companion PZA Portable	283.11
Fantasy 2A Console	315.44

FARFISA	
Planorgan	324.61
Balfour	387.69
Beaumont	540.00
Belgrave	700.00
Balmoral	780.00
Berkstal	1007.88
Beresford	1280.00
Buckingham	1518.46
Super Piano	743.07
VIP200 Amp	44.61
VIP200	395.38
Syntorchestra	389.20
RSC350	603.07
RSC180	316.92
TR70	220.00
OR200	457.89
Pro. Buoy	973.84
VIP200	758.48
VIP500	584.61
Pedalboard	101.53
VIP233	426.15
VIP370	458.46
Pedalboard	41.53
Pro. Piano	441.53
CH25	980.00
Transvox P	884.61
Transvox TX2M	980.00
Transvox TX10M	972.30
I37	318.92
XIV	398.92
S.I.V	407.89
S.VI	543.07
Polychonica XIV	408.15
A251 Cordvox	3098.45

CBS/ARBITER	
Rhodes Suitcase piano	
88 note	1419.80
Rhodes Suitcase piano	
73 notes	1255.50
Rhodes Stage piano	
88 note	891.15
Rhodes Stage Piano	
73 note	818.40
Spr. Satellite spkrs.	899.00
Rhodes Piano Bass	457.25
HAVEN ORGANS	
200	549.00
201	654.00
202	996.00
203	1198.00
61 Portable	1106.49
CRUMAR LTD.	
KEYBOARDS	
Multiman	462.00
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P/board	45.00
Stringman	369.00
Organizer	398.00
Jazzman	305.58
Brassman	320.00
Compacstring	230.00
Compacbrass	212.00
J.T. COPPOCK	
ELGAM ELECTRONIC ORGANS	
244	445.37
244C	504.62
237C	300.00
237C	361.11
249C	152.77
249	281.48
249R	326.00
610	249.00
610R	298.14
3049 OL	189.81
3049 DLR	238.88
2048	145.37
1048	112.98
1037	87.96
ELGAM ELECTRONIC PIANO	
Glyby	310.18
Portable	184.25

KEMBLE	
YAMAHA K'BDS	
B2R	464.00
BK2	552.44
B4CR	600.00
B4DR	613.33
BK4C	664.89
BK4B	676.56
B5CR	765.55
B5DR	773.33
BK5B	855.11
BK5C	871.11
B20BR	1026.67
B20CR	1099.56
B30R	1277.11
CSY1	1271.11
CSY1	1271.11
CSY2E	1486.67
CSY2AE	1493.33
BK20B	1441.78
BK20C	1468.67
D3R	1539.56
D3R (white)	1588.44
DK40A	1955.56
DK40B	2077.53
DK40C	2108.67
E10AR	2810.87
E10AR (b/w)	2859.56
E5AR	3811.11
EX42	9777.75
PORTABLE SYNTHESIZERS	
SY1	588.67
SY2	610.67
COMBO ORGANS	
YC25D	839.51
YC45D	1578.70
BP1	109.26

FARFISA	
Planorgan	324.61
Balfour	387.69
Beaumont	540.00
Belgrave	700.00
Balmoral	780.00
Berkstal	1007.88
Beresford	1280.00
Buckingham	1518.46
Super Piano	743.07
VIP200 Amp	44.61
VIP200	395.38
Syntorchestra	389.20
RSC350	603.07
RSC180	316.92
TR70	220.00
OR200	457.89
Pro. Buoy	973.84
VIP200	758.48
VIP500	584.61
Pedalboard	101.53
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Pedalboard	41.53
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Transvox TX10M	972.30
I37	318.92
XIV	398.92
S.I.V	407.89
S.VI	543.07
Polychonica XIV	408.15
A251 Cordvox	3098.45

KEYNOTE MUSICAL INSTRUMENTS	
ORGANS	
Consort	637.96
Cub	486.11
P/B for cub	41.66
LIVINGSTON	
ORGANS	
Charister 51MB	408.00
Abbey Chapel	633.00
Abbey Chapel	633.00
+ 13 Note p.b.	698.00
Chorale 30	1080.00
Charister 2-69	1518.00
Charister 2-72	1710.00
Custom Suit + 3 Gen units	2500.00
SPEAKER CABS	
2 Channel wall-M	132.00
3 Channel wall-M	165.00
2 Channel free-s (pedals)	132.00
2 Channel free-s (5ft)	132.00
3 Channel free-s (5ft)	165.00
MAGNUM REED & ELECTRONIC ORGANS	
REED	350
350	23.00
401	31.00
410	26.00
411	40.00
421	43.50
46B	47.50
850	88.94
ELECTRONICA	
1650	180.68
1700	170.00
190	190.20
2002 + rhythm	210.20
1750	185.10
1850 + rhythm	185.10
M.C.H.	
A201 Solina	555.55
A201 Solina - rhythm	621.33

