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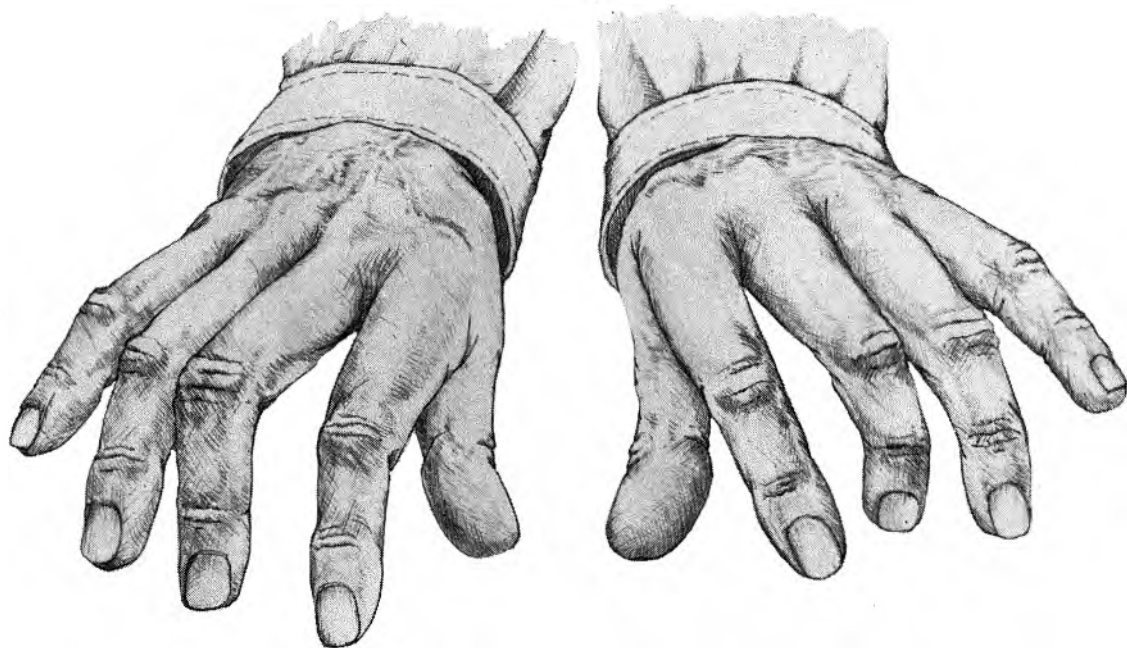
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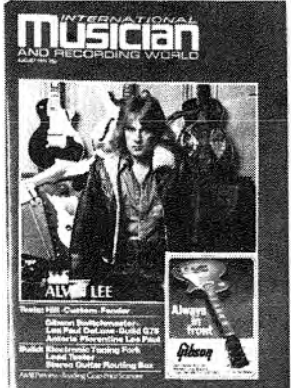


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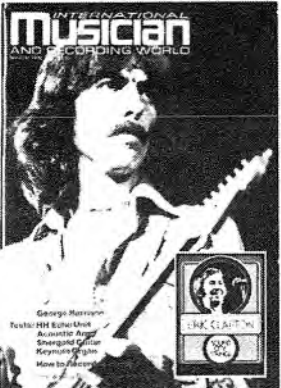
LOOKS AS IF THE FATES HAVE BLOWN IT AGAIN. WILL ANDY EVER PULL THROUGH?



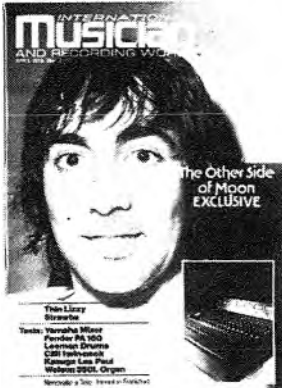
AUGUST 1975
Interviews: Alvin Lee, Peter Frampton, Bob Henrit, Golden Earring.
Equipment Tests: Fender Dual Showman Reverb, Custom 700B Twin Reverb, Hill IC208S Power Amplifier
Guitar Tests: Gibson Switchmaster, Gibson Les Paul Deluxe, Guild D75, Antoria Florentine Les Paul



DECEMBER 1975
Interviews: Ginger Baker, Tony Zemaits.
Equipment Tests: Matamp RCGT100 amp, PA:CE MP175 12 channel Mixer.
Guitar Tests: Zenta HES 5000 Strat Copy, Fender Stratocaster, John Levoi 12S Deluxe.
Drumcheck: Arbiter Auto-Tune kit.
Keyboard Check: Roland SH-3A Synthesizer.



MARCH 1976
Interviews: George Harrison, Mick Green, John Birch, Ian Gillan.
Equipment Tests: HH Multi-Echo, Acoustic 450 lead and bass amplifier.
Guitar Tests: Antoria 345 model 2457, Shergold Masquerader.
Drumcheck: Gretsch Blackhawk kit.
Keyboard Check: Keynote Consort Portable.

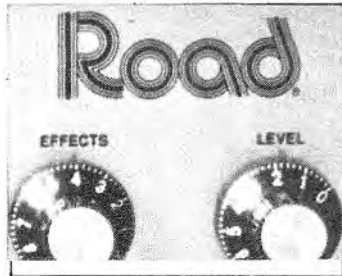


APRIL 1976
Interviews: Keith Moon, Dave Lambert, Streetwalkers, Mick Box.
Equipment Tests: Yamaha P.M. 1000 Mixer, Fender 160 PS Vocal Amp.
Guitar Tests: Eko El Gaucho Jumbo, Cleartone 6/12 twin-neck, Kasuga IG 2000 V, Fender Telecaster.
Drumcheck: Leeman kit.
Keyboard Check: Welson Prestige 350L.

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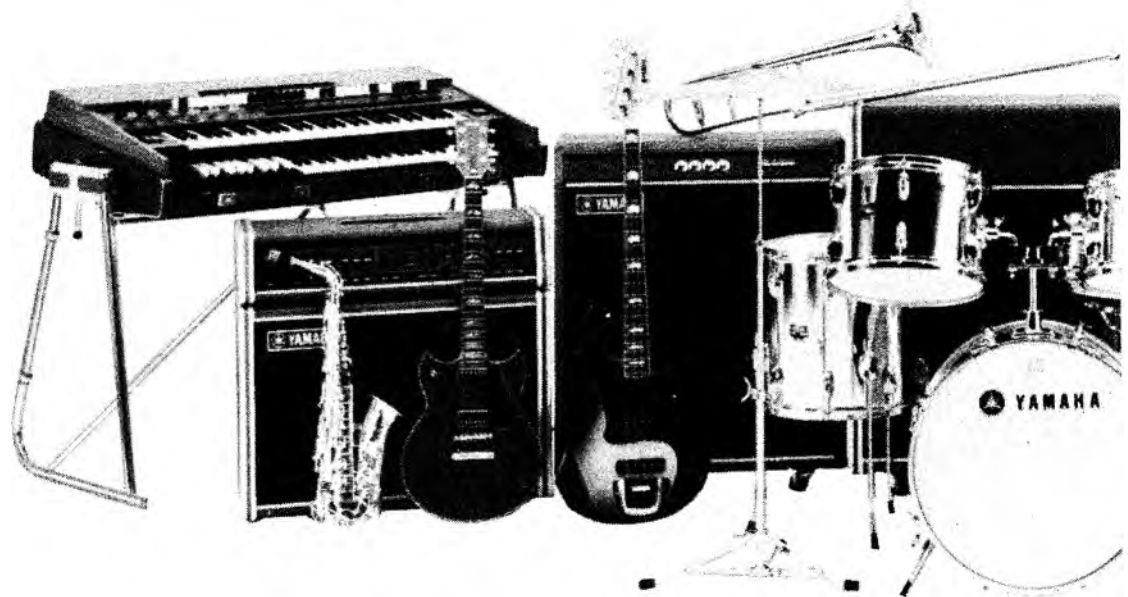
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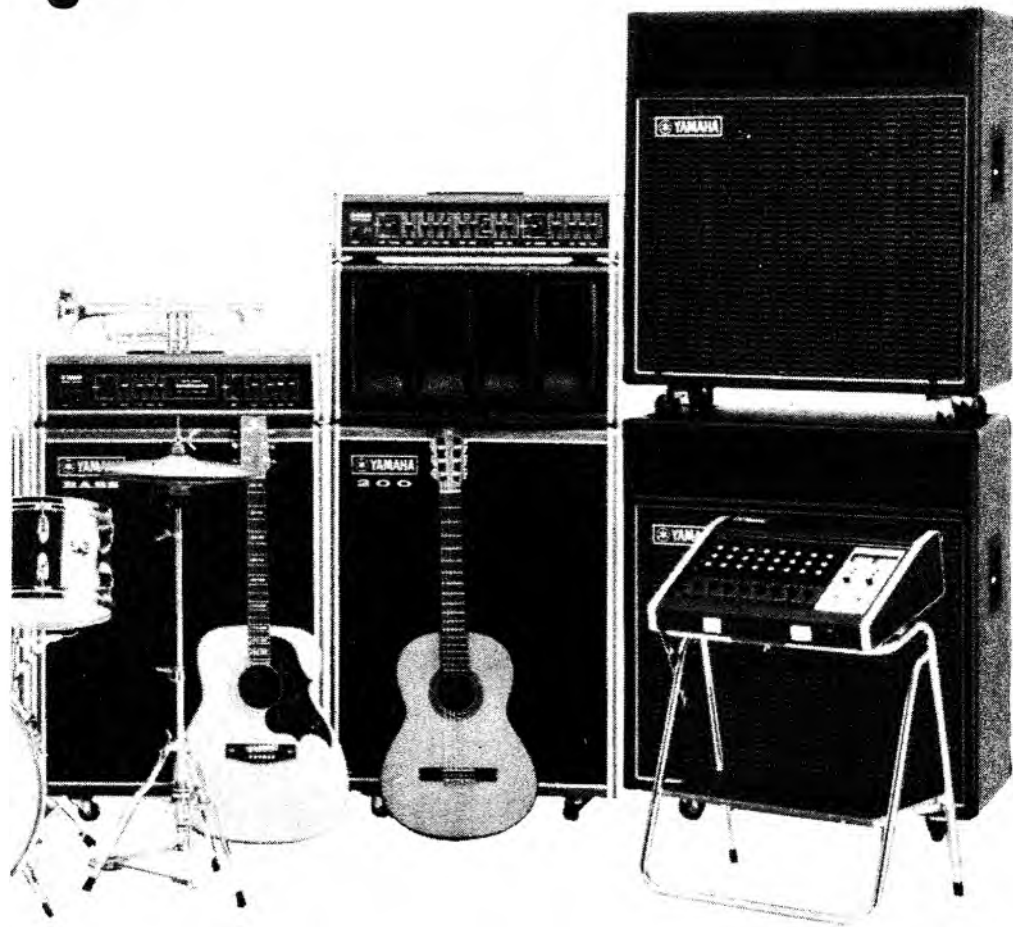
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Letters Letters

Sir: I have recently purchased a second-hand Fender Jazzmaster with a Stratocaster neck. On the plate where the neck joins the guitar, the number is 188804. Could you tell me how old the guitar is, please? Also, the tremelo only seems to work when it is depressed. Is this normal? If so, why? When I have the capital, I am thinking of changing the pick-ups. This is what I need to know - I have thought about Gibson Humbuckers and although they are still very good, I am too much aware of the old, better Humbuckers. I am referring to the old double-wound humbuckers



like Jimmy Page's. I think a lot of people would agree with me on this issue. Is it still possible to get these old Humbuckers from anywhere, and, if so, how much would they cost? If I can't get hold of them, I am very interested in the Di Marzio pick-ups. If they can give the same response of the old humbuckers, then I will be more than pleased. Could you give me your opinion of them.

Wayne Cooke.
Blackpool.

We have had many letters requesting information on the age of various Fenders. As a guide, Stephen Delft supplied us with the following information concerning Fender serial numbers and their corresponding dates of manufacture:

5-digit nos. - '57/'60
" " prefixed L-'60/'64
6-digit " commence 1-'65/'67
" " " 2-'68/'69
" " " 3-'70/'73
" " " 4 and

upwards - since April 1973.

Your only problem seems to be the actual serial number on the plate. If the guitar body is a Jazzmaster and the neck is a Strat, you will have to determine whether the plate is from the

body or the neck. If you remove the neck, there should be a date of manufacture stamped on it. Regarding the tremelo arm action, we suspect the tension spring inside the tremelo arm may be pulling against the strings too much, and may therefore need slackening off a bit. At a guess, we'd say the guitar was formerly set up for medium-gauge strings and you're using light-gauge. There should be a small screw beside the arm which will adjust the spring tension. As for the question of pick-ups, it's worth checking out Badass and De Armond pick-ups, as they both come pretty close to the sound of the old Humbuckers. For a review of Di Marzio pick-ups, see Stephen Delfts review on page 35.

Sir: Having read Ken Dibble's excellent articles on P.A. systems, I was wondering if you could advise me if there is any literature available in speaker enclosure designs, especially appertaining to reflex bins etc., as I am considering designing and building my own P.A. system. Any information you could supply would be most helpful.

L.D. Ginder,
Birmingham.

Ken Dibble replies: There are several sources of information that will probably be of help to you, and I would recommend the following:- (1) 'How To Build Speaker Enclosures' by Badmaieff & Davis, published by Howard W. Samms Inc. of Indianapolis, USA. It was published in the UK by W. Foulsham Ltd., Slough in 1967, but I believe that it is unfortunately now out of print. You should be able to obtain a copy through your local library to order. (2) Another useful book is the well known 'Cabinet Handbook' by G.A. Briggs, published by Rank Wharfedale Ltd., Bradford, York., in 1962. As far as I know, this is still available. (3) 'Design & Construction of Bass Reflex Enclosures,' published as Technical Bulletin No 10A by Electrovoice Inc., and should be obtainable from the UK distributors of EV, Gulton (Europe) Ltd., at Brighton. (4) 'Loudspeaker Enclosure Construction Manual,' publication No. CF 802 from JBL. This should be available from the UK distributors, who are C.E. Hammond & Co. Ltd., Chertsey Road, Byfleet, Surrey. The last two do in fact offer some contradictory advice, but will still be found very useful once the relevant bits have been sorted out.

Sir: Could you help me with a problem? I have a new type Fender Strat, on which the threads have stripped in the tremelo arm socket (the threads on the arm itself are O.K.). As

I suspect this to be a weakness of the new type of cast alloy tremelo blocks, I am reluctant to fit a replacement for fear of a recurrence of the trouble. At present, I am using sellotape wrapped around the threads of the tremelo arm and wedging it into the socket, but, as this is rather unsatisfactory, can you suggest a better solution?

K. Renwick,
Sheffield.

It is possible that a change from cast iron to alloy combined with modern production techniques is responsible for your problem, but even some of the old ones would strip quite easily. The most effective cure is to simply wedge several strands of sewing cotton down the hole with the arm - not around the arm. It's all a case of trial and error - you may find the cotton breaking, but if you persevere, it should solve the problem.

Sir: I have a problem that has been bugging me for the last 8 months, but no one seems to be able to help. I get International Musician and thought "they know what they're talking about" and so I am writing to you. If it can be solved, it will be the most rewarding thing to happen to me in the last 8 months and I will be grateful beyond belief. The problem: I can get my (electric) guitar in perfect harmonic tune at the 5th and 7th frets, but at the twelfth it is about a semi-tone out. I have tried and tried to combat this but failed. Help! I heard the phrase "octave individuality" and thought it sounded like my problem. Is it to do with the bridge? If so, how can I get information on it? I have tried the libraries, but failed at that too. Please help.

A.M. Morgan.

Matching the harmonics on the 5th and 7th frets on adjacent strings will give you the right intervals between most of the strings, but it sounds as though you have a different problem with the octave inaccuracy. The distance from nut to bridge needs to be twice the distance from the nut to the twelfth fret - plus an extra bit. The length of the extra bit depends on string type, gauge, tuning and action. Ideal bridge position therefore tends to be different for each string. Assuming your bridge is adjustable, you will find information on making these adjustments in the recent "Improve A Copy Guitar" series in International Musician. If you have a Telecaster or a copy with a similar bridge, you will only be able to move the bridge settings for adjacent pairs of strings and may therefore have to accept something of a compromise.

Sir: As I always get trouble in fingerpicking normal folk or

jumbo guitars because of my big hands, I bought a nylon strung Oskar Teller classical guitar (Model K.60). The width of the neck suits me very well, but I am not too happy with the sound of the G, B and E treble strings. The bass is alright. I wonder if I can use light-gauge metal strings to obtain a harder sound without damaging the guitar. If it is possible, could you tell me please which strings to use.

Martin Strobel,
Germany

What you suggest is possible and, although there is always a risk of damaging a nylon-strung guitar by putting steel strings on, Teller guitars tend to be quite tough instruments. However, don't expect the strings to be in tune at the twelfth fret. (see previous letter).

Sir: In answer to a recent letter from John Steel about his Telecaster: some years ago, I had a Tele and was contemplating putting on a Strat pick-up. Unfortunately, I could not afford one so I experimented. I removed the resistor that runs between the smaller bass pick-up and the output stage and replaced it with a piece of wire. The result of this was: a vast increase in volume output from that pick-up and a biting sound when both pick-ups were in operation. Also, the sustain was much better, so may I suggest to Mr. Steel that he tries this first, it could save a few bob. Dick Walker,
Forest Hill.

We have not come across a Telecaster such as you describe. It is possible you may own a rare version when fitting a capacitor may have been standard practice, or it could have been modified by a previous owner.

Sir: A problem for your great mag to solve. The fact is I had a Hayman 1010 which was a fantastic guitar, until I joined a rock band, and I wanted a better sound, so I bought a Strat. The sound is great, but I can't get the action anything like as low as the Hayman without fret buzz. A mate of mine says this is a common fault in Strats. Is this true? If it is not a sustained buzz, but buzzes only at the moment of hitting the string, does this affect the sustain?

Phil,
Hants.

Stephen Delft replies: I am not surprised to find that many of the Hayman necks are as good as, if not better than, Fender necks. On the information you have supplied, it is difficult to give a clear answer, but any buzzes which reduce the clarity of a note can be considered as wasted "energy" and are likely to reduce the sustaining properties of the instrument.

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leads or even unscreened leads of great length may be used without noise or signal loss, therefore no need for expensive low loss leads. Output is increased by two in the case of the Purple Peaker and Yellow Humper and by three in the case of the Red Ranger, putting more punch into the amp, cleans up signal sounds in general by allowing all the instrument output, highs, lows, everything that could have been lost through your leads arrives at the amp intact, you probably have never heard the whole sound of your instrument.

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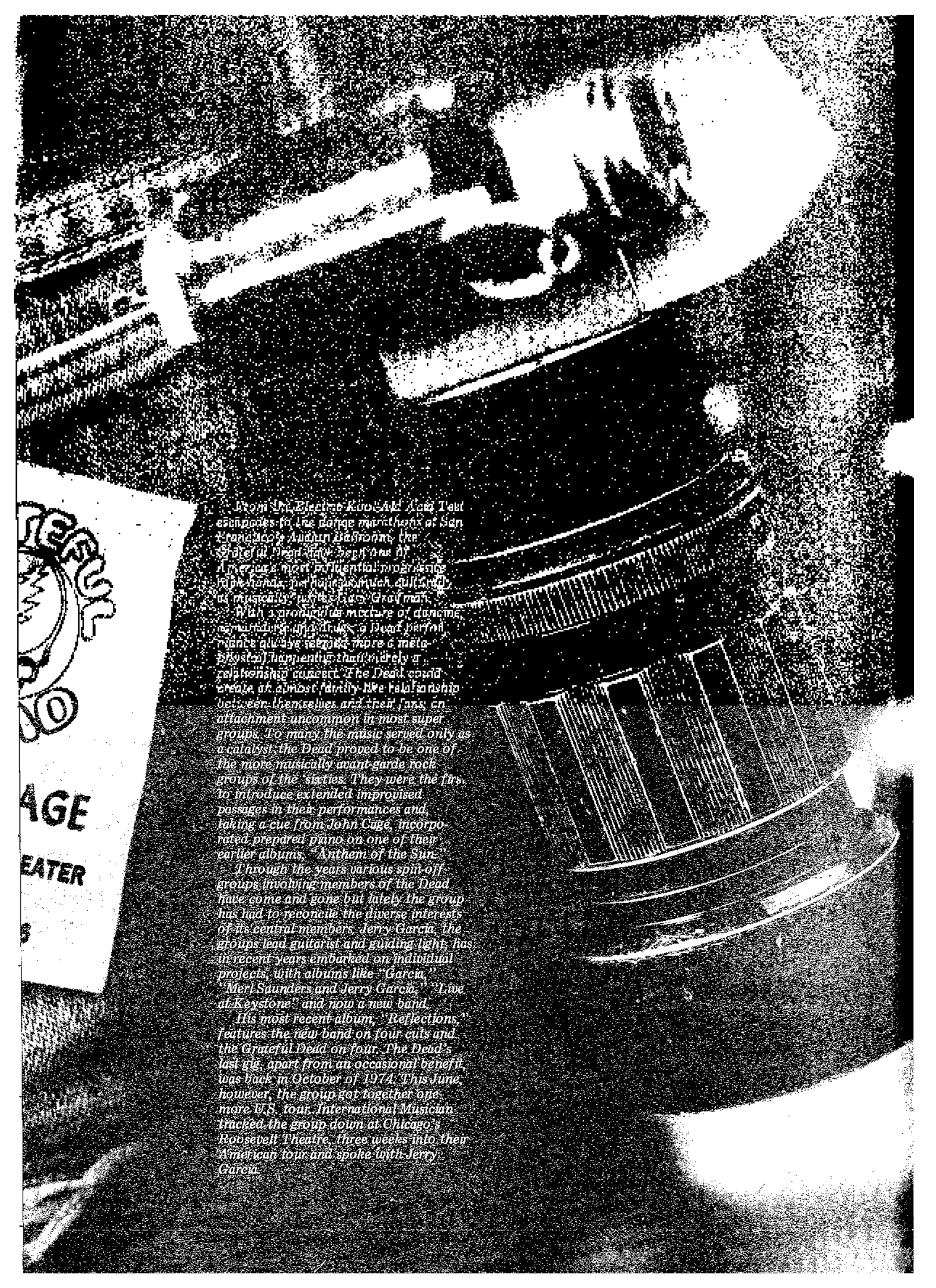
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BACKSTAGE

**AUDITORIUM THEATRE
CHICAGO, ILL.**

JUNE 28, 1971



From the Electric Blue and Acid Test episodes to the large marathons at San Francisco's Auditorium, the Grateful Dead have been one of America's most influential power bands. In the hands of the highly skilled, collectively musically gifted five Gratefuls.

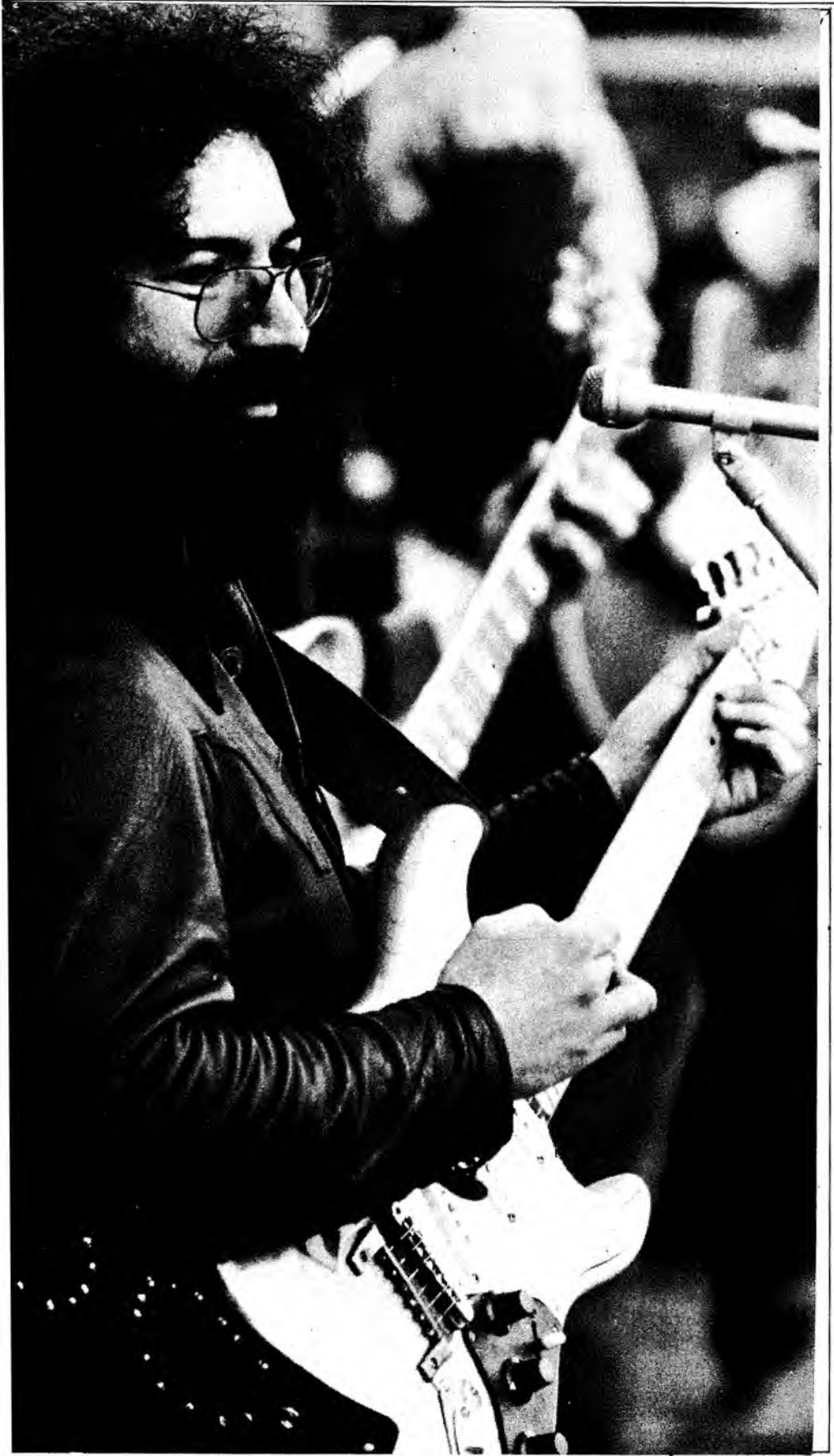
With a prodigious mixture of dynamic soundings and drugs, a Dead performance's elusive texture opens a meta-physical happening that widens a relationship concept. The Dead could create an almost family-like bond between themselves and their fans, an attachment uncommon in most super groups. To many, the music served only as a catalyst. The Dead proved to be one of the more musically avant-garde rock groups of the 'sixties. They were the first to introduce extended improvised passages in their performances and taking a cue from John Cage, incorporated prepared piano on one of their earlier albums, "Anthem of the Sun."