SC100 console, 44 k3y db	
1089.00	
SC100 P portable 44 key	
773.00	
SC444 console 45 key 17 pads	
1650.00	
SC444P pro. portable RW model	
1350.00	
SC55 console, theatre touch dyn	
2589.00	

SOLA SOUND	
Compass Piano	181.50
Synth A	648.00
Synthi OK2 K'bd.	220.00
Synthi AKS	869.00
Synthi DK2 k'bd.	220.00
Hi-Fi Synthi	428.00
THOMAS ORGANS	
1129 Cavalier	319.20
1129 Cavalier D/L	340.00
1130 European Royale	423.80
1157 Majestic Royale	479.80
1160 Le Grande Royal	679.60
183 Troubadour	786.76
184 Troubadour	879.20
1263 Cameo Royale	830.56
1265 Cameo	1199.20
Supreme	1299.00
266 Californian	1399.60
267 Californian	1399.60
371 Monticello/moog.	1896.50
372 Monticello Theatre moog.	1895.00
600 Trianon	2812.71
671 Celebrity Royale	3193.97
1050 Moog Satellite Synthesizer	350.48
VOX	
Piano	209.92
WELSON	
PORTABLE ORGANS	
Condit	288.00
Personal Stud	435.19
President's/Duo	608.00
Presidenti De-Luxe	728.01
MANUAL KEYBOARDS	
Synthes	432.00
Vedette	212.80
X/O (knock-out)	348.90
RHYTHM UNIT	
S.12	115.20
HOME AND CONCERT CONSOLE ORGANS	
M/G 40T	320.00
Festival VB	336.00
Festival VBS	384.00
Festival B	384.00
Winner 45	544.00
Winner 45S	544.00
SM 3300 BS	720.00
SM 3300 BL	752.00
SM 330 S	672.00
SM 3300 L	704.00
MG 300 T	736.00
MG 300 TS	784.00
Romantic 120	608.00
Romantic 130 S	656.00
Romantic 130 L	688.00
Romantic 130 LK	752.00
Romantic 150	704.00
Romantic 150 S	752.00
Romantic 150 L	784.00
Romantic 150 LK	848.00
Melodic 230	672.00
Melodic 230 S	720.00
Melodic 230 L	752.00
Melodic 230 LK	816.00
Melodic 250	768.00
Melodic 250 S	816.00
Melodic 250 L	848.00

BOOSEY & HAWKES	
AVEDIS ZILJOJIAN CYMBALS	
7386 8"	15.90
7387 10"	18.60
7388 12"	23.60
7390 13"	28.28
7391 14"	31.78
7392 15"	34.50
7393 16"	36.66
7394 17"	39.45
7395 18"	44.95

24" stainless steel	759.28
Super Big Beat	694.44
Stainless steel	763.89
Triple tom outfit	721.67
Stainless steel	780.37
Pro beat	824.07
Stainless steel	907.41
24" bass	712.94
Stainless steel	777.78
24" stainless steel	787.04
Smoke 'n' Fire	722.22
26" Bass	736.11
Stainless steel	796.30
26" stainless steel	810.19
Rock Duo	865.74
24" Basses	888.89
Stainless Steel	916.87
24" stainless steel	930.56
Overdrive	861.11
24" Bass	870.37
26" Bass	884.25
Stainless steel	949.07
24" stainless steel	958.33
26" stainless steel	972.22
Power Factory	950.74
24" bass	1000.00
Stainless steel	1087.96
24" stainless steel	1107.85
Octa-Ping	1237.14
24" Bass	1277.78
Stainless Steel	1388.89
24" stainless steel	1402.78
Supraphonic 5"	92.58
Supraphonic 5 1/2"	95.37
Supersensitive 5"	140.74
Supersensitive 5 1/2"	141.24
Acroline 5"	69.44
Piccolo 3"	85.19
B Lug Vitale 5"	62.04
Tubular Hi-hat	39.95
Tubular S/D stand	30.46
Tubular cymbal stand	26.81
Tubular boom stand	32.41
Speed King pedal	47.18
Ghost pedal	16.67
Single T/T holder	23.15
Double T/T holder	31.90
Double Sturdy	31.90
kok stand	23.98
Double Suidlok	23.98
holder	
AVEDIS ZILDJIAN	
5241 8"	15.89
5242 10"	18.80
5243 13"	28.27
5244 14"	31.78
5245 15"	34.49
5246 16"	36.66
5247 17"	38.45
5248 18"	44.95
5248 WC 18" wide cup	44.95
5248 SW 18" swish	52.00
5249 S 18" sizzle	44.89
5249T 18" Trio	44.89
5249 MC 18" minicup	44.89
5249 19"	47.66
5220 20"	52.00
5220 SW 20" swish	60.22
5220 P 20" pang	60.22
5220 S 20" sizzle	52.00
5220 MC 20" minicup	57.97
5261 21"	65.72
5221 22"	73.55
5221 SW 22" swish	73.55
KENNY CLAVEPAIRS	
HI-HATS	
5215 13" 14" cymbals	58.05
5216 14" 15" cymbals	65.27
NEW BEAT & STANDARD	
HI-HATS	
5243/2 13"	52.56
5244/2 14"	63.28
5245/2 15"	66.89
5246/2 16"	73.32
BRILLIANT CYMBALS	
4930 8"	20.78
5333 10"	23.51
4931 12"	29.03
5334 13"	31.77
5338 14"	37.17
5336 15"	39.87
5337 16"	42.60
5338 17"	50.75
5339 18"	50.75
4932 18" swish	58.93

Image-creator 22"	368.52
sat in wood	
Image-creator 22"	349.07
plain w/1	
Image-creator 22"	368.52
sat in w/1	
Image-creator 22"	386.11
plain fgl	
Image-creator 22"	405.55
sat in fgl	
8 Brothers Plain	362.96
8 Brothers Satin	393.52
PEARL PRO SNARE	
DRUMS	
5 x 14 metal	37.55
6 x 14 Brass	57.41
6 1/2 x 14 Brass	64.81
MAXWIN OUTFITS	
Stage 704 22"	205.55
Stage 704 22"	183.33
Studio 504 22"	183.89
Studio 503 20"	107.41
MAXWIN SNARES	
14 x 5 1/2"	31.02
Cymbal	
Artist 14" x 5 1/2"	25.92
Chrome	
Wood 14" x 5 1/2"	23.38
8 tension	
Wood 14" x 5 1/2"	19.67
6 tension	
TOSCO CYMBALS	
14" matched hi-hats	37.27
15" matched hi-hats	39.12
18" crash ride	20.83
18" medium ride	31.71
20" medium ride	38.66
BONGO DRUMS	
B5	4.12
DRUM KIT	
D-3	74.03
SIMMS-WATTS	
ASBA METAL	
24x14 Bass	135.93
22x14 Bass	135.93
20x14 Bass	135.93
14x9 Tom	82.41
13x9 Tom	82.41
16x16 Tom	130.00
12x8 Tom	82.41
SWEDS	
24x14 Bass	135.93
22x14 Bass	135.93
20x14 Bass	135.93
14x9 Tom	82.41
13x9 Tom	82.41
16x16 Tom	130.00
WOOD	
14x14 Bass	135.93
22x14 Bass	135.93
20x14 Bass	135.93
13x9 Tom	82.40
12x8 Tom	82.40
14x14 Tom	85.25
16x16 Tom	130.00
SNARES	
14x5 Wood	116.25
14x5 Metal	116.25
14x5 Glass	116.25
STANDS	
Hi-Hat	35.84
Snare	24.07
DANA	
R 30 T/pt.	8.23
R 105	10.67
F 33 Iik.	19.56
SCDB	
SCDBR	200.06
L/scl.bs.	250.00
S/scl.bs.	225.00
JOHN BIRCH	
6 string electric from	280.00
12 string electric	300.00
from	
Short-scale basses	280.00
from	
8-string basses from	300.00
Cases	22.00 or +0.00