Through the years various spin-off groups involving members of the Dead have come and gone but lately the group has had to reconcile the diverse interests of its central members. Jerry Garcia, the group's lead guitarist and guiding light, has in recent years embarked on individual projects, with albums like "Garcia," "Merl Saunders and Jerry Garcia," "Live at Keystone" and now a new band.

His most recent album, "Reflections," features the new band on four cuts and the Grateful Dead on four. The Dead's last gig, apart from an occasional benefit, was back in October of 1974. This June, however, the group got together one more U.S. tour. International Musician tracked the group down at Chicago's Roosevelt Theatre, three weeks into their American tour and spoke with Jerry Garcia.

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How does it feel to be touring with the Dead again — keeping in mind your new band?

The Grateful Dead for me is a special situation in that it doesn't particularly reflect my attitudes musically at this point. It's an experiment and it's challenging because everyone has a different idea about what is good. But it's flexible enough so that none of us is committed full time — possibly something chemically or magically will happen to excite us. My band, on the other hand is in accord musically; everyone has the same approach, ideas and feelings about music and performance. It's much easier, and more fun.

Then why continue with the Dead at all?
Well, we do share a common ground and I'm sure we'll continue to play together, but only for periods of time which are practical and realistic. Basically, we all share a mutual respect for the people who like the Grateful Dead and like the things we've been trying to do over the years, and that's partially why.

How do you feel this tour has progressed?
Good on some points, bad on others. You see, ideally the Grateful Dead should be a public service — something which is available to everyone at minimal cost — but the places we have as options to play in are either small auditoriums or huge coliseums with nothing in between.

What do you see as the ideal "in-between," the old Fillmore layout?
Not really. A place which would be comparable in size to a theatre, but one which would not have any seating. Theatres with seats require a little too much behaviour. I would like the audience to feel more free than that but there are no such places around. On the other hand, I don't like coliseums so it's very frustrating.

No alternatives, not even the old dance halls?
There are only a handful of them around and they're small at that. To offset the problem, the Dead may end up playing at a permanent place out in California, designing a building for ourselves and playing there as a fixture. That would give us all the advantages we would want to have.

The Dead are reputed to have one of the most massive equipment rigs . . .

Yeah, probably the best unit in the world.

What sort of equipment are you using now?

We're using a more conventional set up right now. Two P.A. systems, one essentially for voices and one for instruments. One reason for all that equipment was because we were playing the Coliseums, huge 15,000 to 20,000 seaters. In order to sound good in there it required a lot of equipment just to create a wave front of sound which would reach the back of the place.

What kind of guitar do you use on stage these days?

I'm using a Travis Bean Guitar right now.

How do you find the aluminium neck's sliding ability when you sweat?

I don't sweat.

What do you like about the Travis Bean?

I'm really into them now, but when I first saw them I didn't know what to make of it - very strange you know - I picked one up, played it for about twenty minutes, put it back on the rack. The next day I started thinking about it, there was something exceptionally far out about the way it responded. I went back and bought one the next day and I've played it ever since. As far as I'm concerned, it's the first real quantum change in guitar technology. In terms of my own direction as a guitar player, it's been a process of developing greater control over touch, greater control over the tone of the instrument as a function of touch. It's, like, developmentally provided for me the next level I can advance to.

Do you mean developmentally in terms of technique?

I wouldn't describe it that way. It has more to do with physics, feeling. There are little refinements on the instrument which I never would have thought of myself, but just turned out to be really appropriate for my direction.

What direction would that be?

My approach has always been that everything is more or less equal. There is nothing tricky at all about my guitar set-up-it's very straight, all the strings are the same height, none sticking up, no modifications. As a guitar player I'm into precision and the Travis Bean is a real precision guitar. I also like the physical set up, the way it is one continuous piece of metal that both ends of the strings are attached to - no dampening properties, no acoustical feedback properties so you get maximum sustain from the strings. It is the first guitar which approaches a real electric guitar technology - forgetting about wood and its acoustical properties.

What were you playing before?

A guitar made by an excellent California guitar maker named Doug Irwin. It was kind of an expanded version of a Stratocaster.

What sort of amplification are you using now?

A Mesa Boogie Amp as a preamp and a MacIntosh 350 as a power amp, and I drive four JBLs on stage - a real straightforward set-up.

Do you use any other guitars?

I have two really nice acoustic guitars, a 1942 Herringbone D-28 (Martin) which I really love and a 1939 Gibson L-5 F-Hole - first year they made them with the cut-aways. They have a lot of personality and I use them both for recording. I have a couple of classic Strats, '56 and '57, in mint condition. And I have a couple of extensively altered guitars, a couple of custom built guitars and two guitars by Doug Irwin - the Strat and an expanded version of a Les Paul, and I have three Travis Beans.

Three Travis Beans?

Yeah, well, the great thing about them is that in terms of playing action, you have three similar guitars but each completely different in electronic set-ups. You can maintain the same touch sensitivity to the instrument but go into a totally different space electronics-wise. Needing a back-up guitar and having one virtually identical to the one I play is a real boon. No wood guitar has that kind of uniformity.

Isn't it possible that by striving for uniformity, you sacrifice quality?

That can be true, but this is one time where I think that mass production is a good idea. With acoustic instruments, it's different because you need to use wood, but electronic instruments really need to be brought into a higher level of technology. All this experimentation with

audiences tend to react with more restraint?

No, basically it's a Dead audience. We've had some great concerts in Europe. We had been warned by everyone 'Oh, the English audience, very reserved' but we played Wembley two nights and we had an incredible time; the audience was amazing, they totally got off on it. We had a more intense experience when we played the Lyceum Theatre in London for four nights. It was great, as crazy as anything we've ever played in the United States.

The only place I noticed any marked change in the audience was in the Scandinavian countries. And even then, the difference was characterised by that thing where they all clap in time, like



new materials, I think these are materials of the future. I'm not into using trees for instruments if it's not necessary.

What kind of strings do you use?

Right now I'm using Vinci strings and I'll probably use them for the rest of my life. The neat thing about them is that they don't contain any nickel in the compound-just steel and iron, which is great for magnetic efficiency. Mr. Vinci is the guy who built the string winding machines for all the other string manufacturers, so it's kind of like going right to the source. These things, the guitars and strings, are things I've only recently gotten turned on to.

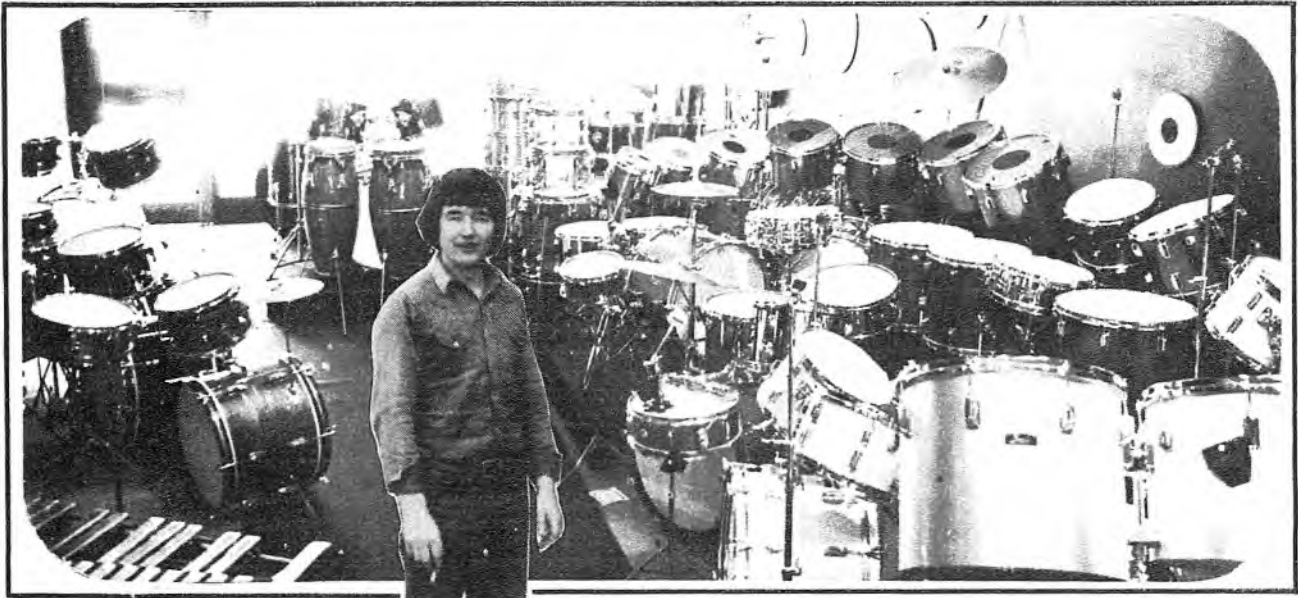
I know that Dead audiences in the States can be pretty loose; are Dead audiences elsewhere the same or do European

when the film projector stops in the middle of a film at the cinema and the audience gets angry; the first reaction is that they're going to tear the place apart, like they've really pissed off. But it's only a more orderly way of clapping.

Aside from the playing, have you been involved in any sidetrips lately, producing, writing?

I'm involved in a movie. It's been one of my things, film. I think I'll probably go on in it, maybe as a director or something. I'm not particularly ambitious but it's a whole new level of knowledge I've gained in the last year and a half. The movie is a Grateful Dead movie, about the Grateful Dead. Other than that, I haven't been doing much of anything outside of the music.

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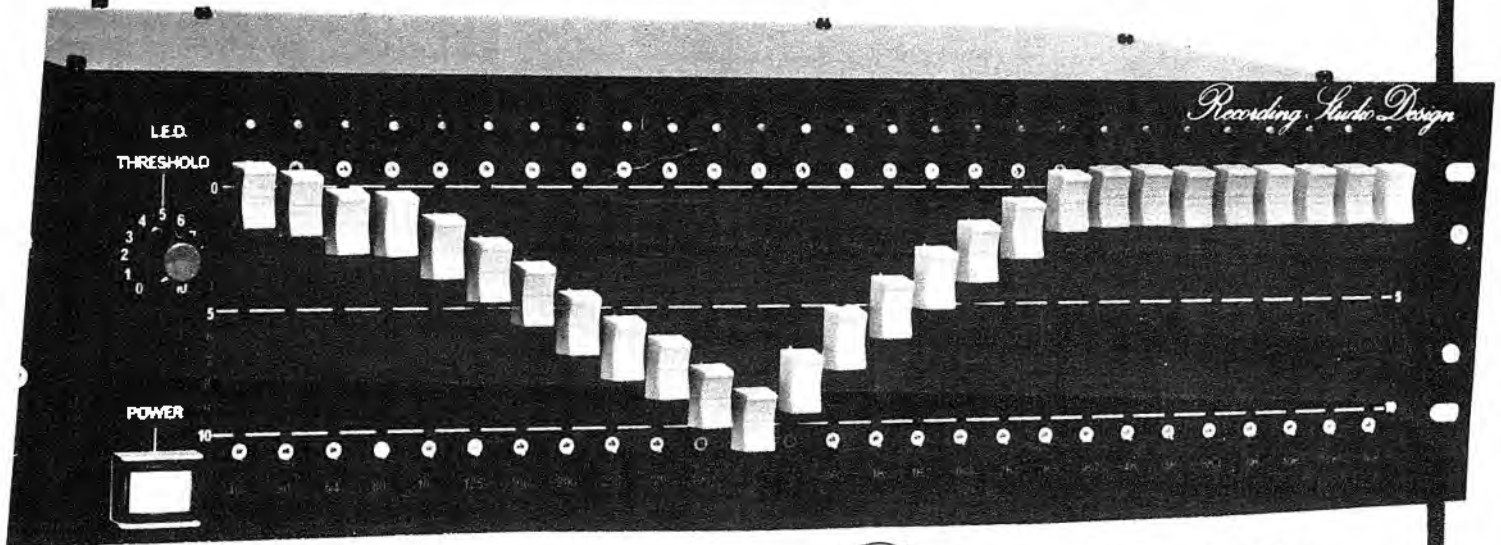
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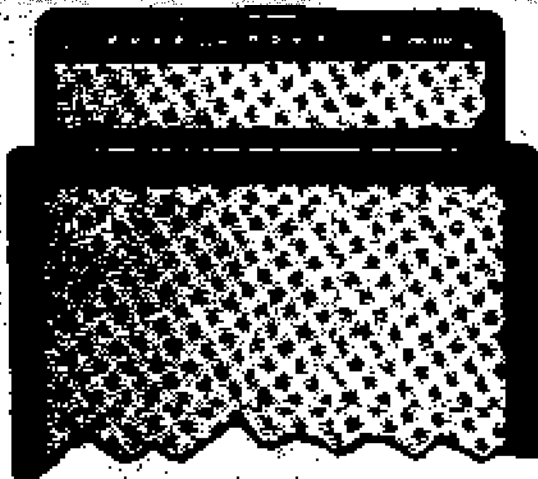
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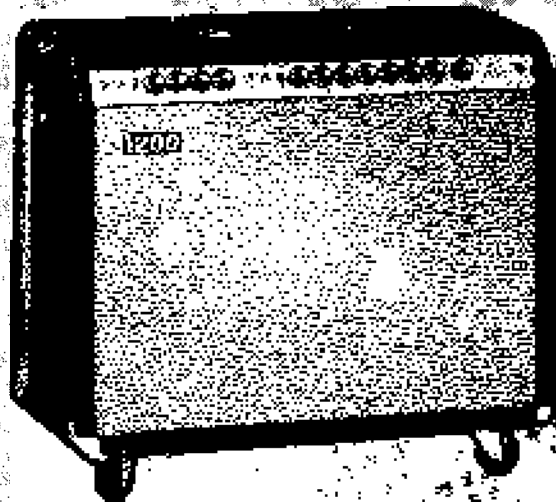


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Guitarcheck Guitarcheck

**National Dobro Metal
Body, model 33D
Price £231 Ex VAT
(This does not include a
case).**

This Guitar Check is a compilation of my assessment of the instrument and the opinions of a guest reviewer, Sammy Mitchell, who is a connoisseur of old Dobros and Nationals and probably the finest slide guitar player in Britain. As our opinions differed only on very small points, most of this review is presented as a joint effort.

Many years ago, there was a company in the U.S.A. which made very loud acoustic guitars. Instead of relying on a more or less flexible soundboard for coupling the string vibrations to the air, they used a rigid front to the instrument, with an aluminium cone mounted inside, rather like a loudspeaker cone. The bridge was attached to the centre of the cone, and like a loudspeaker, vibrations in the bridge caused vibrations in the cone, which was large enough to vibrate quite a lot of air, and produce a loud, if rather unusual, sound.

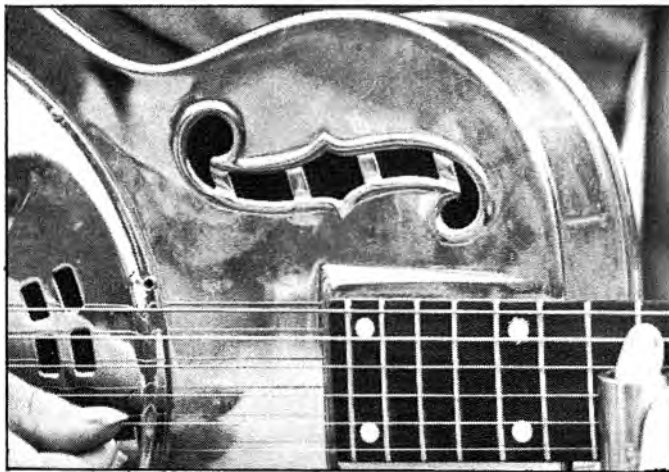
While the instrument was of great assistance to street musicians and band guitarists, the cone "resonator" tended to produce middle and high notes very efficiently, at the cost of a reduced bass end. Resonant soundholes in other parts of the top could only partly restore the bass output.

A large part of the credit for the design and construction of these instruments belonged to two brothers called Dopera. At about the time they discovered a more sophisticated form of metal "resonator", they appear to have left the original company, (whose guitars at that stage carried the name National) and started their own company making Dobro guitars, some of which incorporated the new "resonator".

If you remove the protective "Bin lids" (which you really shouldn't, unless you want trouble), the earlier "resonator" appears as an inverted loudspeaker cone with the biscuit-shaped bridge fastened to the high centre. The improved model uses a resonator shaped like a con-



Guest reviewer SAMMY MITCHELL and his Dobro



ventional loudspeaker, with a large centre dome. A long screw connects the centre of the dome to a casting shaped like a spider-web, with its edges resting on the outer edge of the cone. The bridge saddle fits in a slot in the centre of this spider-web and string vibrations are transmitted both to the centre of the resonator and to its edges. Neither bridge system ever incorporated any screw adjustment of bridge height and/or string action.

The screw adjustment in the Dobro bridge alters the contact pressure between spider and cone: its setting is critical, and incorrect adjustment can damage the cone. It is often assumed that National guitars had metal bodies, and Dobro guitars had wooden bodies. This is not entirely true; both companies continued in production and both seem at various times to have produced instruments from both materials.

The two resonator systems produce rather different sounds. The plain cone

sounds louder and has a hollow, middley quality, often heard on old recordings of blues artists, although one doesn't know how much of it was caused by the recording process.

Certainly, the old cones which I have seen are not the same as the new ones. The old ones appear thinner, they have crescent shaped stiffening ridges, and they are quite likely to buckle and tear over several years' use, if they are dented even slightly.

By contrast with the plain cone, I have always found that instruments fitted with the "spider web" resonator have less volume, but warmer or fuller sound, and better sustaining properties. Sammy agrees with this and also says that the presence of the spider web makes the strings feel less "spongy," and in spite of the quieter tone, seems to give the notes more attack.

The literature from the now combined National Dobro company states that the new instruments are made

from the same dies used for the originals. While I am delighted to see that the Dopera family seems to be running things again, the term "original" when applied to metal bodied guitars, is open to a variety of interpretations: for instance, original from which period? And for that matter, original to which company?

They are now making metal Nationals and wooden Dobros again, although both bear the name Dobro on the head, but what about Sammy's guitar, which has a metal body and a spider-web type resonator system? The new instruments may very well be similar to the "original" ones (that is, the earliest types made) but one should take care to distinguish between these earliest instruments, and the later, more sophisticated, and more graceful models which were, nevertheless, still present.

My review instrument seems to have the sides and back "deep-drawn" in one piece. This may be the original way of making metal body guitars, but on Sammy's guitar, the sides are smooth and flat, and the neck joins onto them neatly. On my sample, the sides appear still warped from the drawing operation, and do not line up properly at the neck joint. They could at least have trimmed the back to fit the warped sides! There is also a screw on the back of the instrument, just by the neck joint, which seems to hold the neck in place. I don't remember seeing such screws in even the earliest instruments.

If the screw is a real improvement, fair enough, but instead of being counter-sunk into the back, it is set into a standard cup-washer, which obviously cannot fit the curved back of the guitar. Sammy said the way the screw was fitted was a "Japanesism," and while I am sure that both screw and washer are of North American origin, I do understand what he meant. There is a "ramp" under the fingerboard to accommodate the angle between neck axis and body axis. You may also notice decorative embossing around the f-holes. There is a shallow recess in the front

of the body, which permits the front of the "bin-lid" cover, over the resonator, to sit flush with the front of the instrument.

Such features are part of the appeal of vintage instruments; they were almost certainly produced with some sort of die, and they do not seem to be present in any of the instruments in the current catalogue. The bin-lid on my review instrument is not recessed, has been pressed out inaccurately, and does not sit flat against the body round its rim.

I could find more examples: none of them significantly affects the sound or working characteristics of the instrument, but on aesthetic grounds and on quality of workmanship, my sample at least cannot compete with the best of the old instruments. Indeed, a retail price here of £250 could not possibly include the amount of time required for all the little details which I find so pleasing.

Other comments from Sammy were: That it was well finished, but that you could tell when it was made by looking at it; that the string break-angle over the bridge is already small, and should the neck bend a bit, lowering the action could be rather complicated. As the bridge is lowered, the break-angle becomes smaller, the "after ring," (from the string ends on the other side of the bridge) increases, and it can become rather distracting; The "ramp," under the fingerboard of Sammy's guitar, suggests that the neck leans back at a greater angle from the body axis, permitting a higher bridge to start with, and a greater margin for adjustment.

He liked: The solid construction, and the new-style slimmer neck, although this places a heavy burden on the truss rod, and only time will tell how well it works.

He disliked: The Grover Machine heads, which resemble the Grovers popular some years ago, but are less robust. Sammy has experience of these machines coming to pieces in his hands, and we both think that the similarity to more expensive and more reliable models of Grover Machines could mislead some people.

Travis Bean TB 1000 Artist Price £757 Ex. V.A.T.



I would estimate that about three quarters of the repairs I do to electric guitars concern breakage, either between head and neck, or between neck and body. Travis Bean seems to have fixed that problem: the head and neck are solid aluminium alloy and the end of the neck is interlocked and glued into the body from the cutaways to the bridge position. While it might be possible to bend the head a little, I can see no way that this guitar could be put out of action by the majority of on-stage and transport accidents.

Unfortunately, carving a neck out of a block of light alloy is still a tougher proposition than carving one from hard wood and this is reflected in the somewhat stunning price £851.62 is well outside my budget, and probably most people's, but there does exist a group of highly paid, highly competent touring and session musicians for whom the "accident proof" nature of this instrument and its general reliability would be worth any amount of money - assuming it pleases them in other respects.

It is my experience that new guitars which incorporate unusual features tend to be let down by other parts of the instrument which are poorly thought-out and/or poorly constructed. The price of the Travis Bean also reflects the fact that if you look beyond the aluminium neck, the rest of the construction is of a very high standard, both in design suitability and in workmanship.

There are one or two small points where this standard is not maintained, and which I would pass as tolerable in a lower-priced instrument. In this case, I feel that the price entitles the purchaser to an instrument which is perfectly adjusted at least to suit the average electric guitarist.

Some of the knobs bear mould - flash marks which are easily avoided by selection, and I would prefer the engraved numbers to be "linked in." It would also be useful to have some sort of index mark or pointer opposite the numbers on each knob; at the moment, it is difficult to observe and repeat useful volume and tone settings.

The selector switch creaks

and is stiff in operation. This problem is also easily overcome by selection, or by greasing and/or realigning doubtful switches. In addition, the small recess milled in the curved guitar front to give a flat mounting place for this switch is clumsily finished and looks more like a scar than an engineering convenience. Neither of these obvious faults should have been passed by Quality Control.

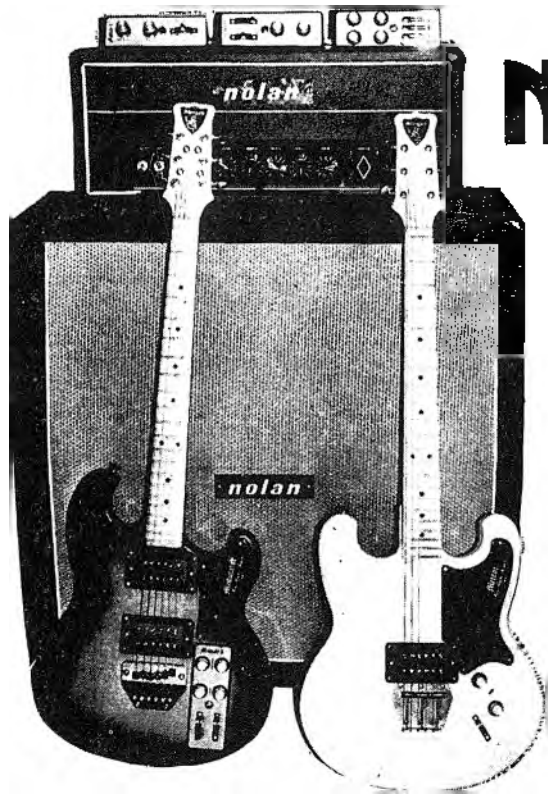
The finish could be better inside the head cutout: there are remains of polishing compo, and signs of skimmed surface preparation. I do not like the catalogue description of an aluminium nut (even a hand-made one), neither do I like the brass nut which is actually fitted to my sample. If for some reason the makers do not wish to use Ivory, there are more suitable substitutes than brass or light alloy.

The explanatory booklet which arrived with the guitar did not contain any information on maintenance of the aluminium neck, which could possibly be subject to corrosion from sweat and/or condensation during storage. I am surprised to find no mention of this in a publication which pretends to be transparently honest.

I am also surprised to find no explanation of the major reason for the guitar's excellent string-bending possibilities. Quite simply, the fingerboard is almost flat (not cambered) and the poles of the pick-ups are set for equal sensitivity at each string position. The flat fingerboard permits strings to be bent much further than usual, without striking the (raised) centre of the next fret. The pick-up arrangement sacrifices the ability to balance the output of different strings, in return for the advantage of undiminished output from the first string as it is bent across, and pulled over the second string pole pieces. The second string is similarly pulled into the normal position of the third string.

This is oversimplified, and the pick-over seems to be rather clever in eliminating the usual drop in output as a bent string passes between adjacent pick-up poles. This unusual feature justifies the

continued on page 24



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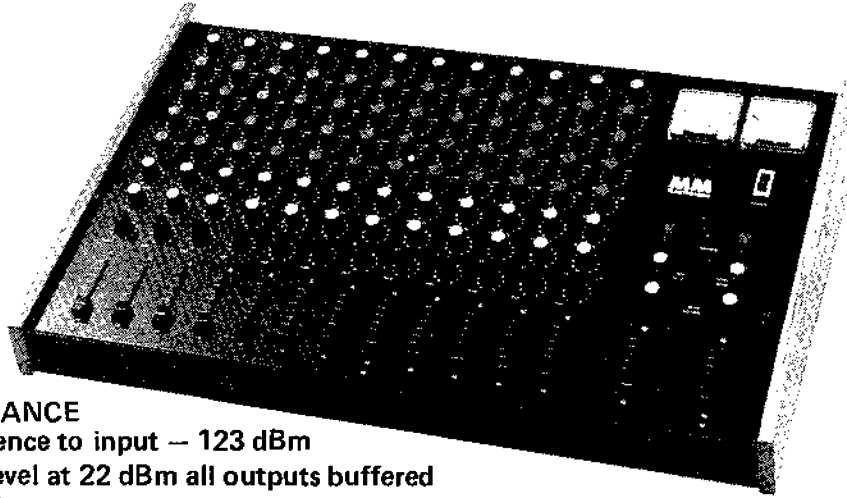
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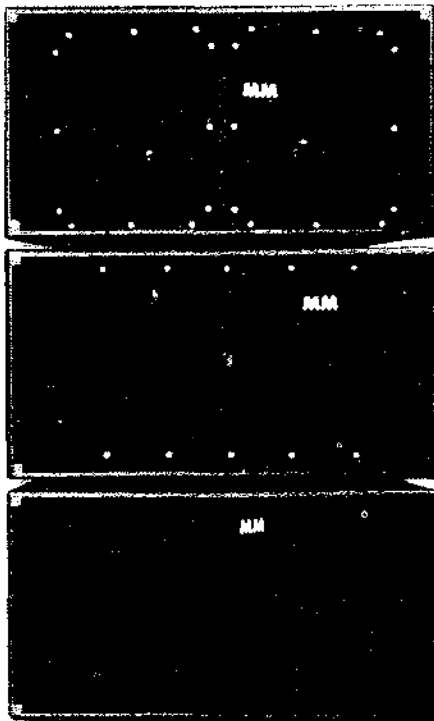
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Jack sockets are fitted as standard. Cannons are available at an additional cost of £50 per stack. Each stack of three cabinets retails at £450 and will be available from August

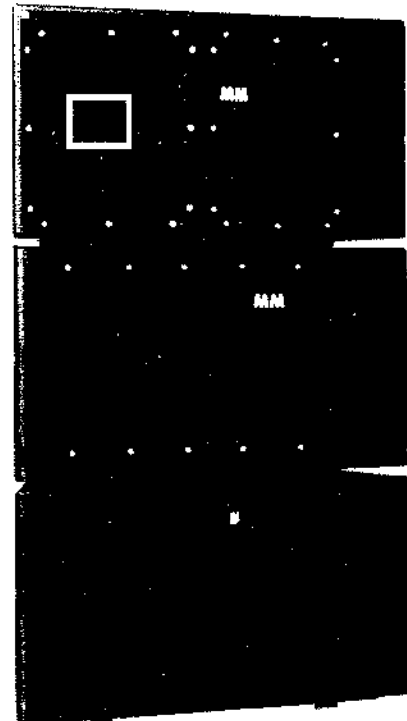
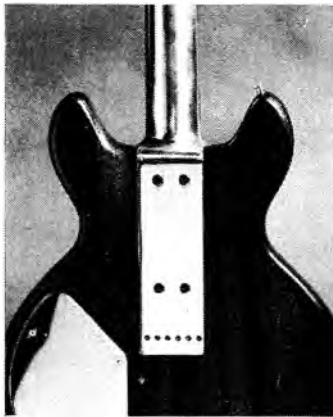


Illustration shows two complete stacks

Guitarcheck Guitarcheck



from page 21

particular design compromises chosen. The pickups also produce a rich and versatile tone which I find very satisfying, and the centre switch position gives a useful mix between two pickups whose tones are very different but whose outputs are, conveniently, almost equal.

One must also say, in fairness, that if you put a flat fingerboard on a poorly made guitar, you are still likely to have an instrument which has all the charm and spontaneity of last week's sliced bread. As I said before, the rest of the guitar has to be right. I just find it odd that such basic and critical modifications of the usual recipe should not appear in the manufacturer's literature.

What is of very great consequence to players in any style is that the combination of neck width and string spacing places the outer strings much too close to the edges of the fingerboard, and they fall off the ends of the frets with embarrassing ease. This is another serious oversight which seems to have escaped Quality Control inspection.

I particularly like the following details of the instrument: With the exception of the switch-mounting recess and the head cutout, the finish on all wood and metal parts is excellent. This includes the ends of the frets, and the edges of the fingerboard, which involve the difficult operation of polishing wood and metal at the same time.

The entire string support system from the head to the bridge and its mountings on the extension of the neck is representative of good engineering practice, and the

(unamplified) natural sustaining properties of the guitar justify the care taken. I feel that a similar type and length of sustain could have been achieved with a suitable wooden neck construction, but not with large-scale production techniques, and easily available species of timber. This aluminium alloy neck may be the shape of things to come.

I sincerely hope that other manufacturers, wishing to emulate the success of this design, do not attempt to bypass the neck shaping operation by die-casting, because I think they could have trouble with delayed warping. Machining from a solid block should minimise this effect, but I would prefer to wait ten years before I write that this neck will never bend in normal use.

If you, or your road crew, or frequent trips through airport baggage — handling machines tend to give guitars a hard time, you may break even, balancing the high cost of this instrument against the equally high cost of good repairs and hire charges while waiting.

You may alternatively find the price justified by the superb playability and ease of adjustment, but I would not advise you to buy it as a "Guitar to last you a lifetime" until we all know a little more about the way the neck reacts over many years. (Not only should no neck adjustment be needed, but if it does eventually become necessary, virtually none is possible).

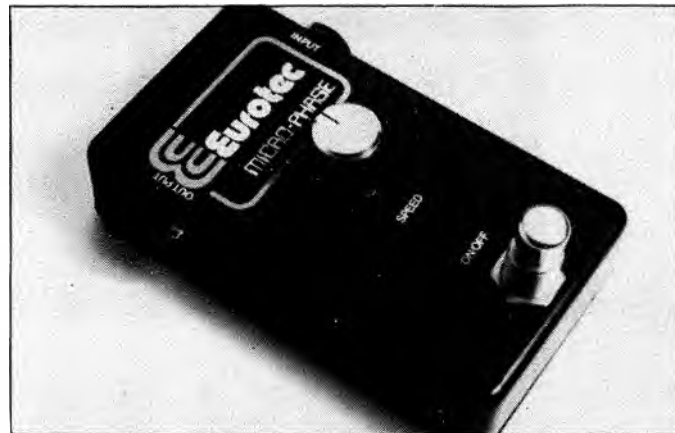
The measurements are as follows: Scale length, 625mm; string spacing at bridge, 51mm; string spacing at nut, 38mm; fingerboard width at nut, 43mm (these last two leave insufficient margin at the edges); action as supplied, 1.5mm bass, 1.5mm treble. The bass could not usefully be lowered any further, and these are both very low action measurements, but the action on the treble side was limited by a few frets of irregular height.

If these were stoned level, I would expect the treble action to go down to 1.1 to 1.3mm without trouble depending on playing technique. This is close to the lower limit of possibility on any guitar.

In Brief

Eurotec Micro-Phase. Price £27.62 Ex VAT

An extremely compact little unit, the Eurotec Micro-Phase is one of the new range of Eurotec effects pedals. Like the rest of this range, the Micro-Phase is finished in black and, measuring only 4½" (L) x 2½" (W) x 1¼" (H), is roughly the same size as the MXR Phaser. The on/off footswitch and speed control are situated on the top of the unit, while the input and output jack sockets appear on either side. The odd thing about the phase speed control is that the phase speed increases as you turn the control counter-clockwise.



This, I'm told, is deliberate as there is apparently more control and it is easier to preset when the pot is reversed. The actual phase is very good — a rich, warm sound with plenty of depth. The range on the speed control is also impressive. From a slow, three-second "phase" to a fast Leslie-type vibrato. A small PP3 battery powers the pedal and the circuit is so designed that when the battery runs down, you still get the same level of (clean) signal.

There is one snag. As with all pedals of this size and weight, it is very easy to pull it over with just a slight tug on a guitar lead. This, however, can be overcome by taping the unit to the stage with a small length of Gaffa tape or similar, so its not that much of a problem. Altogether, a nice phaser at nice price.

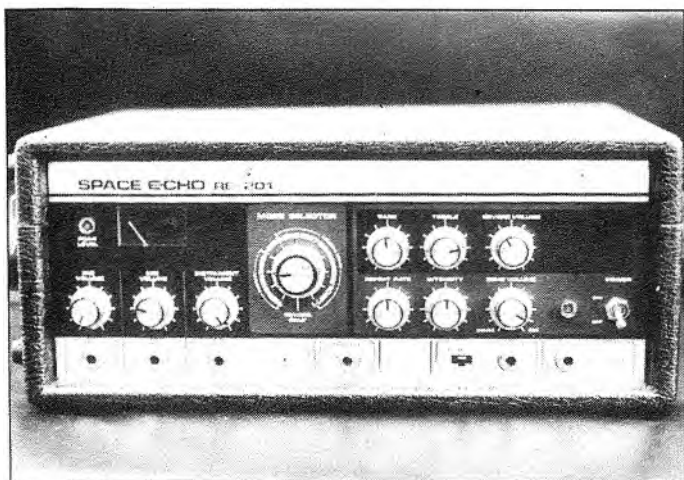
Roland Space Echo RE-201. Price £262.23 Ex VAT

Rapidly becoming a best seller in the world of echo units, the Roland Space Echo

is, without doubt, one of the best echo/reverb units we have yet to see. A Mode Selector switch, which changes the position and combinations of the three playback heads, gives a total of 12 different echo variations — there are seven Echo/Reverb, four Echo Only and one Reverb Only modes. Due to a three-spring Reverb unit, a very natural reverb effect can be produced. The unit uses a free-running tape system, minimizing wow and flutter and extending tape life to 300 hours. Fairly versatile mixing is provided by a separate three-channel circuit, consisting of one instrument

and two mic inputs. On the instrument channel, an Echo/Normal changeover switch is also provided so that, when it is set at Echo position, the instrument input is channelled through the echo chamber. When it is set at the Normal position, the instrument signal goes through unaltered, even when the two mic inputs are in use (i.e. echo). Naturally, all three inputs have individual volume controls.

There are two tone controls — bass and treble — which control only the echo sound, and don't interfere with the settings of the original output. A Reverb Volume control adds depth of reverb when the Mode Selector is set at Reverb Only or any of the seven Echo/Reverb settings. Similarly, the Echo Volume knob controls the overall echo effect without altering the original input settings. The echo increases as the control is turned clockwise. A Repeat Rate knob, by varying the tape speed, controls the interval of effect or repeat. This control is normally set in



the centre position and by turning it clockwise, the length of repeat is decreased by shortening both the intervals and duration. It's a particularly effective control – by turning it fully counter-clockwise and then rapidly rotating it, you can get some amazing effects.

For instance, if you play a chord on a guitar and then turn the knob from left to right very quickly, the speed will build up until it sounds like a rocket taking off. There's also an intensity control which alters the level of echo repeat, so if you have repeat set on a long delay, by turning the intensity control to bring the repeat level to the same volume of the instrument, you can play harmony lines with yourself at certain speeds.

To the left of the unit there is a VU meter and a peak level indicator. The VU meter obviously indicates the input level, while the peak level indicator uses a light-emitting diode to indicate input level above that which can be measured by the VU meter. When feeding high-output instruments like electric guitar into the unit, the pilot lamp flickers on and off. If the light stays on continuously, it means the input is too high, so the volume should be decreased until the lamp starts to flicker again.

The output socket is used for connecting to the Echo socket normally provided on mixers or, when mikes or instruments are connected directly into the Space Echo, for connecting to amplifier input. Next to the output, a three-position Output Level Changeover Switch is provided to control the output volume of the echo chamber to correspond with the power of the mixer or amplifier in use. There are three positions – L (low), M (medium) and H (high).

A normal on/off foot-switch is also provided for connection to the jack socket marked Footswitch on the front panel. This cancels the echo/reverb and the signal goes through "clean." Other specifications: 415mm (width) x 275mm (depth) x 185mm (height). Weight: 9.5kg. Accessories provided include a connection lead, footswitch, endless tape, cleaner and vinyl cover. The Space Echo is covered in black leathercloth with a detachable lid, allowing access to the playback heads (for cleaning) and the tape loop (for replacement).

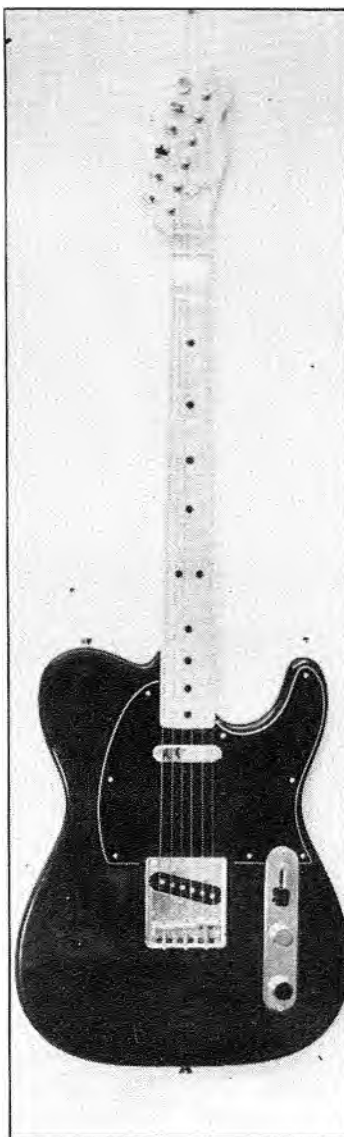
Grant Telecaster copy. Price £60.18 with case Ex VAT

Without doubt, one of the best Telecaster copies I have played, and also one of the cheapest. Almost identical in construction to its Fender counterpart, the Grant Tele plays well and sounds great. To my knowledge, they are only available in one finish – what's generally referred to as teak or walnut, the surface of which is highly polished and very attractive. The manufacturers have also had the good sense to fit a black scratchplate to complement the dark finish on the body. Like the standard Telecaster, it has two pick-ups – the treble or back pick-up situated in the bridge assembly and the bass or rhythm pick-up three-quarters of an inch from the end of the neck.

Both pick-ups seem identical to the Fender units both in appearance and in sound. The treble pick-up gives a harsh, biting tone (and, like the Fender, feeds back without too much coaxing) while the bass unit gives a smooth round sound. The associated controls are mounted on a steel plate and consist of pick-up selector,

volume control and tone control.

The bridge assembly, again, is identical to the Fender Tele. Behind the angled back pick-up, the steel plate also houses three bridge pieces, each of which has two grub screws for height adjustment and one long screw for length adjustment. The neck and fingerboard are constructed from maple with black position markers. My one criticism is the way the fingerboard has been sprayed. The polyurethane covers not only the fingerboard, but the frets themselves. This should



have been done before the instrument reaches the shop, as it tends to peel off the frets in pieces, leaving a lot of "dead" spots on the fingerboard. It doesn't come off too easily either. To render the instrument playable, I had to carefully peel and chip off the lacquer from each fret. Again, this can be a tricky operation, as it is all too easy to scratch the

surface of the frets and a re-fret can prove costly. This, however, is the only criticism on the Grant Tele. The general construction, finish, feel and, most important, playability of the instrument is virtually faultless.

Colorsound Compac Piano. Price £179.68 ex V.A.T.

Made by an Italian company, the Colorsound Compac Piano is an extremely versatile little keyboard. With a rapid growth in the number of bands using keyboards, a relatively inexpensive instrument like this is well worth checking out, and it would also be useful as an addition to a more sophisticated line-up. Obviously, at that price it's not a Fender or a Wurlitzer, but it still offers a fair range of sounds.

It features a five octave (61-note) keyboard, and the controls are laid out on a panel to the left of the keyboard. There's a volume control and three rocker switches – Piano, Honky-Tonk and Clavichord. These can be used individually or "mixed" together, giving a total of seven combinations.

For added versatility, there is also a pitch control located under the centre of the keyboard. Obviously, this is provided for fine tuning – if the guitars in a band are not tuned exactly to concert pitch, the piano can be tuned up or down. However, by careful use, a gliding sound can be obtained (as long as your ears are good enough to return it to its original pitch). In this way, a pedal steel guitar can be simulated by playing two or three notes and gliding them up or down to the next chord.

The Piano tone is good – smooth and mellow, although this can be altered via the tone controls on your amplifier. If you're playing rock and roll, a little more treble and "bite" is needed. The Honky-Tonk tab is a tinnier, nasal sound, while the Clavichord is a bright, hard sound – try the intro to "Lucy In The Sky With Diamonds" with the keyboard set on Clavichord.

An on/off sustain foot-switch is also provided, which plugs in to the jack socket on the rear of the keyboard. Unfortunately, there is no Vibrato facility provided on the keyboard. While it would increase the cost a bit, it would be particularly effective on the Piano tone a la Fender Rhodes.

If you've been performing without a monitor system, chances are you've had a lot of bad gigs simply because you couldn't hear what was going on.

It is extremely important for the performer to hear the vocals and instruments at least as well as the audience. In most cases this is practically impossible without proper PA monitoring.

The Peavey Professional Monitor System is designed to function along with any existing PA to provide a main system monitor.

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STANDARD PA

130 watts RMS; 4 entirely separate channels with two wide range inputs along with volume, bass, treble, and reverb on each channel; master section containing controls for overall volume, bass, treble, and reverb for professional PA effects; a monitor output jack for driving an external monitor system; ultra modern design and extremely wide dynamic range create a versatile, rugged PA amp that is without question the finest in its price range.

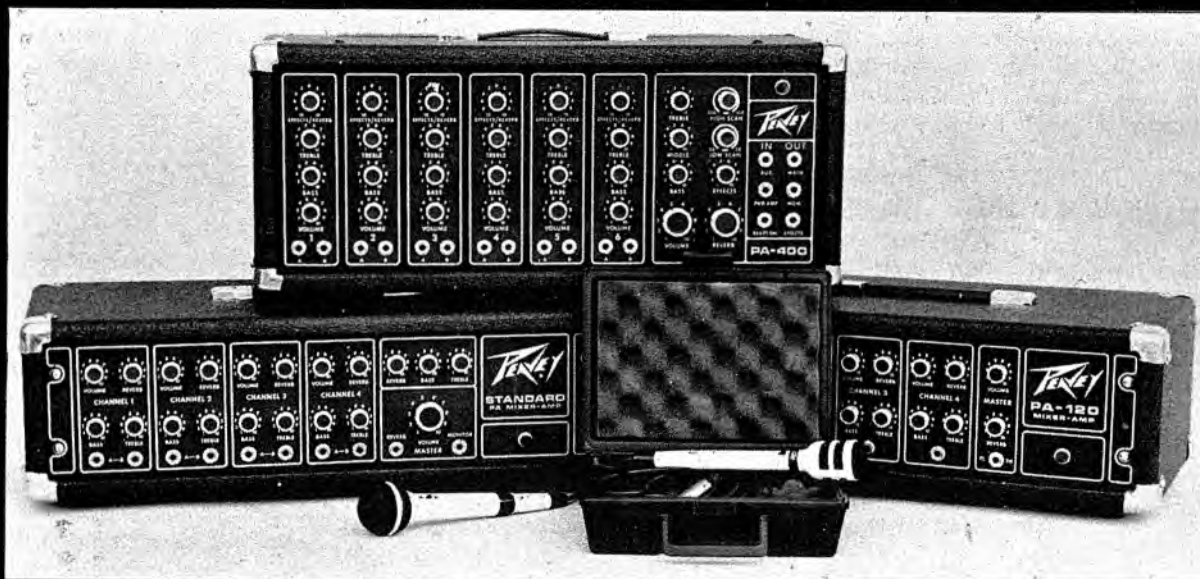
PA 400

The Peavey PA 400 approaches the ultimate in "packaged" PA amps. 200 watts RMS; 6 channels with low and high gain inputs, controls for volume, bass, treble, middle, and reverb/effects send on each; a master section featuring master controls for volume, reverb, treble, bass, middle, and effects for optimum balance of the entire system; unique "scanning" anti-feedback filters that may be activated in the low and high frequencies to tune out feedback; a patch panel containing outputs for driving external mixers, power amps, monitor, or effects units; auxiliary inputs, power amp input, and an input for reverb footswitch are featured in this highly professional unit. The exceptionally reasonable price of the PA 400 reflects the sophistication of engineering and design rather than any lack of features and is in accord with the Peavey policy of producing the very best unit for the least money.

All Peavey PA amps are available with a variety of columns and enclosures.

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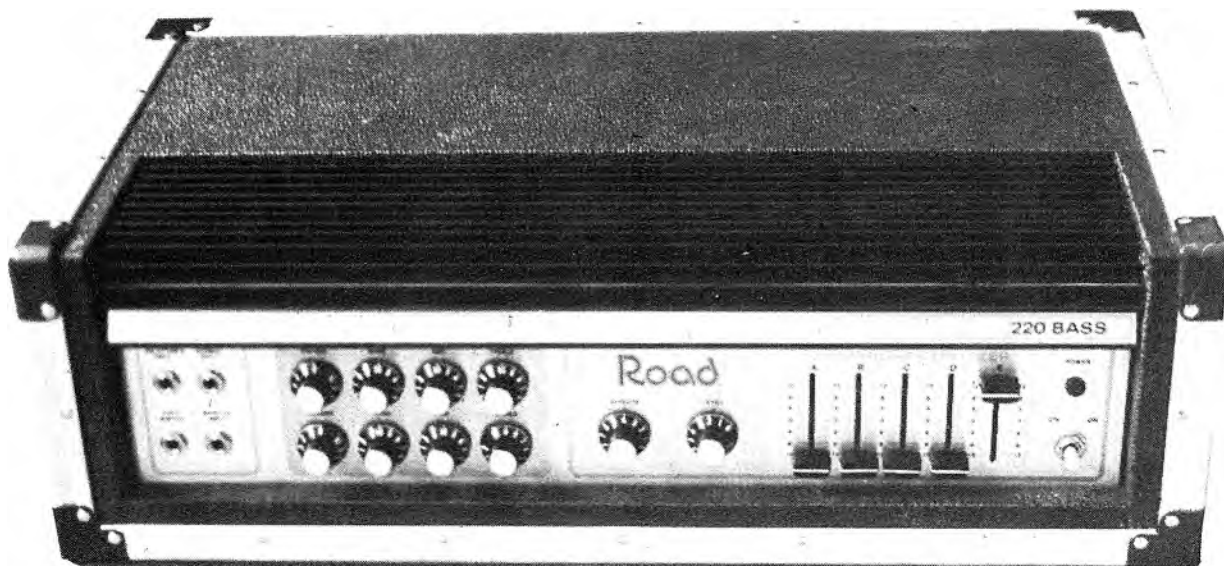
Soundcheck Soundcheck

TEST ON: *Road 220 Bass Amplifier*

DATE: *June, 1976*

PRICE: *£345 Ex VAT*

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



INTRODUCTION

The American Company Road produce a wide range of professional equipment especially designed for touring bands and musicians, including a 220 lead amplifier, 440/220 bass amplifiers, 2 x 12 lead and 1 x 15 bass combination amplifiers, and 118A-B/212 E.V./412A-B speaker cabinets.

Relatively new to the British market, the Road 220 solid-state bass amplifier incorporates two independent channels, providing normal input (volume, bass, middle, treble controls) and E.Q. effects input (volume, bass, middle, treble plus five band graphic E.Q. with effects/level controls).

The Road 220 bass amplifier is constructed in 3/4 inch (19mm) plywood, and covered with good quality black vinyl-like material, and protected with heavy duty metal corners and aluminium edge trims. The external dimensions are 8" (200mm) x 26" (650mm) x 14" (350mm).

CONSTRUCTION

The front panel carries both channels' input jack female sockets, special connectors provide switchable input — for switching between channels — graphic E.Q. volume/bass/middle/treble controls, red illuminated control light and on/off/on power switch.

At the top of the Road 220 bass amplifier, there is a black anodised heat sink which is thermally joined for heat dissipation (pat. pending).

The rear panel carries two output sockets for driving 8 ohms speakers' load and 600 ohms line out for another amplifier, for mixing directly into a sound system or tape recorder. To

decrease the overall weight, the main frame has been constructed in aluminium, containing the electronics with convenient access to the underneath for easy maintenance and service work.

The pre-amplifier and effects drive unit is constructed on 125mm x 275mm glass fibre PCB containing two I.C. (S7533 and 7506), 24 silicon diodes and 16 transistors. All potentiometers fit on to the main PCB which contains two three-way and one six-way circuit connectors. The graphic E.Q. measures 165mm x 105mm PCB and contains five I.C. (S7531), four transistors and five 60mm faders, realising 40, 80, 160,

320, 640, Hz equalisation which boosts or cuts with approximately 12dB per band.

The power section is constructed on a 180mm x 110mm. PCB which locates ten transistors and five diodes. The driver stage built with RCA 65351 and 65352 transistors provides the necessary voltage/current for the power 2N 3773 transistors, having a hometaxiel base and drive of 30 amps nominal current.

For better low frequency reproduction, a large electrolytic 4000 uF/75 VDC capacitor has been fitted. This particular amplifier represents about the

ultimate power which may be obtained from this configuration into 8 ohms speakers load.

The power supply is a simple unregulated unit containing a professional

class 115/240v — 50/60Hz mains transformer — bridge rectifier and a smoothing 4000uF/vdc electrolytic capacitor which keeps the residual hum noise at a low level. The power supply is protected with

one 313/3AG quick blow 3 amp fuse. The Road 220 bass amplifier is fully guaranteed for one year from date of retail purchase against defects in materials and workmanship.

PERFORMANCE

	RESULT	TEST CONDITION	COMMENT
Specific Power Output	153.8W. r.m.s. 120.12W. r.m.s.	@ 10% T.H.D. at 8 ohm. ref. 1KHz. @ Onset of clipping at 8 ohm. ref. 1KHz.	Satisfactory
Total Harmonic Distortion	1.3% 0.8% 0.4% 0.06% 0.02%	@ 110W. r.m.s. @ 80W. r.m.s. @ 50W. r.m.s. at 1KHz. @ 10W. r.m.s. with 8 ohms. @ 5 W. r.m.s. load	Slightly higher than manufacturer specification but mainly 2nd harmonic
Sensitivity	7.25 mV. 40 mV.	I.P. 1 Input required for I.P. 2 110W r.m.s. into 8 ohm at 1KHz.	OK
Graphic E.Q.	+13.05dB. -12.54dB.	pos. A (40Hz.)	Very effective variable — Q gyrator circuit
	+12.17dB. -12.04dB.	pos. B (80Hz.)	frequency response flat with all graphic
	+12.82dB. -11.16dB.	pos. C (160Hz.)	controls in central position.
	+11.50dB. -13.46dB.	pos. D (320Hz.)	
	+12.73dB. -12.38dB.	pos. E (640Hz.)	
(a) normal input channel	+12.15dB. -10.85dB.	Bass at 20Hz.	
	+12.75dB. -11.25dB.	Mid at 250Hz.	
	+9.15dB. -10.05dB.	Treble at 3000Hz.	
(b) effects input channel	+11.12dB. -9.01dB.	Bass at 100Hz.	Satisfactory but symmetry leaves a lot to be desired
	+10.01dB. -12.06dB.	Mid at 300Hz.	
	+11.01dB. -10.17dB.	Treble at 800Hz.	
Signal to Noise Ratio	Better than 77dB.	Related to full output condition + flat E.Q.	Very good
Capacitive Load Test	OK	10KHz. square wave	Good
Short Circuit Test	OK	2 min short circuit.	No ill effects.

CONCLUSION

I'm very impressed with the high standard of workmanship and easy to service design of the Road 220 bass version. The quality of most electronic components is among the best available, the soldered joints are good and the wiring is clean and tidy.

One thing, however, I would be happy to see changed is the incorrectly colour

coded power lead which is a serious complaint and violates the present I.E.E. regulations. This latest amplifier from the respected American House of Road should be factory prepared to comply with U.K. regulations before arriving in Britain.

Despite this, the amplifier produced a good untroubled sound when used with

large speakers to give a precision bass sound.

"For the Road," the Road amplifier is an ideal piece of equipment, not too heavy, with a professional finish and quality engineering, and it should suit touring groups and musicians.