snare	24.70
O206 Wood shell	
snare	24.44
O120 TT	21.39
O130 TT	23.28
ROMEN MARK CYMBALS	
6612	8.41
6614	10.08
6615	12.73
6616	15.79
6618	19.10
6620	23.93
6622	32.59
6624	35.65
KING'S TONE CYMBALS	
6412	4.03
6414	5.60
6418	8.15
6420	10.69
6422	17.57
KING BEAT BRONZE	
CYMBALS	
6436	13.42
6438	17.13
6440	18.76
6445	24.77
6450	28.93
6455	40.28
W.M.I.	
TAMBOURINES	
TH.81	1.81
TH.102	2.73
TH.104	3.47
TS.106	4.58
BONGO DRUMS	
B5	4.12
DRUM KIT	
D-3	74.03
GUITARS	
ARC	
ELECT.SLD.BDY	
Swede	166.80
Swede bs	176.36
F.200N	101.83
F.400 Nbs.	101.83
F.100 B.	65.78
SEMI-ACOUSTIC	
V.I.N.	122.20
Jimmy D'Aquisto	P.O.A.
COUNTRY & WESTERN	
H.45-6str.jbo.	72.06
H.33-12str.jbo.	77.57
CLASSIC	
H.C.4	43.10
H.C.5	32.64
DYNELECTRON	
HGB1	151.67
HGB2	151.67
HGB3	151.67
HGB4	151.67
HGB5	151.67
PEARL	
PF 200 Iik.	41.31
PF 250/6 jbo.	49.20
PF 250/12 jbo.	51.90
FT.155 jbo.	54.19
DANA	
R 30 T/pt.	8.23
R 105	10.67
F 33 Iik.	19.56
SCDB	
SCDBR	200.06
L/scl.bs.	250.00
S/scl.bs.	225.00
JOHN BIRCH	
6 string electric from	280.00
12 string electric	300.00
from	
Short-scale basses	280.00
from	
8-string basses from	300.00
Cases	22.00 or +0.00

Mustang Bass L/H	212.35
Mustang SL L/H	215.45
Mustang Bass Mp.	
Mustang Bass Mp.	237.15
Musicmaster Bass	116.25
Musicmaster Bass L/H	130.20
FENDERACOUSTICS	
CLASSIC	
FC 10 1/4"	36.43
FC 10	40.30
FC 30	50.78
FC 30	60.45
FC 40	66.65
STEEL STRUNG	
F 15	46.50
F 25	51.15
F 35	57.35
F 45	58.90
F 55-12	71.30
F 65	72.85
F 75	79.80
F 85	117.80
F 95	180.35
F 10	91.95
F 110	220.10
FENDER BANJOS	
Artist Bluegrass + case	
+ scruggs	785.85
Artist Bluegrass	
case	713.00
Allegro Bluegrass + case	
+ scruggs	559.00
Allegro Bluegrass	
case	439.00
CLEARTONE	
MELODY	
1200	34.55
1250	43.71
500	30.81
525	38.09
325	13.00
450	21.81
460	29.94
350	15.33
600	34.47
1300	39.38
MIAMI	
FT1	25.35
FT2	29.83
FT1 Bs.	32.69
KUURA	
Wesbury	64.79
310 Elec.	59.93
380 B.	66.19
Blue Hill 6	59.75
Blue Hill 12	62.17
SM8 Solid	80.13
SM9 Solid	90.57
385 Bs	75.86
149 Classic	27.61
GIANNINI GUITARS	
Classical - Nylon	25.85
Classical - Nylon	29.70
Classical - Nylon	42.35
Classical - Nylon	51.70
Classical - Nylon	64.35
12 String Jumbo	64.35
6 String Jumbo	49.50
6 String Jumbo	53.35
6 String Jumbo	44.00
6 String Jumbo	53.35
6 String Jumbo	55.00
DAVOLI	
GHERSON	
LP Regal	248.88
LP Deluxe	
(Nat./Mahog)	122.67
G2 (Nat.)	106.77
T2 (Blk./Nat.)	104.88
G/12 Twin Neck	208.88
G2 Bass (Nat.)	110.97
Jazz Bass (Nat.)	124.49
R.B. Bass	184.95
J.T. COPPOCK	
DOBRO	
Hnd. Dg sq.nk.	162.89
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A Amplifiers
D Drums
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MA Main Agents
RS Repair Service
Spec Specialists
ERS Electronic Repairs
K Keyboards
N Brass
B Woodwind
L Lighting
H Hire
Ac Accordions