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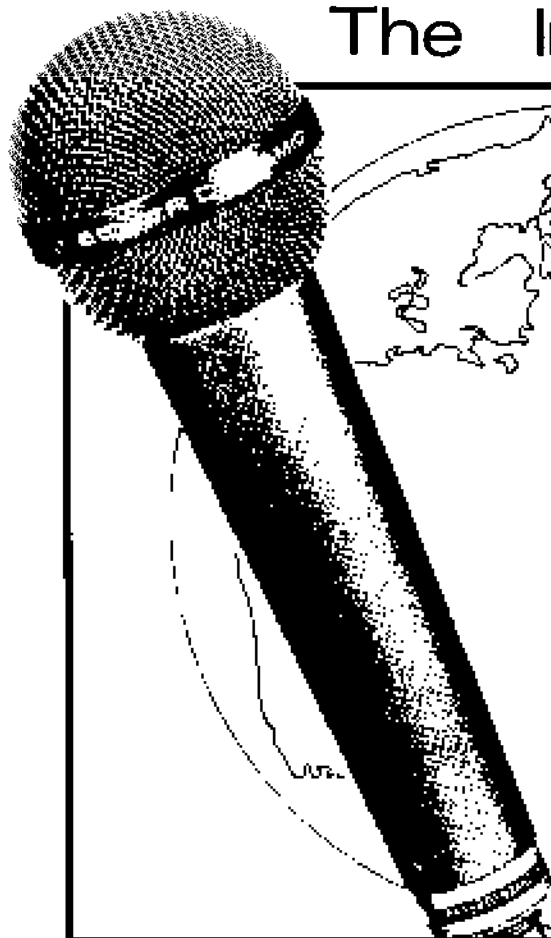
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TEST ON: *Marshall MK 2 Master Model 100W Lead Amp*

DATE: *June 1976*

PRICE: *£184.73 Ex VAT*

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



INTRODUCTION

The Marshall MK 2 Master Model 100W lead Amplifier represents a series of Marshall products sponsored by Rose-Morris. Through exhaustive research, exacting quality control and close work with the team, the products have attained a high level of popularity and need no further introduction.

Marshall's 100 watt amplifier has been on the European and World markets for many years now and this new version retains its traditional design and specific sound. An extra innovation is the new design of the input stage which maintains

the "Marshall Sound" at any volume level, making them ideal for stage, studio and domestic use.

The control panel contains an additional pre-amp volume control with a master control, and this construction continues the characteristic Marshall sound. The MK2 model is a standard valve lead amplifier which is suitable for guitar, organ and vocal purposes; its three-way impedance selector (4, 8, 16 ohms) matches the amplifier to any Marshall speaker cabinet. The front panel contains the On/off power switch, red

light indicator, standby switch, presence, bass, middle, and treble controls, master volume and a pre-amp volume potentiometers. The single instrument channel input accepts one high and one low sensitivity. The rear panel carries a load impedance selector, two jack sockets, a 5-way selector for 110, 120, 210, 220 and 240v; 50Hz and mains 2A/HT 1A fuse sockets. A mains 3-pin plug (earthed type) with 2 metres of power lead is also provided.

CONSTRUCTION

The cabinet is constructed of a robust seasoned wood covered in a hard wearing black vinyl. One handle for transportation is mounted on the top of the cabinet (the measurements are 730mm x 275mm x 210mm). The electronic design of the above amplifier consists of a pre-amp (2 x ECC 83), a driver section (ECC 83) and a power stage (4 x EL34), and a solid-state power supply.

Inside, an 80mm x 295mm fibre glass PCB carries the majority of the small components which are neatly arranged and of a high quality. The wiring is tidy and appropriately colour coded, and the

ECC83 sockets are made of white ceramic material.

Both output/power supply transformers are substantial in size (100mm x 96mm x 100mm) and well equipped for their job. The top of the chassis contains six 50 uF/500v Daly type electrolytic capacitors held down by special ring clips for better conductance and for reduction of hum. Access to the amplifier for both servicing and maintenance is simple — a result of a well-planned and designed system.

The difference between this new model and Marshall's previous ones is

that the THD distortion level is maintained more or less throughout the whole range of power — a representative figure of this is 4.75%, with predominance of the second harmonic.

The MK 2 amplifier is ideal for use with various combinations of Marshall equipment. Taking into account that this unit was designed as part of a stack, the amplifier has been provided with self-adjusting castors, which guarantee a firm grip to the top unit on the stack. A valve amplifier, the MK 2 (like all other valve amps) tends to get hot, so it is provided with a ventilation panel of fine net to prevent overheating.

PERFORMANCE

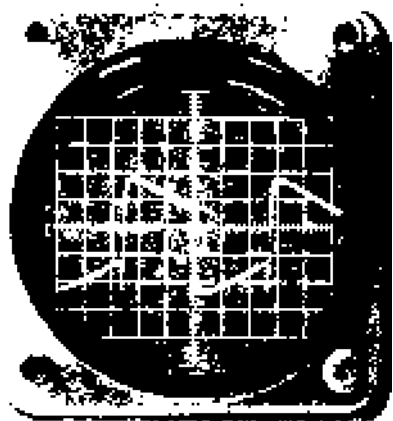


Fig 1. Response of the amplifier with 500 Hz. square wave signal, dummy load 8 ohms ret. high sensitivity input at 5.2 mV.



Fig. 2. The Total Harmonic Distortion at full output with the 1KHz. input signal ref. 8 ohms. dummy load. The filtered out distortion at level of 4.75% T.H.D., consists largely of second harmonic components.

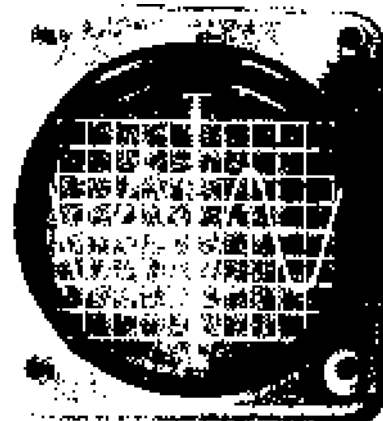


Fig. 3. The output signal(1KHz) just at onset of clipping ref. 107.2 W. r.m.s. into 8 ohms.

	RESULT	TEST CONDITION	COMMENTS
Specific Power Output r.m.s.	151.90 W	@ 16 ohms	R.M.S. power at
	136.12 W	@ 8 ohms.	10% T.H.D.
	169.0 W	@ 4 ohms.	
	121.0 W	@ 16 ohms.	Power at
	107.2 W	@ 8 ohms.	onset at
	112.36 W	@ 4 ohms.	clipping.
Total Harmonic Distortion (T.H.D.)	4.75%	@ 100W	into 8 ohms.
	5.25%	@ 80W	at 1KHz.
	5.05%	@ 50W	
	3.81%	@ 30W	
	1.45%	@ 10W	
	0.57%	@ 1W	
Sensitivity for 100 W. r.m.s. O.P.	Hi 5.2 mV.	l.p 1 Tone controls set for best square wave response.	Quite high sensitivity which is more than enough for this amp applications.
	Low 15.2 mV.	l.p 2 1KHz. ref. 4 ohms.	
Signal/Noise Ratio	Better than 69dB.	All controls – mid. position measured at 1KHz. into 8 ohms.	
Tone Controls Range	Presence 8.0dB. swing	@ 10KHz.	Satisfactory
	Bass 15.0dB. swing	@ 50Hz.	Good
	Middle 14.0dB. swing	@ 700Hz.	Good
	Treble 35.0dB. swing	@ 10KHz.	Very good
Capacitive Load Test	OK	2uF + 8 ohms. dummy load	
Open Circuit Stability Test	OK	Master, pre-amp, – max. tone controls – mid. pos. dummy load removed.	Very good
Short Circuit Test	2 min. short circuit		No ill effects.

CONCLUSION

The continued popularity and appreciation of a valve sound for lead guitar has resulted in this improved version of Marshall's legendary 100 watt lead amplifier. Quality control has been rigorously maintained but the most significant feature of this amplifier is that the new input stage enables an overall balance of sound at all volume levels.

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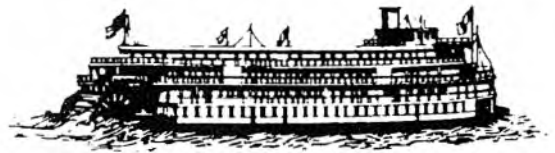
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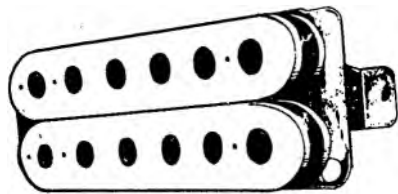
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**STEPHEN DELFT LOOKS AT
DI MARZIO PICK-UPS**

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**Super Distortion
Humbucker Pickup**

These American-made pick-ups have recently arrived in Britain and are being distributed to the trade by Sola Sound/Macari. The Di Marzio company is apparently attempting to fill the needs of musicians with fairly recently made electric guitars and basses, who regret that their instruments do not have the tone or sustaining properties of "Vintage" models. The range includes Humbucking pick-ups called P.A.F., and Super Distortion, and single-coil pick-ups called Fat Strat and Pre B.S. Tele.

The naming of these units seems to define as closely as possible their

intended uses, without giving grounds for legal proceedings. It is most unlikely that any prospective buyer would miss the point, with the possible exception of P.A.F., which refers to the early models of Gibson Humbuckers, made before patents had been formally granted, and therefore labelled "Patent Applied For." (Later Gibson Humbuckers may sound better or worse, depending on your taste, but in my experience, they certainly sound different, and let no one tell you differently without providing adequate evidence!)

I feel that there are two many variable factors, other than pick-ups, which are concerned with the legendary qualities of 'Vintage' guitars, and I can not therefore recommend that fitting the appropriate Di Marzio pick-up to a recently made instrument, will magically concert it into an 'oldie.' What I can say, after many hours of exhaustive (and exhausting) tests, is that the 'Telie' pick-up sounds like what I always wished I could get from a Telecaster, (which may not, of course, be what the designer intended), and that the P.A.F. model comes rather close to the sound of a very early Humbucker. By Comparison, I feel that a recent Gibson humbucker (about 1970) sounds rather dull, and as if stuffed with cotton wool.

A comparison of impedance curves of the pick-ups, shows the Super Distortion model to have its peak around 10KHz., as

compared with about 4KHz. for normal humbuckers of various makes, and this would suggest a treble extension of more than an octave.

Subjectively, the effect seems less marked in normal use, but the treble end is certainly much extended, and could give a Flanger something to get its teeth into. This model also has a higher output than usual, but for tone I prefer the P.A.F. type.

All the pick-ups I tried are acceptably non-microphonic and insensitive to feedback, and this is particularly valuable in the case of the Telie model, where feedback in bridge pick-up of old instruments is often a serious problem.

I could not entirely like the sound of the "strat" model, but shortage of time has prevented further investigation.

All these pick-ups are worth listening to, and considering their American price, I think Larry Macari should have credit where it is due, for presenting them at a price which is possible for ordinary musicians.

I do appreciate that removing pick-up covers is fashionable, and can in some cases improve their tone, but it leaves them wide open to interference and damage. The Di Marzio pick-ups are supplied "Lidless" and could have the same problem. Why not use gapped copper foils, or is the whole point of the exercise to expose two interesting-looking cream coloured bobbins?

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Drumcheck Drumcheck

TEST ON Pearl Full Dimension Fibreglass Kit

DATE June 1976

PRICE £509.26 Ex VAT

TEST BY Bob Henrit



It's exactly a year since I did my first Drum Check on the Pearl "Rock Kit" and, as we have all seen, the company have come on like a house on fire. With virtually any other manufacturer, it would be too soon to do another examination, but Pearl change things literally every month, so I thought I'd look at their Full Dimension set and tell you what I thought about it, and also what changes have been made in Tokyo in the past 12 months.

The Full Dimension is a slightly unusual set, in that it includes four single headed toms from 13" to 16", with a double headed 18 x 16 floor tom-tom and the option of a 22" or 24" bass drum with a 5" metal shell snare drum. I inspected a fibreglass set with a 24" bass drum. Pearl's other materials are available and these include wood/fibreglass or phenolic (re-cycled paper which looks like bakelite). Pearl's concert toms are, however, only available in the man-made substances, and so it's necessary to have a set with drums of two different materials should you plump for a wood/fibreglass bass drum and floor tom-tom.

I think that these synthetic substances with their extra hard surfaces are better for single headed drums and give them the sound projection which they miss by having only one head. The melodic tom-toms are fitted with Remo C.S. heads; while the snare drum, bass drum and floor tom have the ordinary white Ambassadors.

The set-up would take some time to get used to, as its 15 x 12 and 16 x 14 melodic drums are mounted to the drummer's left, and above his floor tom-tom. This creates a problem: where to put the side cymbal, since it's impossible to bring one of Pearl's normal cymbal stands (two are supplied) close enough for comfort. Under these circumstances, the only thing to do is to splash out another £25 on Pearl's super-duper boom stand. It's relatively expensive but it works really well and would be an investment, but more about this later.

Tom-Toms

The 13", 14", 15" and 16" open ended toms have a brittle and cutting sound, due mostly to their extremely hard interior and exterior shell finishes and composition. (Just as an experiment, I'd be interested to know what they sounded like with Ambassador heads. I think their sound would be a little warmer).

The 18" drum has a really big, explosive sound: both you and the audience will know when you've hit it. The 13" tom-tom had six nutboxes, as had the 14". The 15" and 16" both had eight at the bottom.

Bass Drum

The 24" bass drum had, as you might expect, a really big sound, with more of a "bang" than the wood/fibreglass

model, which offers more of a "thud". However, this bang is more compatible with the sound of the concert toms, and thus is better for the overall sound of the kit. If I had the fibreglass set, I would only use the bass drum single headed, or also fit a strip damper to the front skin. The 24" has 20 heavy nutboxes, tympani-type tuners and claws. The spurs have been updated since last summer and the knurled knob I disliked has been replaced by a large wing bolt which I much prefer. The spurs are unusual in that they are fixed to the shell and swivel forwards on the aforementioned wing bolt for set-up and backwards for putting away. These spurs can be ingeniously lengthened on a screw thread and fixed with a locking nut. Like some other drums, they have rubber feet with a retractable spike for difficult playing positions.

The counterhoops of all Pearl bass drums are sectional chromed metal construction with inlaid plastic, heavy enough to influence the sound in the best possible way. Two felt strip dampers are supplied and I contrasted these with those of some other makers. Pearl's are slightly thinner and a little bit narrower. I'm surprised Masani Yanagisawa hasn't changed the felt for some more modern and suitable material by now.

Snare Drum

The drum supplied with the Full Dimension doesn't seem to me to be compatible with its modern rock'n'roll image and concept. It's the 5" metal shell which doesn't have the depth and "guts" of its 6½" brass shell stable mate, but a very bright, snappy sound which should please most drummers — but not, if I may hazard a guess, the sort of player who might be choosing Full Dimension.

This drum has ten lugs, an internal damper with a very cheap looking operating knob (there I go again), a positive, adjustable vertical cam action, die cast snare release, twin shell strengthening beads to stop the drum from buckling and a new innovation: an off centre, snare head favouring sound hole.

The drum has 20 medium gauge snares fixed to its strainer with the Japanese 'sixties innovation — a plastic strip. None of the Pearl snare drums have old-fashioned snare beds, but instead use a

very gradual eight inch indentation around their snare contact points. The rims are of light gauge, clear sounding triple flange drawn steel.

On my first Pearl Drum Check, I recall being sceptical about the fit of the 7/32" tension screws into their nut-box inserts. However, I've lived with them for some time, and I withdraw my criticism with no reservations: they work very well. Incidentally, I took a Pearl nutbox apart the other day and found that they are now padded. There's a cylindrical piece of foam rubber fitted inside the spring which effectively stops the spring from singing in sympathy and causing the drum to rattle.

It's a very important modification as far as the studio drummer is concerned. For other applications, it makes the drum a little more solid sounding, since it does away with minute reverberating cavities attached to its side.

Accessories

The two double tom-tom holders supplied with the set are basically normal concert tom-tom stands, one stuck into the bass drum and one mounted on what seems to be the bottom half of a boom stand. The bass drum stand has an indentation running from top to bottom which locates into a "key" in the bass drum attached holder, which is substantially made from pressed steel. This "key" reasonably stops the mounted drums from turning away from the player and a large wing bolt looks after perpendicular adjustment.

The method of attaching the drums is, I think, much the same as the timbale holders used by Ludwig. A "U" shaped piece of metal is rivetted to the top of the tube and strengthened with a tubular cross member. Each side of the "U" locates inside a small female attachment which is screwed to the side of each drum. So far so good. The drums are kept apart by a shaped piece of wood with concave radii covered with felt which, with limitations, does the job.

This block can be moved up and down between the two drums and locked in the desired position with a bolted collar. I think it's about time somebody "breathed on" concert tom-tom holders per se because there should be lateral adjustment on the wooden block and some sort of locking nut on the male and female holders themselves. (Pearl's are adjustable in one way but you do need a file to carry it out).

The drums can't be angled in towards each other but I don't consider this to be at all important. What is important is the angling towards the player which is achieved with a wing bolt activated, large cymbal tilter type, splined, sprung radial-ratchet.

Pearl have a new hi-hat, which is basically the same: a centre pull, nylon sleeved, cast foot-plate with hole for toe stop, metal strap and substantial bottom cymbal seat and top cymbal clutch. It has tripod configuration, adjustable spread legs and large wing bolts for height and other adjustments.

The adjustable expansion spring is now side mounted and so more conveniently operable from playing position. The centre rod has been beefed up another 1/16" but for me still doesn't allow the pedal to go high enough. Still, be that as it may, the unit has a "smooth as silk" action and is effortless to operate.

The bass drum foot pedal has one important innovation. The single lever operated cam-action clamp which fixes the pedal to the rubber block on the counterhoop has been slightly sprung, so it throws itself off when the unit is removed. Basically, the pedal is quite simple, with just a few essential adjustments: stroke, beater height, spring tension and spur height. To be honest, I haven't had too much success with the two blocking nuts which retain selected tension on the expansion spring. Try as I might, I can't stop these nuts from undoing while I play. I think my last chance would be to put a spring washer in between the two of them. Other than that, the pedal is faultless both in concept and in operation. Rumour has it that its thick webbing strap has been replaced by some newer substance, but I certainly couldn't tell the difference. I'm splitting hairs, but the beater rod could be made more substantial to prevent whipping and bending.

Pearl's basket type, tripod legged snare drum stand has not been changed at all as far as I can see, which is not surprising, since the design is very good and I think would last unchanged for a good many more years. Like the stool, hi-hat stand, cymbal stands and double tom-tom stand, it has sensibly replaceable nylon bushes at the end of each tube at its height adjustment. This adjustment is now taken care of very ably by Pearl's large "T" shaped wing bolts.

Two high-rise cymbal stands come with the set. They have wide tripod legs, three stages, nylon sleeves, large wing bolts and Pearl's unique tilter.

An optional but important extra is the boom stand. This has an extremely solid double legged tripod base with three stage topped off with a radial splined ratchet tilter which is adapted to take the horizontal boom. This is made from the tubular steel which normally acts as the top part of the ordinary cymbal stand and is adjustably counter weighted at one end with a large knurled lockable rod balance which moves up and down the boom on a thread.

The other end of this has Pearl's normal "knurled-drum" action tilter fitted with something strange: a foam rubber "concertina" clutch fitting with an Avedis-type quick release "T" nut. No one seems to know how this should be used, although some people have used it like a hi-hat top cymbal clutch. My view is that it's just to keep a little tension on the "T" nut.

A stool is not supplied with any of Pearl's sets but their new one certainly begets a few words of description. It's very substantial, with a thick 14" (diameter) seat conveniently lockable in one position, so your cheeks always rest in the same indentations. It's adjustable vertically on an aluminium square shouldered coarse thread which has a large safety locking clamp. The base of the unit has double tripod legs and the seat itself is strengthened underneath with cross members so you could even stand on it and jump over your drums if you're into that sort of thing. This particular item is not exactly cheap, but if you want to be really comfortable, it would work out at about 75p a week over a year. It would, I suppose, be cheaper than suppositories!

As before, Pearl's drums are supplied with two or three keys which no longer have a logo on them to hurt our sensitive fingers, one or two spare tension screws (depending on your luck), a pair of sticks and an arguably useful pair of brushes. I would rather do away with the brushes and have two pair of sticks, but who's going to listen to a "dyed in the wool" rocker like me?

The silver satin finish on my demonstration kit was flawless as usual, and the interiors were above reproach. There are a dozen different colours and finishes available in the American catalogue, but only six in the U.K. edition which is a bit of a swizz. However, if you were prepared to wait, I'm sure you could order any of the coverings supplied in America.

I still don't like the badge. My view is that if you are the biggest and best Japanese manufacturer (and possibly in the world) it should be reflected in everything you do and make. This badge (to me) looks out of date, in a way rather like a cheap Japanese copy and simply not compatible with the super quality of the product itself. There I go again!

By the way, I'm not supposed to tell you this, but what the hell. In the not too distant future, Pearl will be bringing out drums in an entirely new but somehow logical substance which will blow your minds. Also, something for every drummer which we will all wonder how we managed without.

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TEST ON

Micro Moog

DATE

July 1976

PRICE

£522.22 Ex VAT.

TEST BY

Rod Argent.



Introduction

I've been using two Mini-Moogs on stage for several years now, and it was with great interest that I tested the company's newest product, the Micro-Moog T.M.

I first chose the Mini-Moog not for its technical potential, but for its organisation and layout. It seemed to be the synthesiser constructed most like a musical instrument instead of a source of electronic sound. The factors which control the shape and expression of the musical line (vibrato, pitch-bend and the choice of octave) were easily governed by sensible and practical controls.

As a keyboard player, I've been frustrated for years at the guitarist's ability to wring expression out of his instrument by bending, slurring and applying vibrato to notes. The advent of the synthesiser lent that ability to the keyboard player, and it was imperative that these functions

could be controlled easily and with "feel".

The importance of "performance control" over the instrument's capabilities was obviously a prime consideration in the development of the Mini-Moog, and the designers make this same claim for the Micro-Moog. Although smaller and less expensive, utilising a single tone oscillator and a smaller keyboard, the principles and aims of design seem to be the same: to seek the simplest and most musical way of controlling the original sound source and the functions which modify it.

General Design

The Micro-Moog is a light, portable machine consisting of a 32 note keyboard and a logically designed range of controls. The small compass of the keyboard, as the manufacturers point out, can be extended by the judicious use of the octave control which covers

eight octaves. I find the mental gymnastics required to ensure the flow of an improved line by simultaneously transposing the line down an octave and moving the octave control clockwise a stop pretty confusing. The keyboard is a bit small for my liking, but there's no doubt you can still play well within that range.

The back of the instrument has a panel providing inputs and outputs for connection to other equipment. The Micro-Moog is compatible with all Moog accessories, including ribbon controller, percussion controller and sample and hold (which can be used in conjunction with the built-in feature to provide multiple sample and hold effects). It is finished in black and chrome and is certainly good looking and pleasing to the touch.

Panel control and layout

The controls are set out logically and visually follow the journey of the sound from source through the various possible modifications. They are mainly rotary pots, and not slide controls. I personally prefer this: I find rotary pots quicker and easier to adjust, and somehow more in keeping with the musical effects they produce. I don't know why it should be, but the physical action of turning a knob to produce a wah-wah effect seems more natural to me than pushing a slider up and down.

The oscillator, noise, filter and contour controls are set on the top of two banks of controls while modulation, glide, volume and seven pre-set switches are on the lower bank. The pre-sets aren't the pre-set sounds which can take away the element of infinite modification and control which is an essential part of a synthesiser. They are in effect on-off switches, bringing a variety of functions into operation which can then be modified elsewhere on the board.

The pitch bend is in the form of a ribbon, and is located with the modulation wheel to the

immediate left of the keyboard. Personally, I prefer the two wheel arrangement which exists on the Mini-Moog. I find the ribbon and wheel arrangement more difficult to use convincingly when operating the vibrato and pitch bend simultaneously, which is the way I always work. The wheel can also be used to bend the pitch upwards and can be left in that position. With the ribbon, the moment your finger leaves the control, the note returns to normal.

Oscillator

The Micro-Moog uses a single oscillator. Ingenious "doubling" effects are possible by the introduction of a continuous mix of a square wave form, either one or two octaves lower than the primary oscillator pitch. There is no way, of course, of matching the greater fullness you would inevitably gain from more than one oscillator, but the device is very useful and the effect good.

An octave control gives you the choice of footage settings - 32', 16', 8', 4' and 2', with the added facility of a wide frequency setting which provides a continuous sweep over eight octaves. Sawtooth, square, variable rectangular and a mixture of variable and rectangular waveforms are available by means of rotating a pot.

A continuously variable mixture of tones is available as the knob moves from one waveform to another because the four settings aren't fixed. Both the oscillator and filter control circuits are thermostated and heated, which apparently reduces pitch drift to nothing. This stability is very welcome: the earlier synthesizers were always dropping a fifth or so in the middle of a solo, or at a similarly inconvenient time.

Noise

One volume control variably introduces what is essentially pink noise into the fixed audio output of the oscillator. It is also available for modulation and sample and hold functions.

Filter

There are three filter and two filter contour controls located on the upper bank of controls. They comprise a continuous cut-off control, which can be set to any frequency (the cut-off frequency is the point below which sound is passed); an emphasis control, which emphasises the area around

the cut-off frequency, producing nasal sounds; a contour amount control, which produces a rising and falling effect in the filtering of the sound quality; and two filter control knobs, which are in effect an envelope generator determining, by means of variable rates of attached release, the dynamic contouring of the cut-off control.

There are three interesting features incorporated into the system. First, in common with several other controls, the filter functions are described by graphic sign language instead of words - you can look at a control and immediately see a pictorial representation of what that control will do to the sound. Secondly, the "reverse" function of the contour amount enables you to obtain an "invested" effect. Finally, the filter system is linked to several slide switches which appear on the lower bank of controls: "filter modulation by oscillation", for ring modulator effects; "filter mode", which controls the extent to which the filter cut off frequency tracks the keyboard and places the filter into the oscillatory mode; and "Filter sustain", which decides what sustain level should be provided at the filter cut out frequency.

Loudness Contour

Two loudness contour knobs complete the upper bank of controls, determining the attack and release times and the consequent shape, in terms of volume, of the note.

Modulation

The modulation section of the instrument is well thought out, economic and effective. This is the heart of the instrument: the part where expression is introduced by means of the modulation wheel, into the "mechanical" character of the sound.

This is the section which distinguishes a synthesizer away from any other keyboard instrument and makes it possible to play in a way previously denied to keyboard players. Roughly two dozen different effects are available to the Micro-Moog player, including pitch bend, vibrato, sample and hold, wah-wah, trills and others. The selector control determines the source of the voltage and the routing control routes it to a given section of the synth.

There is a knob on the left hand side of the panel which controls the rate of modulation and the whole section is brought into operation by the modulation wheel. In spite of my slight dislike of the ribbon and wheel arrangement, I found this section basically very good.

One nice effect is the sample and hold function with the filter, whereby the pitch remains constant but the tone of the note changes in a random pattern. There are basically only two controls, and effects can be hooked up in an instant.

Other Controls

Four slide switches are provided. The release switch determines whether the note is cut off immediately when the finger leaves the keyboard or whether it will decay in accordance with other settings. An oscillator switch enables a drone-like effect to hear no matter what notes are struck. In another position, this switch cuts out the oscillator and enables "noise" alone to be brought into operation. The "loudness Sustain" switch, when in the left position, sustains the note produced by the loudness contour indefinitely, and the bypass control automatically provides a continuous note at maximum volume by bypassing the loudness contour control.

Two knobs complete the line-up of the control panel. One provides a variable degree of portamento, the other controls the output of volume from the instrument.

Conclusion

A relatively inexpensive synthesizer, the Micro-Moog T.M. is a sophisticated instrument capable of tremendously varied effects and it has a great range of possibilities. Corners have not been cut on components or circuitry, and it is able to perform many of the functions associated with more expensive models. I wish the keyboard was larger and I wish it had more than one oscillator, but I find myself constantly comparing it to more expensive instruments.

It is capable of much more expression than some of the mainly pre-set models which appear in the same price range, because the features that have been retained are, in as far as it's possible, the essential features. Like the Mini-Moog, it's very much a musical instrument.

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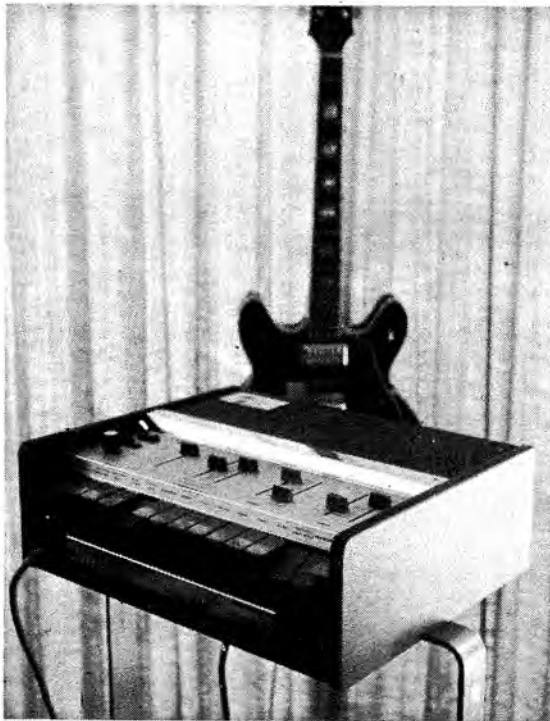
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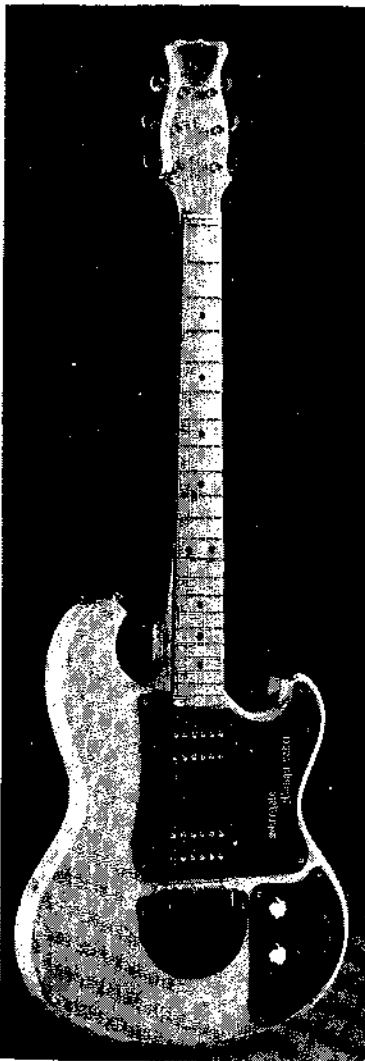
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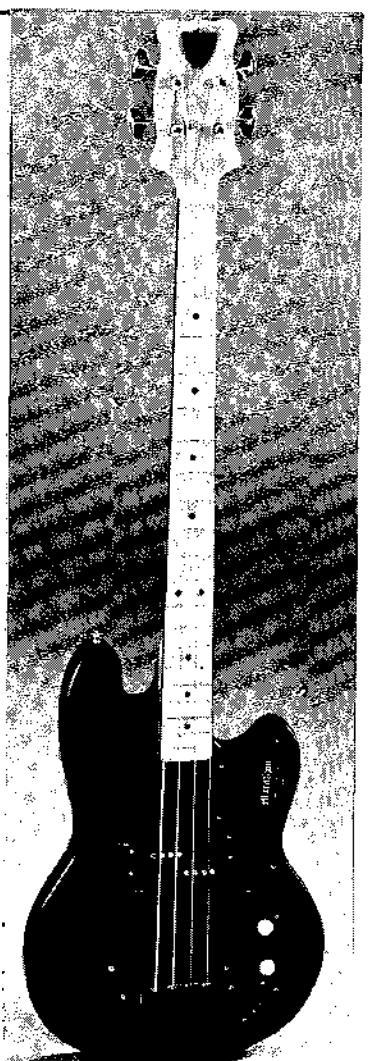
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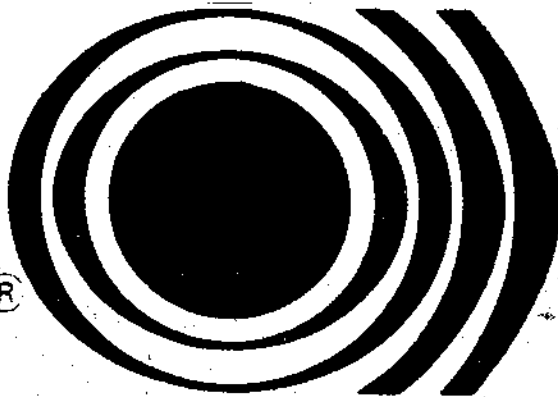
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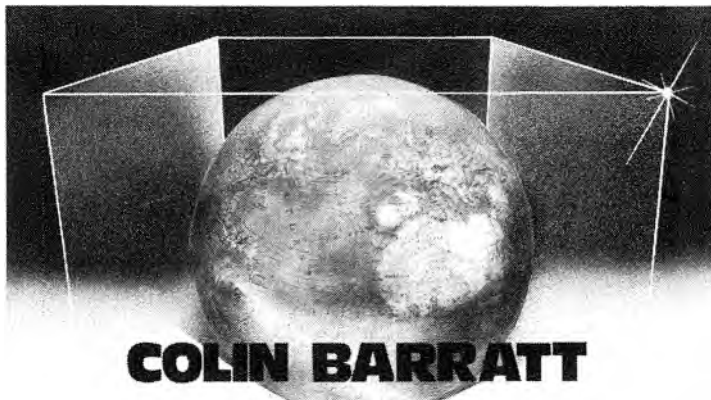
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UNLICENSED DISCOS ARE KILLING MUSIC!

THE PROBLEM

MUSICIANS HATE mobile discotheques. It's been a long feud — since the middle thirties in fact — and in Britain the mobile discotheque has become a scourge of real venom for bands who are almost starving through lack of gigs.

It is only the UNLICENSED discos that murder live DJ's right to life. Where a mobile discotheque operates in a venue licensed by the PPL (the licensing body), the disco is actually interfering the musician's gig because getting a licence means agreeing to have LIVE music.

Musicians have to fight back against the pirate discos in Britain. Musicians in Europe have suffered from the mobile record players for more than their counterparts in America. In the US the Musician's Union is strong enough to keep the mobile disco outlawed, but in the UK, alas, the unions with £150 and £20 worth of records do a bend over of work far too easily.

The problem came just at a time when groups were at their worst. At the end of the sixties groups became incredibly pretentious, insisting on playing only their own music and almost ignoring the entertainment factor in their work. That was fine for the audiences of the Electric Garden in London and the other "underground" clubs, but there was a massive market of music fans who really wanted to dance and have a good time rather than brood and suffer for the world. Technology offered the mobile discotheque. Originally an American invention, The Discotheque (as a club) was a craze in London from 1965 onwards and when the British decided that it might be a good idea to wrap up two record decks in a portable device and take it out to form a club wherever the operator set up.

The idea caught on. Rod Guppings had been persevering with mobile discos since the Fifties, but it wasn't until 1968 that the real craze caught on.

The launch pad for the mobile D.J. was the sea and blue beat disco that swept Britain in the "beachhead" era of '68 and '69. Peggys at that time was scoffed at by self-respecting bands (what a change there's been!) and the only way the fans could hear their music was on records.

Another contributory factor to the craze is the lack of local

and commercial radio stations in Britain. Broadcasting was a virtual desert in the thirties (the fantastic success of the quickly outlawed radio pirate pulp proved that) and the young men who aspired to the jack's chair quickly found their only way into it was by pretending to "broadcast" to a live audience.

So the stage was set. A young audience wanted music that was only available on records. The bands at the time were playing only for the wife who wanted to smoke and "get off on the music" and many young men without musical making abilities (or desire) wanted to entertain by playing records.

Within three years the discos had taken over. Every pub, club and college was having disco evenings and in many instances discos had replaced live music. The audience was happy (at least in the short term), the promoter was happy because it was easier to have a disco, and the D.J. was delighted. The bands were scornful at first and only later became worried.

Today the tide is turning. Live music is creeping back slowly. Pub audiences in London (always the most sensitive barometer of musical change) are demanding "live" groups again and the D.J. is considered passé and suitable only for the younger set. But elsewhere in Britain the disco still rules.

If the swing does not return and unlicensed discos remain at their present level, it will permanently damage music. Without places to play, young people will not take up music. They'll buy cameras instead of guitars, sit's instead of drums. Only by offering young groups a chance to earn pocket money will music live and all those who make instruments and amplification agree their future hangs on live music.

It's very easy for a promoter to hire a hall, book a D.J. for £75 and charge 50p to get into a "Disco Night." Because Britain's a very free, liberal country, the idea that he needs a licence to be able to use other people's recordings to entertain (hoping members of the public will often not agree to promoters).

It's easy for him to get a licence. The fee is minimal but before he gets it from the controlling body (The PPL) he will have to agree to protect the rights as well as records. THIS IS THE WAY TO FIGHT BACK!

HOW TO SOLVE THE PROBLEM

As a British musician you may know of a pub, club or other venue which is having regular disco nights and no live music. If you think the venue is suitable for live music (and many pubs, for example, aren't) and you've got any reason to believe they haven't got a licence — a total lack of live music may be one indication — you CAN DO SOMETHING ABOUT IT.

If you're a member of the Musicians' Union, you can get them to complain to PPL. If you're not a member — and don't know anybody who is who might complain for you — you can complain DIRECT TO PPL (the address is printed in these pages) but it may not be as effective as working through the MU.

Many things are wrong with the MU. It's out-fashioned, badly run in some areas but vigorous in others and it often takes a long time to get anything done. But because it has agreements with bodies like the PPL, it is always worth joining the union and then forcing them to do something about a bad situation.

DO YOU KNOW A CLUB OR PUB WHICH HAS ONLY DJ ENTERTAINMENT?

If you do (and it's large enough for a trio or more), tell the union if you're a member. If you're not a member, join or tell PPL Direct. The MU head office address is:

29, Catherine Place, London, SW1.

The PPL address is: 82 Oxford Street, London, W.1.

TOPLESS STRIPTEASE
DANCER

DISCO LIVE
GROUPS

Ron Diggins may not have dealt musicians the death blow, but he did spell the beginning of the end for a 2,000 year old entertainment tradition: live music. Diggins, known professionally as "Ron Diggins and his Digola", gave Britain its first mobile disco - and 20 years of headaches to the Musicians' Union.

The M.U. was well aware of the ironic threat which records posed for musicians, even as recording sessions brought them work. The broadcast of recorded material had led to a decline in the number of musicians hired for live radio performances. Mobile discos were unquestionably a great danger to the M.U.

The portable public performances of gramophone records hit the M.U. where it hurt. With 75% of its membership declared semi-professionals working locally two or three nights a week, the union, not surprisingly, began by adopting a militant posture. They came out against the public performance of records as a form of entertainment, and indeed that sentiment bubbles very near the surface in the M.U. offices today. As Ben Norris, Assistant Secretary of the M.U. says, "The whole idea of gramophone records was that they were originally made for private use".

In the mid 'fifties, the sound of the first discos reflected those origins, and it wasn't until technological breakthroughs in record players, and particularly the development of microgroove recording that discos began to severely dent the market for live music.

Trading first on the novelty (reinforced by the pirate radio personalities of the swinging 'sixties) and then on the sheer economy of disc jockeys, promoters in the 'sixties turned more and more to discos as the main source of music.

The Musicians' Union had very few choices. The phenomenon of discos had parallels in economic history. The change from hand weaving to power looms in the late eighteenth century was just such a parallel, and that had thrown thousands of men and women out of work. The analogy was all too real for the M.U.

Industrial action was out of the question - call the boys out and "management" would install a disco overnight. Never the strongest of Unions, the M.U. were in trouble.

Fortunately, the leading record companies of the day had established Phonographic Performance Limited, in 1934.

"PPL (Phonographic Performance Limited) began controlling the public performance of records to avoid a loss in record sales," according to Colin Jones, M.U. administrative assistant and then spokesman on discos.

Opinions on the validity of this strategy vary: some companies do believe that unlimited public performance of records is the best form of promotion, but the PPL subscribers - 99% of the U.K. labels - would agree with Jones' statement.

He continued: "The PPL work on the 'Milk and Cream' theory. Hundreds of instances of displacement of musicians would, in the long term, be dangerous for the PPL's own interests.

"You've got to have enough musicians working regularly to support the cream who record and play on sessions." The M.U. have had an amenable working agreement with the PPL for 30 years. Both organisations agree that the PPL doesn't issue licenses for public performance of records unless the promoters agree to provide a "reasonable" amount of live music.

The M.U. consider this a grey area, but in a venue operating a disco seven nights a week, it works out to two or three nights a week of live music, (PPL claim that they pursue a "50-50 policy"). In practice the situation is more complex than that: the promoter may operate a disco and band simultaneously - albeit for varying lengths of time - in different rooms (of a hotel, for example), he may alternate sets of each, or a large entertainment group may provide live music exclusively at one venue, and discos exclusively at another.

The power to license and rescind licenses on the grounds of failure to maintain a "reasonable ratio" (as PPL's secretary, John Love, describes it) is completely within the hands of the PPL, and the M.U. can only rely on PPL's goodwill - and of course their long term economic interests.

Still, the system seems to function well as a gentleman's agreement. The Whitford Commission, a departmental commission appointed in 1974 to advise and report on revision of the copyright act of 1956 and 1968, received testimony from both the PPL and the M.U., who recommended that the status quo be maintained.

The established channels worked out by the M.U. and the PPL take time, but they do work. Union members who know that a promoter isn't providing an adequate number of live gigs can report it to their branch secretary, who then passes the information on to Colin

Jones. Jones in turn passes the information on to the PPL, who start their own enquiries. PPL are in constant communication with the M.U. throughout the course of their enquiries, advising them of the progress.

This is the only way discos can be brought to account. "It's a tedious and expensive process when promoters don't co-operate," Jones remarked. "You often find that they don't answer letters, that they exaggerate or even lie about the number of nights they give to bands. But in the end, as long as it does take, it works."

The M.U. are convinced of PPL's sincerity. In 1975, the M.U. head office received 200 reports of the public performance of recorded music, all of which were forwarded to the PPL.

A case in point is the action against a club in Plymouth, which began with a complaint from a member of the local branch, on March 14th of last year. The complaint was forwarded to PPL, who responded on April 3rd. The club was not licensed, the PPL began negotiations - which were interrupted briefly when the club changed its name, but not its promoter. On September 29th, PPL reported that the club had agreed to employ musicians three nights a week, and had consequently issued a license.

On December 5th, a member of the local M.U. branch notified the Head Office of the M.U. that the club in question was *not* providing the amount of live music they had specified, and that attendance figures cited in the promoter's statement to the PPL were also questionable.

On December 18th, PPL announced that they had revoked the license, threatened legal proceedings against the club's promoter.

On January 13th, 1976, the club were given one month to provide live music, and given the address of the local union branch, who would supply him with suitable bands. By February, the club had agreed to all the provisions, and were again granted a license.

The above case shows both the strengths and weaknesses of the existing system. The M.U. is never any stronger than its local branches, which are in turn never more militant than the individual members. Even when they receive a complaint, the M.U. are ironically dependent on an agent of the record companies to see that live music is provided.

And even when the PPL receives assurances, however binding, that the promoter of a disco is also providing live music, they don't have the staff or facilities to check up on it. Once the license is issued, the ball is again in the M.U.'s court. It's not the PPL's job. They are really only interested in live music to further the long term interests of the recording industry: their principal job is to collect royalties for the record companies. Still, it's the best game in town. The only game in town always is.

The PPL was chartered in 1934 by record companies which included Gramophone Company Ltd, Decca, Parlophone and Edison Bell, following the Gramophone Company Ltd vs Carwardine High Court Decision of 1933, which held that the producer (in this case, the record company) of gramophone records were entitled to some remuneration for the public performance of gramophone records, including broadcasts. Those rights were confirmed by legislation in the Copyright Act of 1956. Those rights stem from the master tape, and so they did extend, in time, to tapes, cassettes and cartridges as well.

Most important of all, the rights include refusal, a right which PPL use more often than one might suspect.

Originally, the record companies sought to control public performances of live music for the economic reasons mentioned earlier. The belief that public performances would result directly in reduced record sales is central to the companies' control, but it would be misleading to suggest that this is their only consideration. As the PPL's policy statement on the sociological problem of records and musicians states, "The 'grass roots' of the musical professional are dependent for their livelihood upon a wide range of engagements. Without reasonable restrictions on the introduction of sound recordings for public entertainment, it is evident that the employment opportunities available to musicians would be seriously reduced and in some cases entirely eliminated."

Thus, a limited although non-profit making company set up by the record companies and collecting more than £1,000,000 per annum on their behalf, is the only effective control on mobile discos.

PPL claim that everyone who needs to does know about their existence and rights. They send out regular circulars, via trade publications, and to all known promoters, advising them of changes in their tariffs and new record label subscribers.

Someone in Great Britain besides the Musicians' Union is determined to ensure a "reasonable ratio" between discos and live music. That "Someone" is a limited company established and maintained by the record companies. CARROLL MOORE reports on the success and failings of a 30 year old Gentleman's Agreement between the M U and Phonographic Performance Ltd.

The bulk of PPL's time, however, is spent in searching out and pinning down promoters of discos. They subscribe to a clipping service which forwards them advertisements and editorial references to discos from most of the nation's newspapers.

Secretary John Love argues that PPL are scrupulous in pursuing parity between live music and discos. "We recognised at the beginning the importance of preserving local employment at the grassroots level. We try to get the best deal for the union. It's never arbitrary. I'm always in close communication with Colin Jones of the M.U. I think we've ended up being more royalist than the king.

"The M.U. seem to emphasise control of discos, but PPL's stance is that records are a reproduction of a labour effort. If the record wasn't being played, musicians would have to repeat the effort time and time again.

"We want to offer some sort of social justice. We turn over 12½% of our revenue to the Musician's Union, and another 20% goes to individual artists who are under contract to registered U.K. companies."

When PPL receive a report about a disco, they first determine if its licensed, and then check to see if the promoter is offering a reasonable amount of live music. This begins a long chain of events typified by the case of the disco in Plymouth mentioned earlier, and it may end in writs and even injunctions.

It's a time consuming and tedious business, but PPL pursue it vigorously. John Love estimates that PPL's solicitor's fees per annum approach £40,000, and that of the 600 cases with the solicitors at a given time. 70% are suits against promoters who are reluctant to book live bands.

The PPL has been able to establish a long term and reasonably amicable relationship with the larger concerns who provide entertainment in the U.K. Mecca is a case in point - they have been happy to provide work for bands.

The difficulty comes when breweries are considered. Technically, PPL have to determine the owner of the venue as well as the promoter, and finding the right man with the right responsibility for determining entertainment policies in the maze of brewery organisations in Great Britain can be difficult and time consuming. The rise of the five major breweries in Britain (who own a vast majority of the pubs) in the 'fifties and 'sixties meant that local breweries their pubs and administrations were partly absorbed into the larger conglomerates, and partly left to determine their own policies.

Who determines the entertainment policy in, say, Watney's licensed houses is quite sensibly left to publicans, who should know their customers' tastes in entertainment as well as drink. Who the PPL can put the screws on should a licensed pub in East Anglia refuse to offer live music in addition to a disco is another story.

Watney's recently announced that their nine regions would be allowed increasing autonomy in all decisions, from brewing to the running of licensed houses. If that is a trend, then the breweries could become more amenable to control by PPL, and more sympathetic to live music in areas where the novelty of discos wears thin.

In their more than 40 years of existence, PPL have established an efficient system for dealing with the public performance of recorded music. They have a small and reliable staff of carefully trained and diligent licensing officers who pursue each enquiry that comes in vigorously, at least in the case of reported unlicensed discos, and they co-operate fully with the M.U.

It is, however, worth remembering that for all the PPL's dedication, their principal concern must be in collecting remuneration for the record companies who are their subscribers.

They do pursue a parity between live music and discos, but by the very nature of their operation, they are limited in pursuing that parity. The limitations are not in the licensing, but in checking to see that the discos in question actually do provide live music. It is the weak link in an otherwise efficient system, and ironically, the link at which the people who have the most to gain from discos, the promoters, can most easily wiggle out of a commitment to live music. The only solution for anyone committed to live music is to keep an eye out for any disco which doesn't provide a satisfactory amount of live music.

The M.U. are content with the job that PPL do. It's not the best arrangement possible, just the best available, and the only one, and within its limits, it works.



KEEPING MUSIC LIVE

DISCOS: WHAT THE MUSICIANS THINK



Mal Corking (Giggles)

"We're a rocky, aggressive pop music band and I think that we work really well with D.J.'s. I'd rather share a stage with a DJ than another band, mainly for space reasons, I suppose. I think the discos are valid because they're there and also they'll help break your record when it comes out.

Venues are bound to prefer a disco they can get for £25 than a £150 band, aren't they! DJ's are mixed — there's some cunts and some good guys; Jerry Floyd and John James are really good DJ's and work well with bands, it's these amateur assholes who are a curse because they all want to be stars and don't worry too much about what sort of music they play."



Stuart Healey of Basingstoke, is a drummer in a semi-pro organ Duo. Healey sent a letter to the M.U., detailing nine complaints about local discos which he believed to be unlicensed. He is dissatisfied with the Union's response, and with PPL.

"So far, all I have is a letter from Colin Jones (M.U. Administrative Assistant) stating that he's forwarded my complaints to the PPL. PPL was established by the record companies, and I don't believe that they are really interested in carrying out the gentleman's agreement.

I have myself made two applications for discos. On the first one, in the space provided for "Musicians Playing Time" on the PPL application form, I specified that I would be providing some live music."

In the second instance, however, dated 19th December, 1976, Healey left the "Musician's Playing Time" space blank. He continues:

"The licence was for two dances to be held at the same venue, one at another venue and one at a pub. All I received from Phonographic Performance Ltd. was an invoice which stated that on receipt of the fee, the appropriate licence would be sent."

As I.M. went to press, PPL were unable to clarify their reasons for accepting an application which would seem to contravene their policy of maintaining a reasonable ratio between recorded and live music.



Bobby Valentino (Fabulous Poodles)

"When we were doing smaller gigs it was annoying. The DJ used to think that the band were supporting the disco, like 'now the band's coming on, but there'll be some good music afterwards . . .' I suppose really it's the public's fault discos make money and bands don't. But then the whole music business is a very capitalistic business anyway, it's crooked, I know, but there are no government controls and I think you get what you're worth from the people.

Obviously, I'd rather not see discos — they're generally very bad quality sound anyway, but the trouble is you can get a good disco for less than £40, whereas a good band is going to be more than that. Mind you, if I was going out for the evening to a pub down the road, I'd be more inclined to go to a disco than see a small youth club band. Only the best bands make it anyway — I think there's a move to more entertaining bands that might draw people away from the discos. The discos are forcing some bands out of business, but I think bands only have themselves to blame, they should be more entertaining — it's survival of the fittest, really."

Roger Adams (Krakatoa)

"The other day we travelled all the way to Swansea, the Langham Bay Hotel, and there'd been an agency mix up resulting in us and a disco arriving for the same gig. They had a choice and took the disco! I said to the guy there, if everyone did that there'd be no music in the beginning for the discos to play anyway.

I think part of the problem lies with the fact that in the late 'sixties you had bands like Cream and Yes, and everybody was emulating them, playing complex music that no one could really dance to. So the discos were launched out of necessity to supply dance music.

To compete with discos, you've got to play music with danceable rhythms; American jazz musicians have proved that you can play good music that's danceable. Most DJ's play through a couple of 4 x 12's and you can't tell what the fuck he's saying — why speak so much anyway? The little ego-trippers are really into it."



Dicken (Mr. Big)

"Well, I don't go to discos and I don't expect them to play my sort of music. There are two forms of disco I suppose, the progressive sort which are generally okay, and the 'dancing' type of disco which affects us because people tend to buy all the rubbish that they play.

"If we have a disco on before the band, they are nearly always O.K., because it's usually at a college and the disco knows what sort of music is required. I know the Musicians' Union have got this Live Music thing and that's obviously good, they're right in principle. As an entertainment form, discos do succeed on one level and they do sell a lot of records."

Two Disc Jockeys tell their side of the story...

Tony Dean, a D.J. from Swanley in Kent.

"I've often asked promoters about PPL and PRS licences and they always tell me, don't worry I'm covered. In certain cases I suspect they're not but they always insist it's OK. When I do council halls and that type of place, I'm always given a PRS form to fill in, but most private venues don't bother. I met the South East Area Musicians' Union's bloke on a gig the other night and he was very friendly, far friendlier than I'd have expected him to be.

"Because my show is quite large, I only tend to work the larger ballrooms and often I'm working with live bands, so that's OK, isn't it?"

Gavin Breck, London D.J.

"I've always been aware of the problem about licences. My contract insists that the promoter is responsible for having a PPL licence and on regular venues I usually go halves with the promoter, if he hasn't got a licence. A lot of the venues around aren't really big enough for live music, however. The Lord Summers in North West London is a prime example. It's so small that there's only room for the DJ who's really in amongst the audience. The bigger venues all have some live music."

Ed Hamilton, (Fast Buck)

"We're not directly affected by discos now, a lot has been happening for us, and we haven't run up against them lately, but we did a while ago. I've spoken to a few people who say that discos have taken over, but I reckon there are two sorts of audiences, disco and live.

"People who want to go to a disco will also go to hear a live band, there's very few who won't go to hear the right live band.

"A lot of times, when places open up at discos with no live music provided, it's because of space problems. I suppose maybe in some of those places you could get a live guitarist/vocalist with a rhythm machine, but that's about all.

"The only place I can think of in London that dropped live music was the Lord Nelson, and they've since reverted to live music because that what's people want. I think most people would prefer to put on live bands if it's possible.

"The places we play now often have discos as well. They use them to warm up the audiences, and they play between sets as well. It's a good idea, really, because it cuts down on the aggravation.

"I think the only bands who have been affected seriously are big bands and middle of the road groups".