Studio Guide

ACORN RECORDS LTD
Church Rd., Stonesfield, Oxford
099 389 444
16 T 2 T £15 p-h Cap 7 H. D

BASING ST. STUDIOS (ISLAND)
8-10 Basing St., London W11
01 229 1229
Studio 1 24 T £38 p h Cap 80
Studio 2 24 T £38 p h Cap 20
R.R.C. Cr. £10 p h DTC

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Kings Lane, Nr Stratford-on-Avon
078 985 705
8 T £8 p h Cap 20 DC ba. R.R.C. DBX OTC £2
p h

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01 636 3434
Studio 1 £39 p h 16 T Cap 75
Studio 2 £45 p h 24 T Cap 25

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01 286 1161
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Studio 2 16 T £38 p h Cap 50
Studio 3 24 T £39 p h Cap 30
DC R-R D Q

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023 376 259
16 T £350 p-d Cap 10 D Ac

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01 836 7608
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8 T £10 p h Cap 10
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Studio 1 16 T £19 p h Cap 12
Studio 2 8 T £16 p h Cap 25
DC oa. R-R. C. Cr. CP

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Studio 2 24 T £28 p h Cap 6
R-R. C. Cr. di. D

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Studio 2 stereo only £7 p h

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bedrooms & resident chd.

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16 T £28 p h Cap 15 CP. D. K.

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0272 35994
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R-R. C. Cr. CP. DBX. D. Ka. Disc. Pressing

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01 622 3417
8 T £12 p h Cap 15 R-R. C. Cr. Dc. Ka. SM

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2a Grosvenor Avenue London N5
01 359 0970
8 T £8 p-h. Cap 6, R-R. CP. R. C. di.

PEACOCK SOUND STUDIOS
98 Medina Avenue, Newport Isle of Wight
098 381 2379
4 T Cap 10 £5 00 p h
225 per day for 6 hrs
R-R. C. CP. Ka. DC. ba. di. (no OTC) Ac. ba. RHR

Studio Guide

(CONTINUED)

LARAME	24.95	LEFT-HANDED SOLIDS	2007	27.83	F45 Flamenco	168.05	240Z Twin Neck 6/12	193.79	ELECTRIC GTRS	27.31	D130E	29.90	COMBINATION		PROFESSIONAL ENTERTAINER	
9714	24.95	LP Deluxe Gold	2032 Mandola	31.48	R2M250JKA		2402DX Twin neck 6/12	211.55	K 220	27.31	D190E/H	29.90	Battery powered/amp/	MKH105	154.00	
9715 (12 string)	29.17	LP Deluxe chb	2034 Mandola	36.11	M202 Classic	97.27	2404 Twin neck 6/4	193.78	RE 120	27.31	D190E/H	29.90	44 83	MKH110	164.00	
9716	10.17	LP Deluxe chb s.b	2036 Mandola (Rum)	21.76	M203 Classic	109.49	2407 Twin neck 6/4	193.78	RE 130	27.31	D190E/H	29.90	59 24	MKH124	304.00	
9717	37.10	SG Special ch	2124 Mandoline	79.63	M30 Classic	129.44	2408 Flying V base	172.44	D200C	40.00	D200C	40.00		MKH125	161.00	
		SG Standard ch	2133 Mandoline	103.70	M30 Classic	129.44	2409 Flying V	150.22	D200E	50.50	D200E	50.50		MKH125T	181.00	
		SG Standard + Bigly	2076 Mandoline	46.15	M30 Classic	156.05	2410 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135	191.00	
ERDS JUMBO	23.75	5/8 standard + Bigly	2081 Mandoline	66.20	M30 Classic	183.33	2411 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9353	37.10	5/8 standard + Bigly	2086 Mandoline	66.20	M30 Classic	183.33	2412 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9356	41.82	5/8 standard + Bigly	2088 Mandoline	66.20	M30 Classic	183.33	2413 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9358	31.43	5/8 standard + Bigly	2089 Mandoline	66.20	M30 Classic	183.33	2414 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9359	37.10	5/8 standard + Bigly	2090 Mandoline	66.20	M30 Classic	183.33	2415 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
EROS ELECTRICS	71.95	5/8 standard + Bigly	2091 Mandoline	66.20	M30 Classic	183.33	2416 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9708 bass	70.35	5/8 standard + Bigly	2092 Mandoline	66.20	M30 Classic	183.33	2417 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9710	63.95	5/8 standard + Bigly	2093 Mandoline	66.20	M30 Classic	183.33	2418 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9712	68.75	5/8 standard + Bigly	2094 Mandoline	66.20	M30 Classic	183.33	2419 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9713 bass	68.75	5/8 standard + Bigly	2095 Mandoline	66.20	M30 Classic	183.33	2420 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9715	95.95	5/8 standard + Bigly	2096 Mandoline	66.20	M30 Classic	183.33	2421 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9808 bass	95.95	5/8 standard + Bigly	2097 Mandoline	66.20	M30 Classic	183.33	2422 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9578	78.00	5/8 standard + Bigly	2098 Mandoline	66.20	M30 Classic	183.33	2423 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9579	74.20	5/8 standard + Bigly	2099 Mandoline	66.20	M30 Classic	183.33	2424 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
9807	84.00	5/8 standard + Bigly	2100 Mandoline	66.20	M30 Classic	183.33	2425 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	