Noel McCalla (Moon)

"I think discos are okay in a sense, because they get plays for a lot of good records. If you're a band like us and have played at discos, you'll know that the audience just don't want to know -- even if you play exactly note for note to the record they just sit down and wait for the little piece of plastic to start revolving and the DJ to start rapping before they move an inch. I suppose a promoter could try putting a band on at a disco one night to try and draw people who want to see the band, otherwise it's really difficult -- unless you're a disco band, you just don't go down."

Paul Varley (Arrows)

"I suppose some people would argue that discos sell a lot of records, though I think they're only going to sell disco-like records anyway, Tamla and funk and that sort of thing. Pub owners or whoever books the entertainment, are put in a difficult position when they can get a DJ for £10 a night, and they'll play all night -- bands don't stand a chance.

"And the DJ's attitude doesn't help at times; we'll be on the road doing gigs all up and down the country, and we're doing a Scunthorpe or a Torquay. We turn up at the gig and a roadie comes out and says the DJ's giving us a hard time, putting his columns in front of ours or something like that. He's there every night and he thinks he owns the place!

"It's such an easy bandwagon to jump on, as well. Get a couple of decks, amp and speakers on HP, go round the record companies and get free records because you're promoting them, and you're away. I'm from Preston in Lancashire, and a mate of mine's got a band up there. They come down to London every now and again and get some gigs together. Anyway, I went along to see them at a pub called the Windsor Castle in Harrow Road and they'd come all this way to do these gigs and the DJ's going on as if the band are doing him a favour by playing in between his sets!

"There's no way a disco is going to compete with the excitement of a live band. The kind of bands that are losing work aren't usually in the Union, so they (the Union) aren't able to help either."

Jeff Smith (Diversions)

"There are a lot of disco-units going round now where once there were bands -- that's disturbing to me as a musician. I think some discos that have live entertainment can be good, but there are occasions when the disco is heading the show! We've done a gig recently where that was the situation, but I guess it could be going that way. Discos seem to affect the style and content that is expected of a band nowadays as well; I remember a gig we did at Middlesbrough and we turned up expecting to do the usual hour show. But the guy says no, he wants all fast numbers but just for thirty-five minutes. I've heard that a venue can get a late drinking licence by having live entertainment beyond a certain time, so that could be the only reason why some places have live music at all. Naturally I'd much rather go and see a live band than a disco any day, but the discos are increasing all the time."

Mrs Beans Diary
2nd Musicians Edition

WE TELL IT LIKE IT IS !!

Last month we spoke at some length about multi-track tape recorders. No sooner was the print dry than we received advance details of several exciting Tascan models, so folks from the first of August as well as Nakamichi Revox, J.V.C. Teac, Uher and Tanberg, we shall have some exciting 8 and 16 track machines as well!

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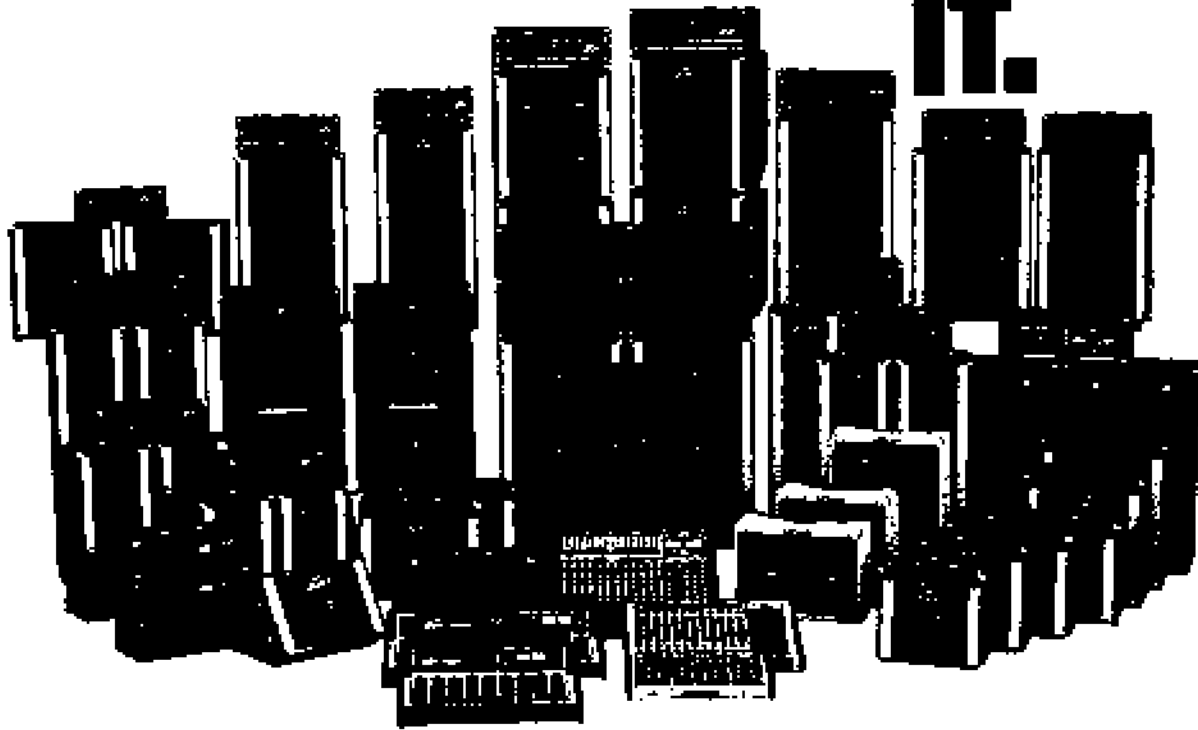
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ERIC BELL

by Eamonn Percival

"I hate this business! I detest it. There's 1% music — the rest is shit!"

Strong words, but then Eric Bell has had more than his fair share of problems in the music business. Born in Belfast and now living in Dublin, Eric started his professional career in 1969 with a band called The Dreams. They were an Irish showband, playing a mixture of dance music and the hits of the day. In those days, a musician could earn almost as much with a local showband as with a "chart" band, and Ireland was full of showbands, all working regularly and all earning a good wage.

Financial security gave way to artistic aspirations and Eric quit The Dreams to join a more progressive band called Brush. His musical apprenticeship also included a short stint with Van Morrison, but he first came to prominence with Thin Lizzy — an Irish trio who came to London and made good. With Lizzy, he enjoyed chart success with "Whisky In The Jar" — a re-arranged traditional Irish folk song. As the band's popularity grew, Bell's health declined until he quit Thin Lizzy in 1973.

After three years of comparative silence, Eric Bell is back on the road with the Noel Redding Band, which also includes ex-Experience bassman Redding, David Clarke (keyboards), Les Sampson (drums) and new addition Andy Kealey (guitar). At a hotel in London, after the band's first British tour, Eric explained when and how the band came together.

"We've been together now for about one and a half years. Noel had been playing with Hendrix and a band called Fat Mattress and had finally decided he'd had enough. He'd made enough money, so he retired for three years and went to Cork to settle back on his farm. The band came together as a four piece — Andy only joined recently — and we started to rehearse at the farm. Initially, things happened very slowly. The band went in different directions, as most bands do at first. We made the first album, "Clonakilty Cowboys," and, shortly afterwards, went to the

States for a ten week tour, which really sorted the band out. All the arrangements and presentation came together when we did the tour."

By all accounts, the American tour went exceptionally well. 12 gigs in England followed and the band also found time to record their second album, scheduled (as I.M. went to press) for release in late July. I wondered why Eric had decided to return to performing, bearing in mind that one of his reasons for leaving Thin Lizzy was "bad health."

"That was one of the reasons, but then things like breakdowns and illnesses are an occupational hazard with a band. I've just come to terms with it. When I left Lizzy, I went back to Dublin and did nothing at all. I gave up drink and took it easy. I actually formed a band in Dublin for a while with Brush Shields, who is an incredible bass player. It was called the Bell-Brush Band, but only lasted for about seven months. It was very interesting and very inventive musically, but there just isn't the work in Ireland. Even the showband scene has gone now. That's one of the reasons we split."

Eric is honest and self-critical about his skill as a guitarist. True, there isn't much evidence of the Bell genius on "Clonakilty Cowboys," but listen to any of Thin Lizzy's early tracks like "The Rocker" and "Black Boys On The Corner" for a perfect example of Great Rock Guitar. "I'm very inconsistent," he admits. "I can please myself with my playing one night and be absolutely terrible the next. The thing is, everything affects my playing — the atmosphere, the mood, even the temperature of my hands. Sometimes I think to myself 'God, it's only a bit of wood with some wires strapped round my neck,' and sometimes I go onstage and feel that the guitar is an extension of my hands."

The guitar in question is a Fender Stratocaster. He also owns an Ovation acoustic, purely for playing at home. Like many musicians, he feels his style alters according to the guitar. "There's something about a Strat — I have to fight to play it, which is a good thing. You work harder and you get more out of it. I had a Gibson 330 for four years, but it was like playing something entirely different. A lot of people say it — a Gibson feels more . . . natural. But there's something about a Strat. It definitely changed my style."

Eric has only recently started writing songs for the second album (yet to be released). He wrote both lyrics and music for two of the tracks. "When the band first formed, Dave wrote most of the lyrics and Noel would come up with some of the chord sequences. I'd come up with a few folk things and add them to the songs as they developed. Five months ago, I started to write and it's coming on now. On the third album, we'll all listen to a batch of numbers and pick out the best."

Eric's influences are numerous — "I get ideas from everything and everybody. I wouldn't like to say that any one person has influenced me. Literally anything — little bits on albums. I'll suck on an album at home and maybe a couple of things might catch my ear. I'll go over and put the arm back a bit and listen to it again, and perhaps try and work on it eventually, altering it to suit my style. I've

got very strong feelings about music. There isn't much that excites me today. I never get that shivery feeling down my spine anymore when I listen to what's around today. There are really only two albums that I can listen to now and still think they're great. One is Hendrix's Band Of Gypsies album and the other is Truth, by Jeff Beck. To me, nobody has ever surpassed the playing, the mood and the feel on those albums."

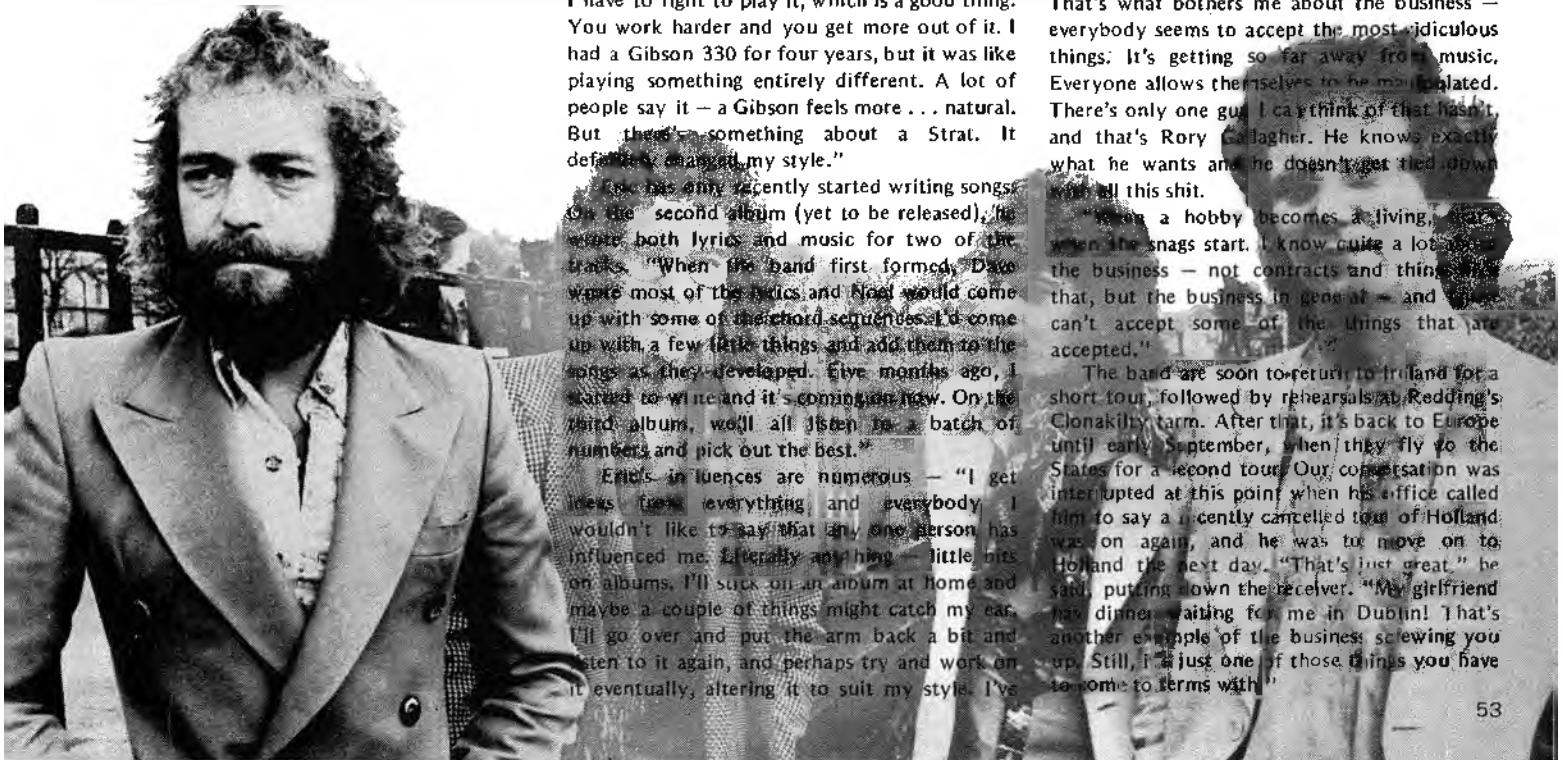
Eric is equally disenchanted with the music business and the associated headaches. He's not joking when he says he hates the business. If anything, Eric Bell is a little too honest for his own good. He is acutely aware of this as he explains: "I've often come in for some stick because of my attitude. I look at things in a strange way and everybody's told me. I'll give you an example: I love working in the studio, but only if I'm given complete and utter freedom. I was recording a track and I played a guitar line that I thought fitted the song. The producer, who shall remain nameless, said to me 'Eric, I don't think that bit fits'. I said, 'I don't think it fits — I know it fits.' He said 'well, I don't think it does.'

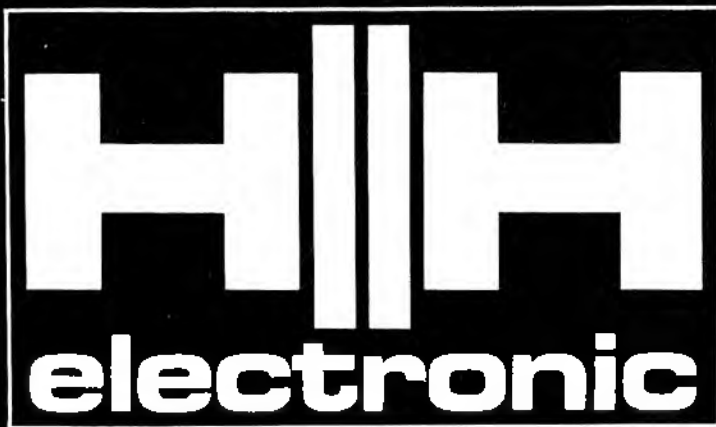
"This went on for a while until I was ready to walk out of the studio. To me, a producer should do his own job. I just want to play guitar. Half of these guys wouldn't know a guitar if they tripped over one. I'll give you another example and this one made my blood boil: We were recording another track and I was overdubbing a solo. I wanted to get one that was worked out — one that was a bit structured to fit the song. The producer was on at me to hurry up, so I said 'Hang on, I'm just trying to work out a solo. I want to do something different'. He looked down from the control room and said 'Don't kid yourself, son. It's all been done before.'

"That, to me, is incredibly stupid. It's this kind of thing that annoys me. Regardless of which band I'm in, I tend to be a very selfish musician. If I think I'm right, then I stick up for myself, because if I don't, nobody else will. That's what bothers me about the business — everybody seems to accept the most ridiculous things. It's getting so far away from music. Everyone allows themselves to be manipulated. There's only one guy I can think of that hasn't, and that's Rory Gallagher. He knows exactly what he wants and he doesn't get tied down with all this shit."

"When a hobby becomes a living, when the snags start, I know quite a lot about the business — not contracts and things like that, but the business in general — and I can't accept some of the things that are accepted."

The band are soon to return to Ireland for a short tour, followed by rehearsals at Redding's Clonakilty farm. After that, it's back to Europe until early September, when they fly to the States for a second tour. Our conversation was interrupted at this point when his office called him to say a recently cancelled tour of Holland was on again, and he was to move on to Holland the next day. "That's just great," he said, putting down the receiver. "My girlfriend has dinner waiting for me in Dublin! That's another example of the business screwing you up. Still, it's just one of those things you have to come to terms with."





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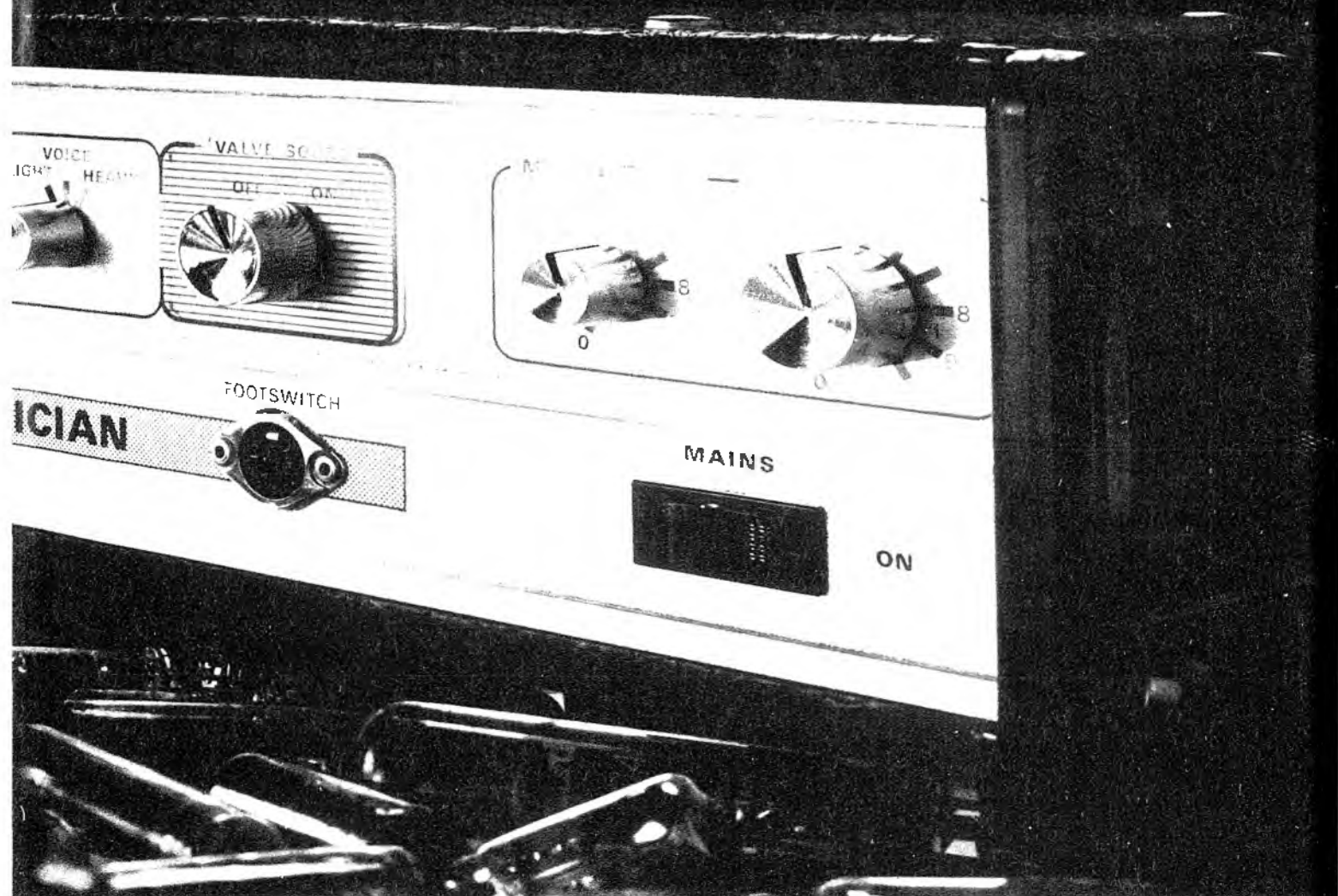
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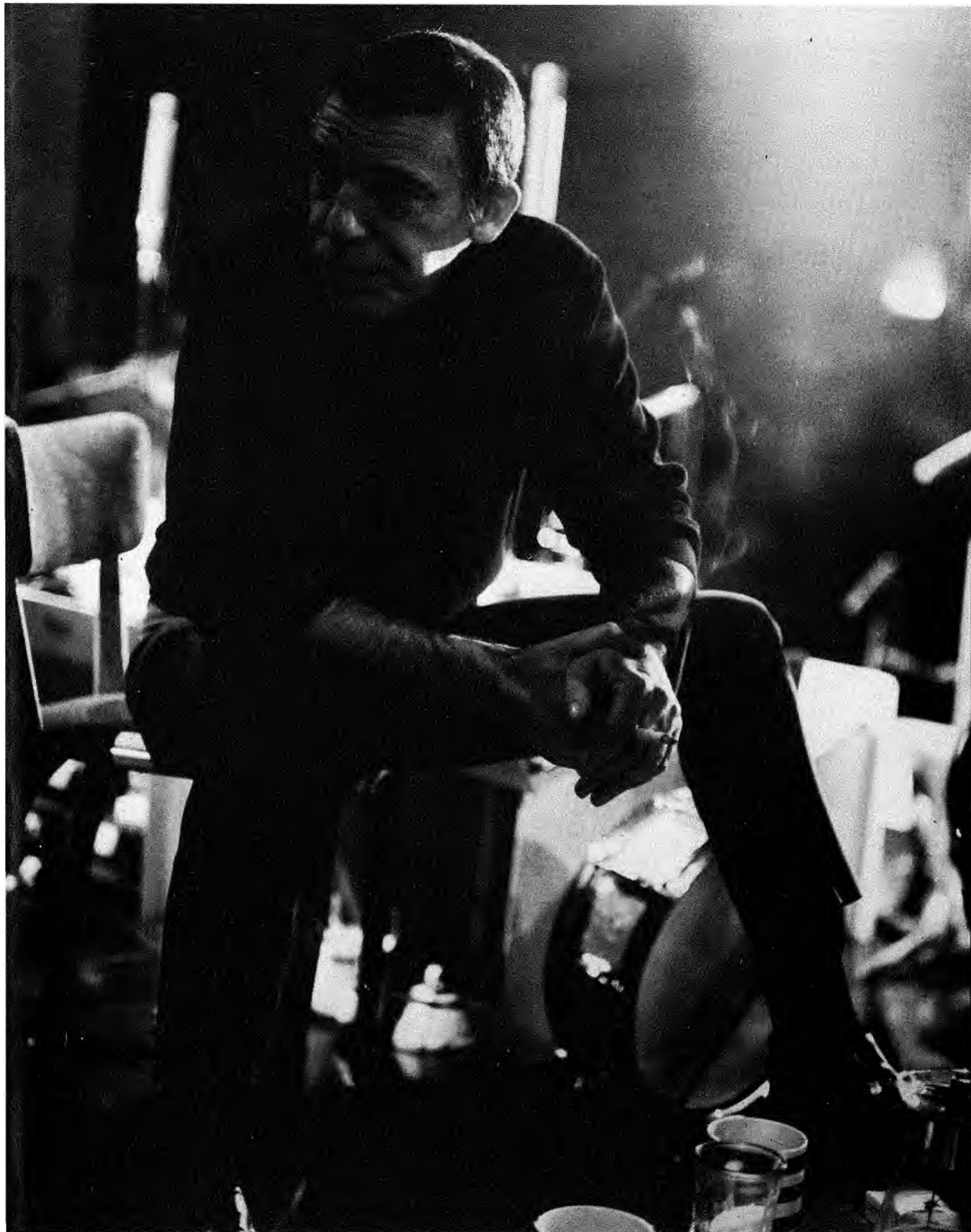
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Buddy Rich lifted his shirt and showed me an angry scar across his lower back. At least a dozen stitches pulled together the puffy lips of the wound.

But the removal of a growth from his back hadn't slowed Buddy up at all. The morning before we talked, he'd been having a little work-out on his Slingerland kit and that evening he gave a concert for the visitors to the NAMM exhibition in Chicago. Perhaps he wasn't on top form, but who else would play with his back stitched up?

Rich is a madman. He's mad about drums and drumming and, despite several heart attacks and operations, he insists on working as hard as ever at the hardest game in the music business.

Rich has little time for new theories and new products. "I still play the same set of drums I used in 1939. A drummer has to be able to play a basic kit instead of worrying about double bass drums and all that crap. The kids these days can't even play a standard kit of drums before they start messing around with double bass drums and extra tom-toms.

continued on page 59

BUDDY RICH

CAN YOU AFFORD THE COST OF FAILURE?



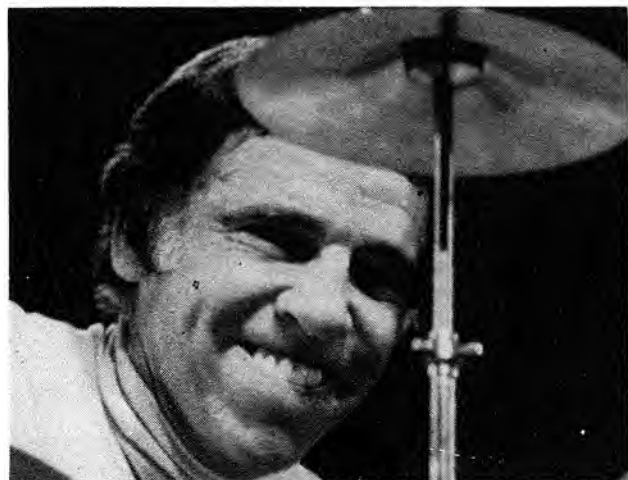
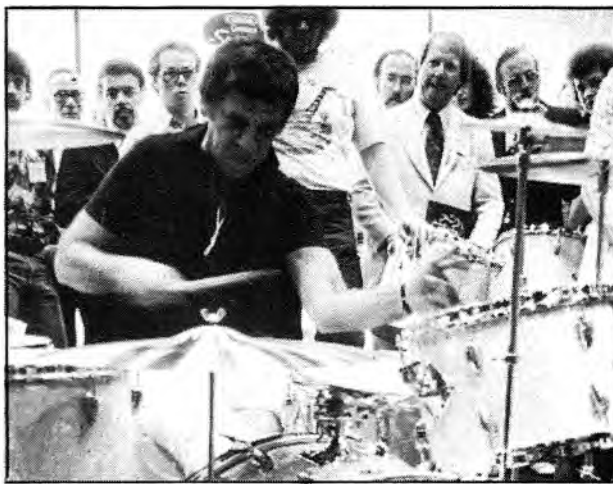
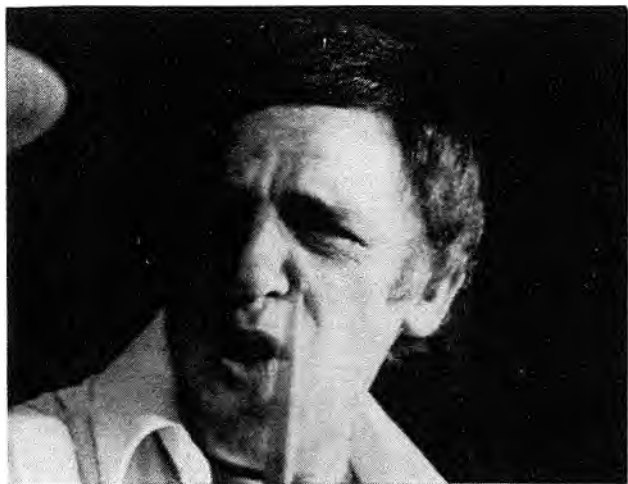
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IM86



from page 57

"I don't get along with a lot of the new things that are happening. I never mike my drums up on stage. Even in the loudest venue I guarantee you'll be able to hear me despite the fact that my band is fully electric. That's what drumming is about."