SELMER		ELECTRIC BASSES	2007	27.83	F45 Flamenco	168.05	240Z Twin Neck 6/12	193.79	ELECTRIC GTRS	27.31	D130E	29.90	COMBINATION		PROFESSIONAL ENTERTAINER	
DRISON		Appor 881/4	2032 Mandola	31.48	R2M250JKA		2402DX Twin neck 6/12	211.55	K 220	27.31	D190E/H	29.90	Battery powered/amp/	MKH105	154.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2034 Mandola	36.11	M202 Classic	97.27	2404 Twin neck 6/4	193.78	RE 120	27.31	D190E/H	29.90	44 83	MKH110	164.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2036 Mandola (Rum)	21.76	M203 Classic	109.49	2407 Twin neck 6/4	193.78	RE 130	27.31	D190E/H	29.90	59 24	MKH124	304.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2124 Mandoline	79.63	M30 Classic	129.44	2408 Flying V base	172.44	D200C	40.00	D200C	40.00		MKH125	161.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2133 Mandoline	103.70	M30 Classic	129.44	2409 Flying V	150.22	D200E	50.50	D200E	50.50		MKH125T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2076 Mandoline	46.15	M30 Classic	156.05	2410 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135	191.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2081 Mandoline	66.20	M30 Classic	183.33	2411 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2086 Mandoline	66.20	M30 Classic	183.33	2412 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2088 Mandoline	66.20	M30 Classic	183.33	2413 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2089 Mandoline	66.20	M30 Classic	183.33	2414 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2090 Mandoline	66.20	M30 Classic	183.33	2415 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2091 Mandoline	66.20	M30 Classic	183.33	2416 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2092 Mandoline	66.20	M30 Classic	183.33	2417 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2093 Mandoline	66.20	M30 Classic	183.33	2418 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2094 Mandoline	66.20	M30 Classic	183.33	2419 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2095 Mandoline	66.20	M30 Classic	183.33	2420 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2096 Mandoline	66.20	M30 Classic	183.33	2421 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2097 Mandoline	66.20	M30 Classic	183.33	2422 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2098 Mandoline	66.20	M30 Classic	183.33	2423 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2099 Mandoline	66.20	M30 Classic	183.33	2424 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
Custom Order & Electronic Acoustic Series		Appor fretless	2100 Mandoline	66.20	M30 Classic	183.33	2425 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	