Despite this assertion, Buddy's drums were miked that evening for the concert. Rich is a mass of contradictions. He sits and talks, continuously fingering a medallion, his glinting eyes shifting restlessly around the room. He's an articulate man who defies the best shorthand notetaker and offers real problems to tape transcribers. He's also an autocrat.

"My band is my band. I hire them and fire them just as I like. I never audition, usually someone joins because they're recommended by someone else. I give everybody a couple of weeks to settle in, then, if they don't make it, out they go."

Buddy looks for the best. As a drummer he's aware that his band has to be top of the tree to allow him the freedom to show off as much technique as his fans want to see. Showing off is something that Buddy happily owns up to.

"It's my ego that drives me on, nothing but my ego. If I don't improve one day I'll give up. I never give a bad show, my ego wouldn't let me."

So is that what drives him on when he's had the heart attacks and the stitches that would be enough to frighten me into an armchair for six weeks?

"That's exactly what is, ego. I must go on and I must get better — there's no standing still."

Perhaps it's ego that still makes Buddy Rich as enthusiastic about his new album as his first one so many years ago. The new record is "Speak No Evil" and there, on the jacket, is Buddy pictured in full Karate gear, perhaps the only other main love of his life.

"I don't like recording, it's never as good as playing live. I don't go along with engineers when they want to work on my drums in the studio. I just set up my standard kit and I say 'I'll do the drumming and you look after your own problems.' I'll never play on a floor that is carpeted, for instance — it destroys all of the sound projection from the kit.

"I think my next album will be recorded live. I much prefer live recordings, the playing's usually so much better." I don't like tracking-on during recording. The band sets up and we play the number and, as far as I'm concerned, that should be the end of it. All this overdubbing and correction just means that the musicians aren't good enough in the first place."

Buddy has only one major piece of advice for budding drummers who request guidance. "Go to school, learn how to drum." He believes there is no substitute for hard work and obsession with the instrument. Rich is a freak, he'll drive himself to the grave, but he'll have been the greatest drummer the world has ever seen.

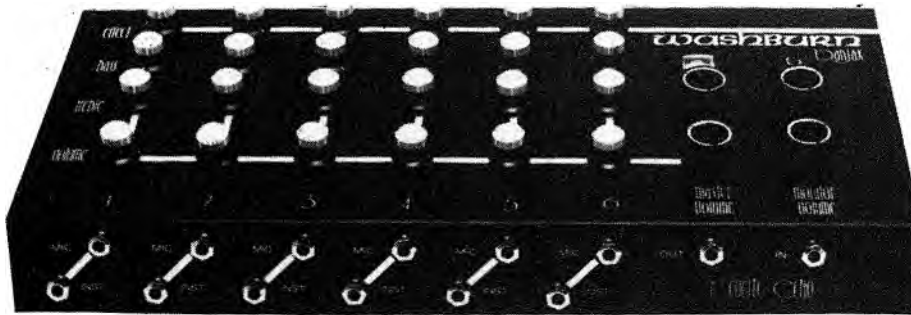
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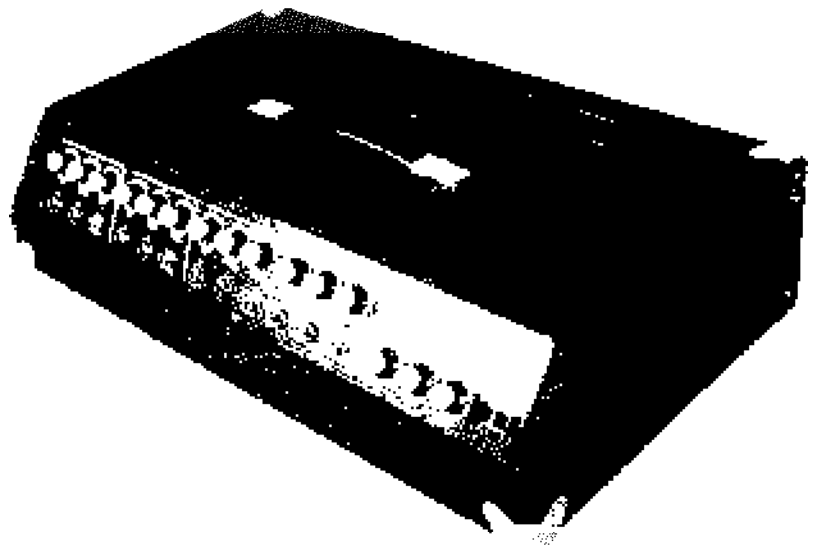
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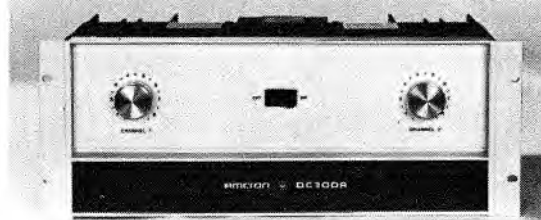
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The DC300 set new standards of sound reproduction never previously available for bands or studios, let alone the Audiophile (whoever he is). Coupled with the incredibly rugged construction, and small size of this 600 watts amplifier, it is not surprising that the DC300 became a legend in its time.

The designer of this classic is still in charge of the design work at AMCRON despite rumours that he has moved on to at least 5 other establishments! Indeed, he has since been responsible for the DC300A, the D150A and all the rest of the AMCRON range of superb power amplifiers.

Now in 1976, the DC300A is 'the' amplifier in all the world's recording studios and is still the only choice for bands such as Zeppelin, Jethro Tull and the Moody Blues, plus quite a few others such as Wings, the Stones, the Rollers, Elton John, 10cc, Pink Floyd, Barkley James Harvest, The Real Thing and so on...

Perhaps this is because the DC300A amplifier offers the following features:

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LIMITING

Almost as soon as a musician begins recording seriously at home, he becomes aware of one major problem. With an input volume setting made on a trial run, the actual "take" produces very different level readings on the VU meter. For part of the take, it is firmly in the red and for other parts it's often not moving enough to give a reading.

When humans listen to a sound, the ear seems to automatically adjust to quiet and loud passages. Because you are hearing sound from a direct source, it doesn't really matter whether it's soft or loud, you can take it (within natural limits).

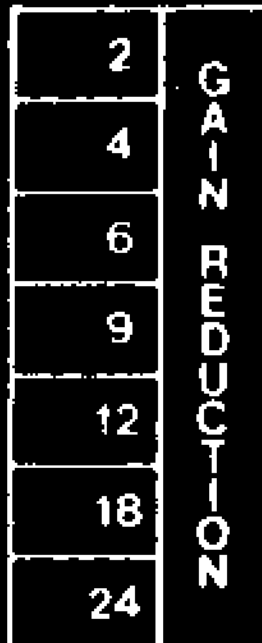
The microphone, on the other hand, has a firmly set sensitivity and the amount of volume that goes on the tape is governed by the input control. If the control is too low, the tape hiss will come through; if the control is too high, the tape will not be able to carry the signal level and the sound will be distorted — this is indicated by the needle remaining in the red on the VU meter.

There is, however, a continuing problem. If you set the input control so that the needle hovers around the start of the red and only occasionally flicks in the deep red (about the correct position), when you drop the volume of the guitar, voice or whatever you're playing so that the needle falls back relative to the sound, the tape hiss will increase.

If you suddenly hit a loud note or raise the volume dramatically on the guitar, the needle will leap into the red and distortion will occur.

Thus it seems that despite setting the control correctly, it is only correct for one particular volume. The usual method home recordists use to solve the problem is to either control their playing and singing so that they don't get any changes in volume or to continually adjust the volume control on the tape recorder during the recording so that they anticipate highs and lows and compensate accordingly.

There are drawbacks with both methods. Keeping a tight control on volume during recording means you're not performing properly; adjusting the control knob continuously is slightly better, but it means that someone has to be at the machine whilst the recording is taking place, and also that someone has



GAIN BRAIN

Its use and control

to be familiar with the controls to ensure evenness of recording. Singers sometimes overcome the problem just by using an exaggerated form of mike technique, alternately moving towards and away from the mike.

The problem is described as DYNAMIC RANGE. Every studio suffers from the problem and because equipment increases in sensitivity as it becomes more expensive, the problems are sometimes worse.

The answer is to install a limiter. A limiter, as its name implies, limits the degree by which a signal varies in intensity. Usually it controls the upper levels so that when setting up, the microphone is plugged first into the limiter, and the limiter is in turn plugged into the input on the tape deck (assuming no mixer is involved). With the limiter hooked in, the VU meter can offer a good reading from the normal volume source and you can rely on the limiter controlling the input to the tape machine when the singer lets out a bellow or the guitarist hits a very heavy chord.

The equipment "limits" the extra signal that should be getting through to the tape deck and ensures it isn't excessive. The degree of limiting can usually be set on the item of equipment. A limiter in no way alters the sound of the recording. In controlling the dynamics of the signal, it is not reducing the variance in loud and soft expression that you put into the material you are recording, it just processes the signal so that it is acceptable to the tape.

Limiters are available in many different forms. Professional units are produced to plug into mixing desks as modules so that the engineer can switch them in and out as necessary. Units are also available as boxes which can be plugged up like a guitar effects pedal, and you can also get the units as rack mounted jobs.

The cost of limiters varies a great deal. They can be bought for as little as £40 or £50 and obviously they can go right up in price, depending on specifications. They're an expensive item that few home recording enthusiasts think about buying, but they're the difference between easy recording and the headaches that leave you fed up with the whole damn business.

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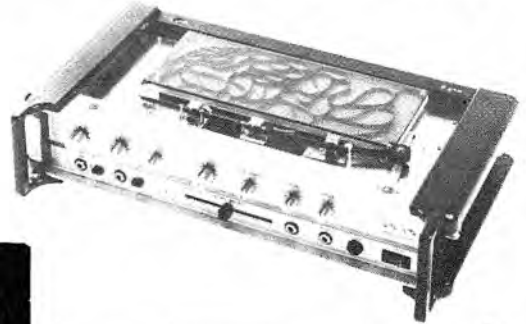
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BASING STREET ... Automatic Man, Mike Shrieve's band, finished an album with engineer Chris Kimsey ... Little Feat mixed some tracks for broadcasting on Capital Radio, recorded at their recent "Boot-in" football stadium gigs ... Sandy Denny continued work on an album with producer Trevor Lucas and engineer John Wood ... New band Squeeze recorded a single engineered by Phil Alt and produced by Muff Winwood ... Remi Kabaka laid some tracks for possible release with producer Jeff Haslam and engineer Howard Kilgour ... Ex-Lindisfarne and temporary Jack The Lad man Ray Jackson recorded a single with Muff Winwood ... Phil Manzanera produced an album for up and coming band Split Enz ... Keith Harwood was working with ex-Faces bassist Tetsu ... Phil Brown was remixing an album with Trapeze ... The Mobile has been trundling about the U.K.; the Bernstein concert at the Albert Hall was recorded with Frank Owen in control ... Genesis' European Tour was being recorded, this time with David Hentschell engineering ... The Mobile goes ganja, getting The Waiters tour on tape ... Stomu Yamashta's Go concert was also recorded; the band included Mike Shrieve and Stevie Winwood, and Frank Owen was once again the man behind the knobs ...

CBS ... Tony Anthony was recording a single for MAM records engineered by Simon Humphrey ... CBS New York were over recently recording a Christmas record with their own engineer ... Guys and Dolls continued recording a new album for Magnet Records with producer Tony McAulay and engineer Bernie O'Gorman ... John Williams started on a new project for CBS, produced by Paul Myers, with Mike Ross engineering ... Jonathan King worked on some vocal overdubs with engineer Dick Palmer ... Alan Child recorded a new single with producer Lem Lubin for CBS records ... The Sutherland Brothers and Quiver started work on their new album, assisted by engineer Mike Ross and produced by Ron and Howie Albert ... Swingle 2 were produced by Terry Edwards and Ward Swingle when they continued work on a new L.P. for CBS Records, with engineer Steve Taylor ... Hudson Ford recorded four tracks recently with producer Jeffrey Lesser and engineer Bernie O'Gorman ... Studio Two has been out of business while it was converted to 24 track, and should be ready in August ...

EMI (ABBEY ROAD) ... The King Singers were recording an album, with producer Nick Ingham and engineer John Kurlander ... Manuel recorded an album, produced by Norman Newell and engineered by John Kurlander ... Doctors of Madness produced an album for themselves with engineer John Leckie ... Elton John zipped in (metaphorically speaking) to do some overdubbing with his producer Gus Dudgeon and engineer John Kurlander ... Prelude recorded a single with engineer Tony Clarke ... Be-Bop Deluxe continued work on their new album and were assisted in this venture by John Leckie ... Harry Robinson worked on some overdubs ... The Hollies continued work on various overdubs with engineer Peter Mew ...

FREERANGE ... Freerange are now fully 16-track ... Various artists have been in recording demos recently; they include Tony Colton, six-piece band Limey, a group called Jalibait, Tequila Sunrise, and ex-Atomic Rooster guitarist/vocalist John Cann ...

KINGSWAY ... Reg Webb's band Fusion, are recording under the wing of Martin Birch of Deep Purple production fame. They recently completed a session at Kingsway for a projected album with Martin in the production and engineering roles ... A Nigerian band, Themba and T. Fire were in working on some overdubbing and remixing of various new pieces, engineered by Louis Austin ... Lionel Martin was in the studio for an evening recording a new single which he produced himself and was engineered by John Aycock ...

THE MANOR ... Force Ten recorded an album produced by Barry Grand and engineered by Mick Glossop ... Katherine Howe recorded a single with producer Pip Williams and engineer John Eden ... The Strawbs were in recording a new album, with the assistance of engineer Jeffrey Lesser and producer Rupert Holmes ... Anthony Moore completed the mixes on a forthcoming L.P. Peter Jenner produced tapes recorded at the Amnesty International Benefit Concert, Alan Perkins engineered ... Diversions, one of many bands to feature the vocal talents of Frankie Miller, recorded some tracks with producer Mike Stone and engineer Mick Glossop ... Supercharge continued work on mixing ... Queen will be resident till the middle of August as they record a new album ... The Mobile's wheels have been revolving rapidly; destinations have included Berlin, recording Nana Mouskouri; Pickett's Lock Centre, North London, for a Rock'n'Roll Festival; Holland, for an orchestral piece featuring a band called Percival; the Marquee, for Gino Washington's comeback, and lastly, the Palladium, London, for Bing Crosby ...

MASTER ROOM ... The Master Room have cut masters for "O's new album and for Brian Protheroe's new outing ... Singles have been cut for Jimmy Borge (Island) and the Strawbs ... Albums have been cut for the Animals, the Mighty Diamonds, Sassafras, U Roy, the Gladiators, Strawbs, Clive Kennedy, and Supercharge ...

PHONOGRAM ... John Stevens' Away were creating more free music, produced by Terry Yason and engineered by Steve Lillywhite ... On a slightly more commercial note, Rolf Harris has been doing some work recently, produced by Mike Smith ... Carlo Santana laid a few tracks helped by engineer Peter Olliss and ably produced by Harry Robinson ... Graham Parker and the Rumour, the band that includes several pub-rock luminaries from Brinsley Schwarz and Ducks Deluxe, recorded a "live in the studio" session for promotional purposes, which is currently being remixed "all over the place" ...

RADIO WORCESTER ... Bronco recorded a new single called "Putting On The Ritz," produced by Robert Plant ... Rod Peters recorded some tracks for Rainbow Records with resident engineers/producers Colin Owen and Muff Murfin ... An artist called Allison, who appears on a Rod Stewart TV programme in early August, recorded a single with Sunshine, a band which appeared in the finals of the Eurovision Song Contest ... The M & O Band recorded the follow-up to their last hit single, this one's called The Summer Hustle ... Liverpoolian group The Starliners recorded a single with the promising title "Backing Vocals in a Rock'n'Roll band," produced, once again, by Owen and Murfin ...

RONNIE LANE'S MOBILE ... There have been some rumours recently that Ronnie's Mobile has been dismantled, sold, broken down etc. etc. and it is stressed that these are not true ... They recently recorded the Outlaws live at Hammersmith Odeon (when they supported Little Feat) ... The Who's gig in Swansea was



The Who's Swansea gig was recorded on Ronnie Lane's Mobile.

recorded, with RLM's resident engineer Ron Fawcus at the knobs - these recordings were being mixed at Glyn John's house in Surrey (with the mobile somewhere near the kitchen), and are tentatively scheduled to be broadcast on Capital Radio ... If the mixes work out well enough they may surface as a new live Who album ... Ronnie Lane is currently using the mobile at home in Wales putting down some new ideas ...

ROUNDHOUSE ... Tarney and Spencer were in to do an album with David Mackay producing and Ashley Howe engineering ... Marsha Hunt, late of Capital Radio and very late of Hair, recorded a single aided by engineer Mark Dearnley and produced by Steve Rowland ... Osibisa, laid down tracks for a forthcoming album with producer Gerry Bron and engineer Ashley Howe ... Moon Williams recorded another single with Kaplan Kaye producing and Ashley Howe engineering ... RCA band Buster laid down tracks that will eventually result in an album and a single; the producer was David Mackay, the engineer Ashley Howe ... Family Dogg resurfaced to record an album with Steve Rowland producing and Mark Dearnley producing ... Ken Gold produced The Real Thing who recorded a single ... A band called Quint put down a single with producer Barry Lane ... Digby Richards laid down tracks for a proposed album assisted by engineer Ashley Howe and producer David Mackay ... Kettle were mixing with producer Bob Bloomfield and engineer Mark Dearnley ...

SARM ... David Batchelor produced Alex Harvey who was overdubbing on his new L.P. ... Easy Street were recording with producer Mike Stone of Queen fame; the engineer was Gary Langham and they all got happily down to Easy Street's new album ... Mike Stone also had the honour of producing a band called Diversions, who were laying down a couple of tracks for Polydor with engineer Gary Lyons ... Paul Da Vinci was in recently and laid down some tracks with engineer Gary Lyons ... Richard O'Brien, of the Rocky Horror Show, recorded some songs for T. Zee and the Last Race, a musical which he wrote with producer Richard Hartley ... Pilot's guitarist Ian Bairnson produced his lady wife Marilyn Miller, who recorded a single for EMI ... Roy Baker produced Sunfighter who also recorded a single for EMI ...

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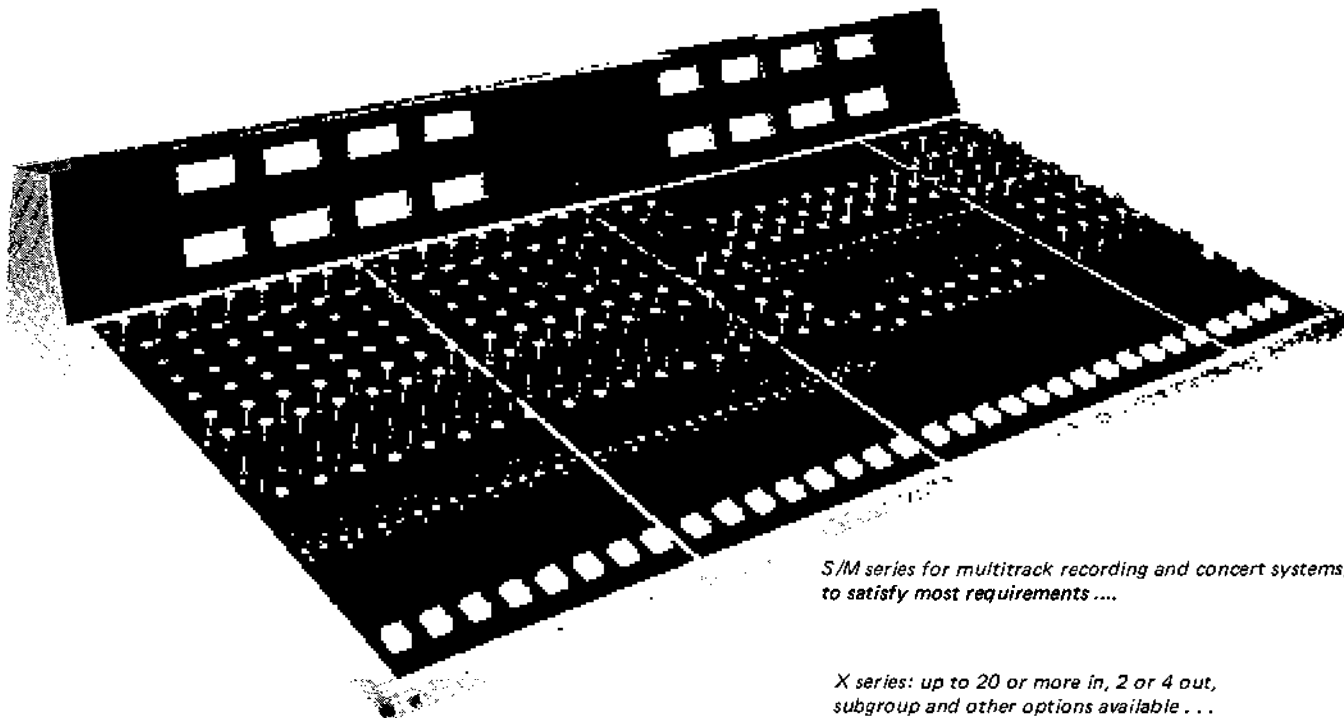
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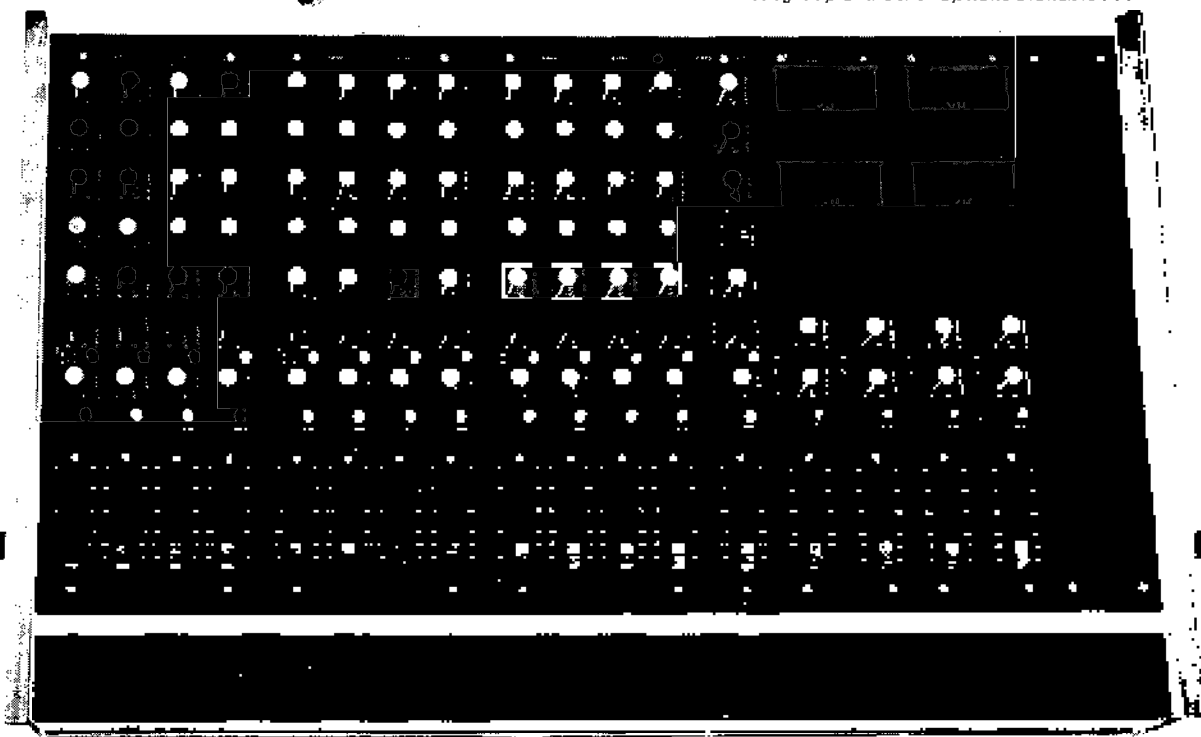
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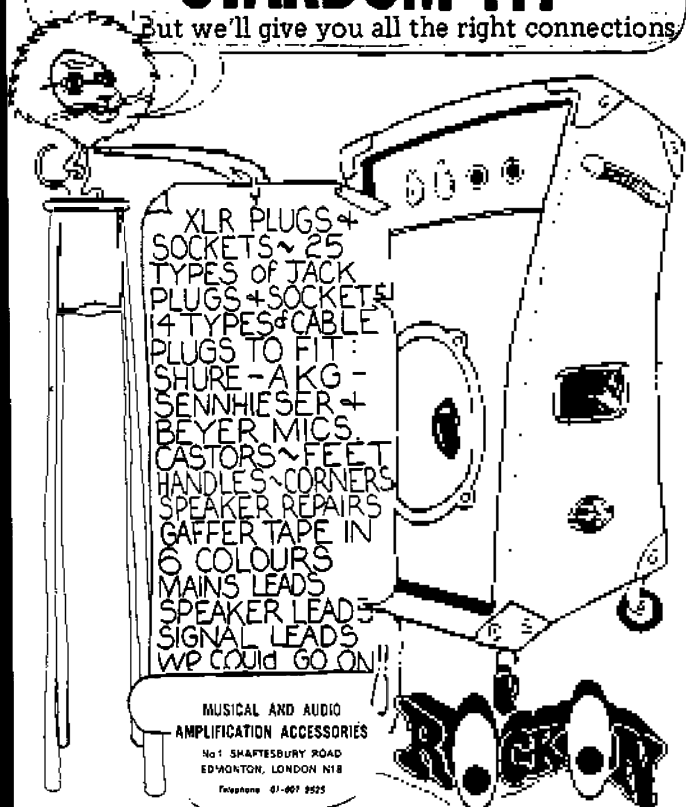
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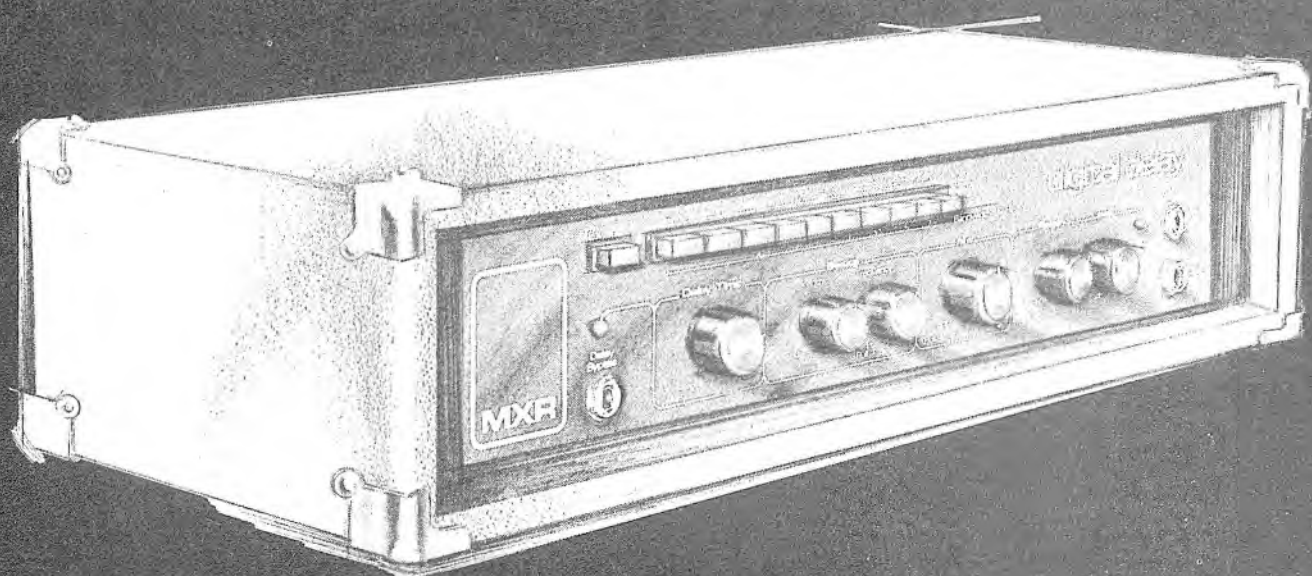
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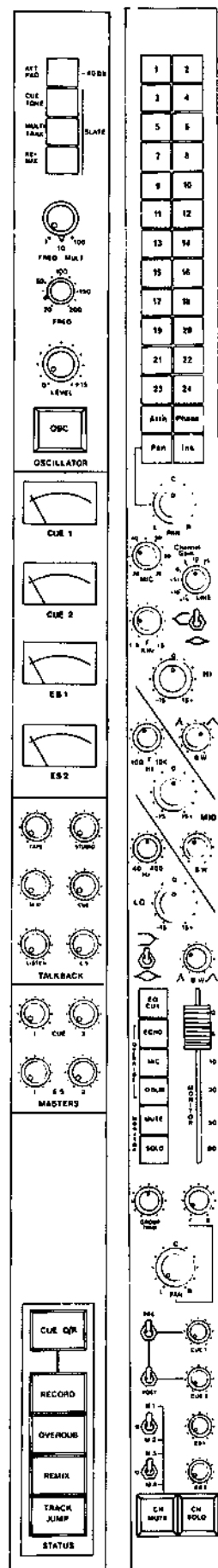
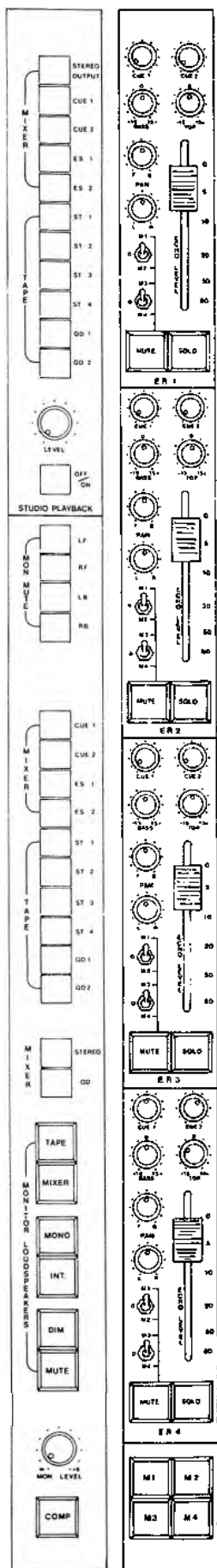
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Inside the studio