FLAT TOPS		ELECTRIC BASSES	2007	27.83	F45 Flamenco	168.05	240Z Twin Neck 6/12	193.79	ELECTRIC GTRS	27.31	D130E	29.90	COMBINATION		PROFESSIONAL ENTERTAINER	
J200 nat	618.52	Appor 881/4	2032 Mandola	31.48	R2M250JKA		2402DX Twin neck 6/12	211.55	K 220	27.31	D190E/H	29.90	Battery powered/amp/	MKH105	154.00	
J200 nat	632.41	Appor fretless	2034 Mandola	36.11	M202 Classic	97.27	2404 Twin neck 6/4	193.78	RE 120	27.31	D190E/H	29.90	44 83	MKH110	164.00	
J200 nat	635.55	Appor fretless	2036 Mandola (Rum)	21.76	M203 Classic	109.49	2407 Twin neck 6/4	193.78	RE 130	27.31	D190E/H	29.90	59 24	MKH124	304.00	
J200 nat	638.70	Appor fretless	2124 Mandoline	79.63	M30 Classic	129.44	2408 Flying V base	172.44	D200C	40.00	D200C	40.00		MKH125	161.00	
J200 nat	641.85	Appor fretless	2133 Mandoline	103.70	M30 Classic	129.44	2409 Flying V	150.22	D200E	50.50	D200E	50.50		MKH125T	181.00	
J200 nat	645.00	Appor fretless	2076 Mandoline	46.15	M30 Classic	156.05	2410 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135	191.00	
J200 nat	648.15	Appor fretless	2081 Mandoline	66.20	M30 Classic	183.33	2411 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	651.30	Appor fretless	2086 Mandoline	66.20	M30 Classic	183.33	2412 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	654.45	Appor fretless	2088 Mandoline	66.20	M30 Classic	183.33	2413 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	657.60	Appor fretless	2089 Mandoline	66.20	M30 Classic	183.33	2414 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	660.75	Appor fretless	2090 Mandoline	66.20	M30 Classic	183.33	2415 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	663.90	Appor fretless	2091 Mandoline	66.20	M30 Classic	183.33	2416 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	667.05	Appor fretless	2092 Mandoline	66.20	M30 Classic	183.33	2417 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	670.20	Appor fretless	2093 Mandoline	66.20	M30 Classic	183.33	2418 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	673.35	Appor fretless	2094 Mandoline	66.20	M30 Classic	183.33	2419 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	676.50	Appor fretless	2095 Mandoline	66.20	M30 Classic	183.33	2420 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	679.65	Appor fretless	2096 Mandoline	66.20	M30 Classic	183.33	2421 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	682.80	Appor fretless	2097 Mandoline	66.20	M30 Classic	183.33	2422 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	685.95	Appor fretless	2098 Mandoline	66.20	M30 Classic	183.33	2423 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	689.10	Appor fretless	2099 Mandoline	66.20	M30 Classic	183.33	2424 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	
J200 nat	692.25	Appor fretless	2100 Mandoline	66.20	M30 Classic	183.33	2425 Flying V	150.22	D200E	50.50	D200E	50.50		MKH135T	181.00	

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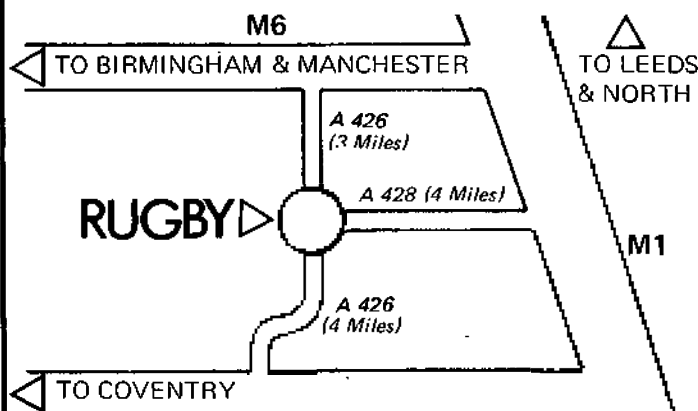
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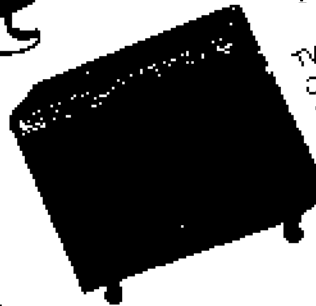
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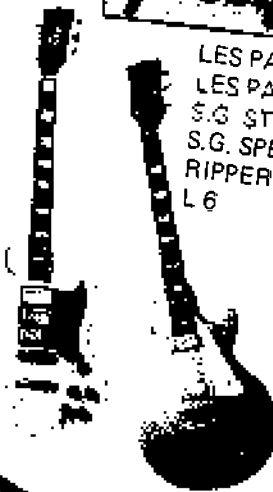


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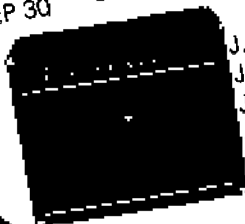


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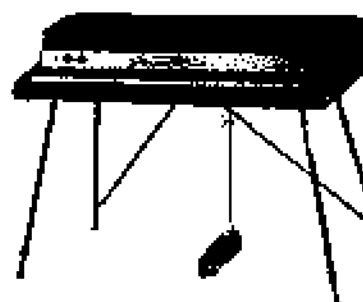
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