When luminaries like Ian Gillan and Roger Glover are involved in a recording studio, you know it's got to be good. The studio in question is Kingsway Recorders in London. Both ex-members of Deep Purple, Ian and Roger are directors of Kingsway Recorders Limited, but the story goes back a lot further than that — 14 years, to be precise.

The studio was originally set up by S.H. Bensons, an advertising agency, mainly to record Radio Luxembourg jingles for their various clients. It gradually became stereo and four-track until Bensons decided to cut down, and offered it to the market. De Lane Lea took the lease and installed eight-track equipment.

This was during the beat boom of the early 'sixties. The Beatles had just introduced Mersey beat to the British charts, and London was trying to reply. Record producer Mickie Most worked exclusively in the Kingsway Studio. Herman's Hermits, Lulu, Jeff Beck and Jimi Hendrix were all regular visitors to Kingsway.

By 1969, many studios had gone over to 16-track and 24-track was being mooted. De Lane Lea had first set up in Dean Street and had already decided to open their Wembley complex. The equipment at Kingsway had seen better years and was starting to show its age, and De Lane Lea decided to close the Kingsway studio. This was 1971 — the studio closed and the remaining lease and old equipment was again on the market.

At the same time, Martin Birch, Louie Austin and Terry Yeadon were working for De Lane Lea at Wembley, where Deep Purple's "Machine Head" album was being mixed. Ian Gillan had taken a liking to the Kingsway studio — "Fireball" and some of "Deep Purple In Rock" were recorded there — and the Wembley complex didn't really work for Purple. Martin, Louie and Ian began chatting about re-opening Kingsway and equipping it with new gear. They decided they would need some help technically and approached Terry Yeadon, who jumped at the

chance.

Ian provided most of the money and made an offer for the lease, which was signed on December 18th. Terry takes over the story. "We moved in and literally ripped the place apart. The acoustics and the feel of the place were OK, so we just ripped up the carpets and put down wooden parquet floor. Strangely enough, it improved the bass end, rather than the top. It used to be a bit dull, but the wooden floor put a kind of edge on it. It hasn't decreased the separation at all. There's a general liveness about it. We can still put down carpets if we need the 'old' sound."

Great care was taken in choosing the right machine for the right job. Martin Birch had worked in Japan, America and Europe in both fixed studios and mobiles. He had, therefore, a lot of experience with many types of recording equipment. Studers and Dolbys were ordered quite early in the game, but a lot of thought and planning went into the desk.

"We went to all the major manufacturers," explained Terry, "but although they could basically offer us what we wanted, they were asking too much money and we weren't getting exactly what we wanted. We went to Cyril Jones and Ron Pender, who formed a company called Raindirk, after they had been with Sound Techniques. They discussed mixers with us and we asked them if they would consider building a desk to our own specifications, which they did."

Ron Pender, one of the brains behind Raindirk, explained the desk's facilities. "Basically, it's 30 input, 16 plus 4 out with 24-track monitoring. All the inputs have a four band equaliser and bass and treble filters. They have individual auxiliary sends for fold-back and echo, and the mic/line gains go up in 6dB steps. We use the German Seydal faders.

"In recording mode, the monitors for the 24-tracks can be selected to any one of four speakers. Each channel has individual gain, pan pot and three auxiliary sends for foldback and monitor echo send. When re-mixing, the switches which select the four speakers then select the remix output. In this way, multi-track group output can be used for sub-grouping. The mixer has full remote controls for a Studer A80, and the electronic controls are coupled to the monitors, so monitor mode is dependent on the machine's condition."

The main recording machine at Kingsway is a 24-track Studer with a 16-track block. "We've only been asked for eight-track twice, so its not worth the trouble."

Monitors are JBL 4356 units, bi-amplified with Amcron DC300A power amps. There are also a pair

of Celestion 15 cabinets driven by a 10 + 10 amp (for a home Hi-fi sound) and two 5" speakers built into the desk. Additional rack-mounted equipment includes a full complement of compressors consisting of four Universal Audio 1176 units, a DBX 160, an Altec 436C and a Fairchild 666. Digital delay is provided by an Eventide clockwork unit and parametric equalisation by Orban Parasound. Kingsway also have cassette and eight-track recorders to make copies for clients.

Echo and reverb is provided by a live echo chamber, an EMT 140 plate, an AKG BX20 and a Grampian spring reverb. Microphones are mainly Neumann, AKG, Beyer and Calrec.

"We've just bought a Steinway grand for the studio," added Terry. "We don't usually keep any other instruments here, but we can get anything else if required at 24 hours notice." The studio itself is spacious, fully air-conditioned and houses four Lockwoods with Tannoy Reds for studio playback. A large underground car park backs onto the studio, so there is no trouble unloading.

Almost since its inception, Kingsway has been a very popular studio. "We've been fairly busy recently. We've been doing an album with Fusion and an album with Eddie Hardin. A lot of the work is basically rock stuff, like Leo Sayer and Adam Faith both did albums here, but we do other things as well. We had The Band of the Blue and Royals — a 35 piece military band from Windsor Castle."

Kingsway have one main problem at the moment. Because the rest of the building is owned by the Civil Aviation Authority who installed three international conference rooms directly above the studio, they were served with an injunction for noise. Consequently, the studios can only operate after 6.00 p.m. weekdays and all day Saturday and Sunday. The obvious answer was to look for somewhere else. After a thorough search all over London for suitable property, a large building, just 100 yards from Kingsway, became vacant.

"It's a huge building over the road in Macklin Street, and it's ideal for a studio, so we bought it," explained Terry. "We've just been negotiating with various companies to get estimates for conversion. The financial state of the country has obviously hampered us a bit, but its a very valuable asset."

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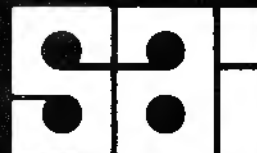
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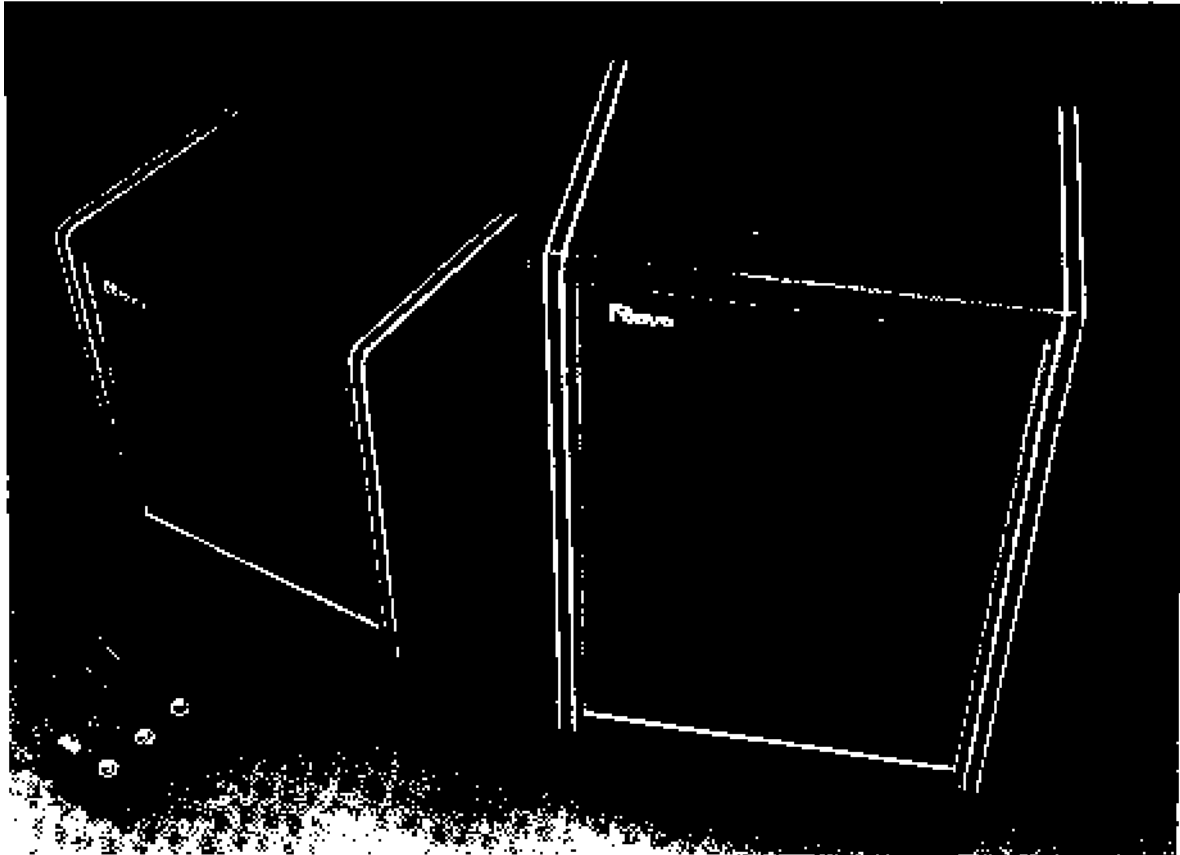
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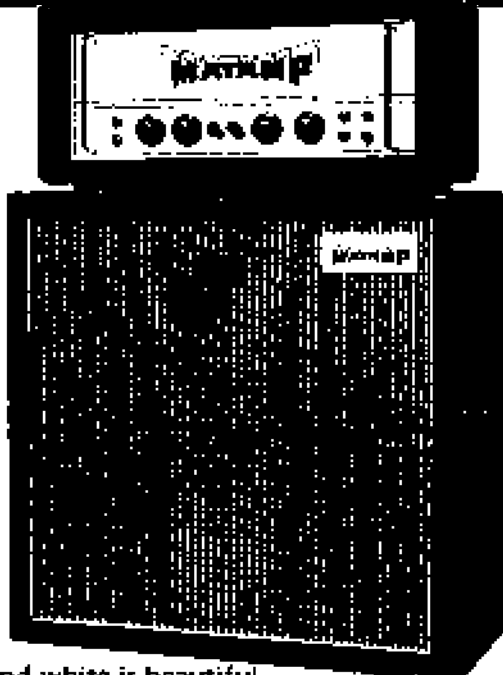
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The studio's heart is a 24-track 3M machine reducing to an Ampex 381. The desk is by MCI and despite its smallness offers a full 24 in 16 out facility. The studio has been largely built and designed by Roger and he's been responsible for much of the electronic and balance engineering.

Fred only moved to Curtom recently. He was with the ill-fated Chess studio complex in New York, and when that was closed down he moved to Curtom.

"It's really great working here," he explained. "You get a real mixture of music and the studio's a really nice place to work in. Roger's been giving me my head to some extent and I've been able to start some adaptations to the studio to get the kind of sounds I like."

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miked just waiting for the musicians to make the whole thing go. This produces two results. One is that the engineer can always rely on a really great sound because the best instruments and the best miking have been arrived at by trial and error. The other advantage is that he tends to get a "house" sound and it can be difficult to make things sound really different.

Fred worked on altering the acoustics of the studio slightly. At the moment the studio sound is very "dead." The thick floor carpeting extends up the walls and the reverb time is very short. Fred's bringing some plexi-glass screens into the studio to put round the drums and brighten the sound up, and he's also got a thing about tubes.

"I want to put a tube pre-amp on the front of the MCI desk. At Chess we had the most amazing tube board and I really believe they get a sound you can't get any other way. Roger's allowing me to try it out and I'm really looking forward to the sounds we'll get."

Monitoring at Curtom is via Crowns and RCA RD500's. The usual facilities such as full Dolbys and Keepex limiters and E.O. units are built in.

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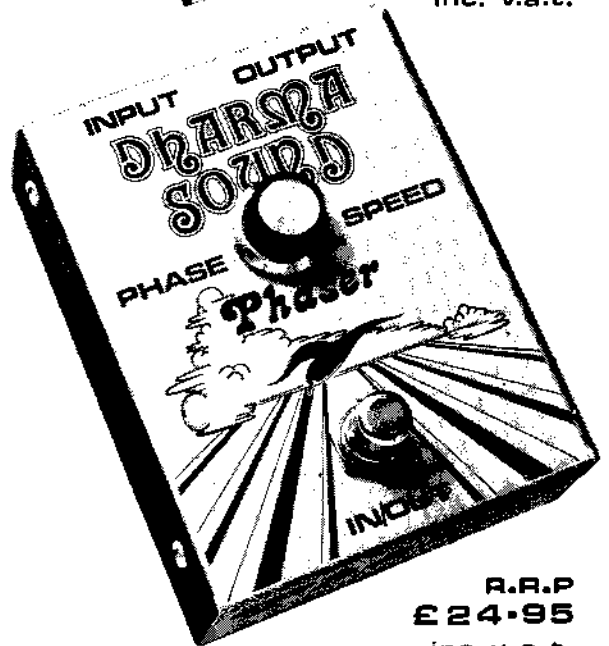
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Andy Pratt: Resolution. Nemperor K50279

This, I am told, is Mr. Pratt's third album on as many labels. I must admit he was something of an unknown quantity to me until this record hit the deck. At its most basic, *Resolution* is a collection of personal love songs, structurally piano based, sung and performed very well by all concerned and beautifully recorded, produced as it is by the respected Arif Mardin who also supplied string and horn arrangements. "Resolution," the title track, is lyrically a clever opener, setting the mood for the variety of love songs that are to follow; Andy is undoubtedly in an optimistic frame of mind, "I'm gonna try and spread my wings/See what this happy life can bring" he sings on this first track, and in the sleeve notes which prove that someone in touch with Andy believes in the printed word, he says, "I fear everything will turn out fine." That's how you feel when you're in love and Andy is in love; it's unfortunate that the most popular subject since the beginning of time is also the most difficult to write about originally. "Constant Heat" is the third track on the first side and, as such, is probably as good an example as any of the conflicting qualities of the record as a whole. It features some of the best and most impressive singing on the album. Andy (I hesitate to call him Pratt) reaches notes you think he's not quite going to make and coaxes a fine performance from the typically shining session men: Andy on piano (as he is throughout), Mark Doyle on guitar, Tony Levin on bass and the inevitable Stephen Gadd on drums. Lyrically, however, the song looks a little dumb on paper, "Join with everyone in the glow of love/The truth of love and all my love" - all very true and heartfelt I'm sure, but it doesn't seem to connect, even when sung so well. It's not how you sing it, it's what you sing that has to be the ultimate test. There are nine other tracks in addition to "Resolution" and "Constant Heat," the best of which are "If you could see yourself (through my eyes)," "Everything falls into place (Lillian's Song)" and "That's when miracles occur." "If you could see yourself (through my eyes)" is very well conceived and performed with slight reggae leanings on the rhythmic side from Tony Levin and Steve Gadd, and some soulful fills from Mark Doyle's guitar and Ken Bichel's synthesizer. It stands up as a love song which works in feel and in content (musically and lyrically), although I think Dylan handled the subject matter more wittily at the close of "Positively Fourth Street." "Everything falls into place (Lillian's Song)" considers a conversation in an airport lounge between lovers: she's leaving and he's thinking aloud. There's a simple arrangement which merges beautifully with a superb song: superlatives all round, barman. "That's when miracles occur" could do wonders for the dismal single charts if propelled in that direction with enough velocity. In the context of this album it's a fine opener for side two. It's not as strong lyrically as some, but the playing is good and there are some pleasing "jazz" guitar lines in harmony with a keyboard part, both of which are presumably provided by the excellent

Mark Doyle. There is a slight feeling of tension in as much as the song has a very "arranged" feel that somehow seems to aim at looseness, but is carried off ably by a rhythm section of Hugh McDonald on bass guitar, Andy Newmark on drums and Ruben Bassini on percussion. One of those records that gets better every time you play it, and I shall be playing it a lot. *Recorded at Columbia Studios, New York; Atlantic Recording Studios, New York; Sound Ideas, New York; Northern Studios, Maynard, Mass. Mixed at Atlantic Recording Studios. Engineered by Richard Mendelson, plus Lew Hahn, Lou Waxman, Harold Tarowsky, Tom Dwyer, Bob Troeller and Dave Stone. Mixed by Lew Hahn, plus Andy Pratt and Arif Mardin. Produced by Arif Mardin.* Tony Bacon.

Henry Cow: Henry Cow Concerts Caroline CAD 3002

Henry Cow are, I suppose, one of those bands you either love or hate, know inside out or have never heard of. To describe their music is virtually impossible; comparisons for the most part are embarrassing, and anyway, words are no substitute for hearing the record, in the same way that hearing this record is in no way a substitute for hearing Henry Cow play live. It's quite an uplifting experience on a good gig. Most of this double album is recorded live, as the title would suggest, with only Side One originally studio recorded for the BBC; Side Two has two titles merging into one another both recorded at the New London Theatre in May, 1975, along with guest "voice" Robert Wyatt, plus a track recorded in October of the same year at the Palamostra Auditorium in Udine, Italy quite near the Yugoslavian border. Side Three is one track, freely titled "Oslo," which was recorded at the Hovikodden Art Centre in Oslo just over a year ago. Side Four consists of three pieces, two recorded at the Vera Club, Groningen, Holland, and another piece from the Udine concert. I don't really see a lot of point in releasing the record in this form; I'm sure a single album would have sufficed and probably would have been much more pleasant. The BBC sessions are certainly worth having in their entirety, but some of the music is, arguably, a little wasteful in that far superior versions appear elsewhere on studio albums. "Ruins," for example, (on Side Two) originally appeared on their second album "Unrest," and "Little Red Riding Hood Hit The Road" is handled infinitely better in its original form on Robert Wyatt's superb "Rock-bottom," his first Virgin solo album. A good deal of the rest is more or less free music, which I really enjoy both on records and in concert but one can't get much more from repeated listenings. Free music in some respects works best at its moment of creation and also, by its very definition, is live music and a unique event. Still, the record is admirable in its basic content; even though the Cow tend to trip over their own tails in places as the music gets more and more complex and the initial communication gets more distant. The individual playing is of the highest quality, especially the bass and

drum team of John Greaves and Chris Cutler. Greaves' playing is particularly fine on "Nirvana for Mice" on Side One and "Groningen" on Side Four. Other members of Henry Cow on this record are: Lindsay Cooper, bassoon, flute, oboe, recorder and piano; Dagmar Krause, voice and piano; Fred Frith, guitar, piano, violin and xylophone; Tim Hodgkinson, keyboards, clarinet and alto saxophone. Greaves as well as bass, also handles celeste, piano and voice, whilst Cutler, as well as drums, also plays piano. For devotees, as they say. *Various recording venues, as detailed in text. Mixed by Bob Conduct and Tony Wilson (BBC), Sarah Greaves, Neil Sandford, Jack Balchin, Harold Clark (locations). Produced, presumably, by Henry Cow.* Tony Bacon.

Fairport: Gottle 'O' Geer .Island ILPS 9389

Fairport Convention seem to have been through as many line-up changes as Alvin Lee gets through top-E strings, and now they've decided to drop the word 'Convention' from their title, becoming plain and simple Fairport. This new album continues the recent trend to make Fairport synonymous with Dave Swarbrick, and he's now virtually taken over the lion's share of composing and playing. The band now features old pals Dave Pegg and Bruce Rowland from previous Fairport incarnations, and Bob Brady and Roger Burridge on vocals. In addition to this, the new Fairport line-up, there are loads of old mates, both known and unknown to me, helping out on the album, like Martin Carthy, Simon Nicol, Jimmy Jewel, Gallagher and Lyle, Eric Johns and Nick Judd. The performance of the material is disappointing. First up is "When First Into This Country," a ballad traditionally sung by prisoners and performed here in good old Fairport style. "Our Band" follows and it's just a very sort of cliquey song about, surprise, surprise, how well the band gets on together. "Lay Me Down Easy" is a straightforward song about getting pissed and all that it entails - a reference also to Gottle of Geer? "Croprody Capers" follows, which is a surprising track to find on a record by Fairport - it's actually some of that funky stuff, y'know? Bit of a throwaway, I reckon. "Frog Up The Pump," a totally acceptable jig, redresses the balance though one wonders what Fairport would do for a fair part of their repertoire if the jig format didn't exist. Side Two opens with "Don't Be Late," featuring Nick Judd on piano and some of the previously mentioned brass players. "Sandy's Song" follows, which sounds as though it might have been rescued had Sandy Denny actually been singing it, but otherwise is pretty ordinary. Then comes the Gallagher and Lyle song, on which Benny and Graham actually play. The last track is "Limeys Lament." The playing is excellent, including fine guitar from Simon Nicol over a basically 12 bar format - but what are the lyrics about? I couldn't suss them out at all. *Recorded at Island Studios, Hammersmith and Sawmill Studio, Fowey. Engineered by Simon Nicol, Dick Cuthell and Tony Cox. Remixing engineers Simon Nicol and Dick Cuthell. Produced by Bruce Rowland. Tony Bacon*

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The sign of quality

Jeff Beck: *Wired*. Epic EPC 86012.

Jeff Beck, to my mind, is one of the most original and inspired guitarists around. He plays exactly what he wants with almost complete disregard for public taste. Thankfully, enough people get off on his playing and buy his albums. Even if they didn't, I suspect he would still carry on regardless. In England, he came in for a lot of unfounded criticism when he released his last album "Blow By Blow". Various scribes pronounced it the kiss of death for Beck. The album subsequently went gold. Many critics, with their heads still in 1967, could not find anything good to say about a funky, instrumental album. Instead, they shortsightedly drew comparisons between Jeff Beck and John McLaughlin. Agreed, they are both guitarists, but I fail to see any other similarity. The point is, Beck has grown up. "Blow By Blow" was a fair indication of this maturity, and "Wired" consolidates it. It's almost "Blow By Blow, part two," as again, it's totally instrumental. His old pal Max Middleton is still there as is Richard Bailey (on some tracks). The rest of the musicians include Narada Michael Walden, Wilbur Bascomb and, last but certainly not least, Jan Hammer. Middleton's "Led Boots" opens the album - a riffy, funky tune with more than one change of time-signature. "Come Dancing" follows, written by Walden who shares the drumming with Ed Green on this cut. This track demonstrates what a good rhythm player Beck is. Chunky chordwork provides the backdrop for Hammer's superlative synthesizer, sounding almost like Beck speeded up and highlighting the empathy between Beck and Hammer. Halfway through, Beck utilises an octave-divider with just a hint of echo, giving the guitar an evil, sinister quality. Charlie Mingus' "Good-bye Pork Pie Hat" is next up, starting slowly with Beck playing single notes, improvising on the melody. When the piano, bass and drums come in, he jumps up an octave, before opening out into some fine improvisation. This is Beck's forte - during an improvised passage, he may hit a couple of wrong notes or fluff a chord, and instead of overdubbing, he'll use a mistake to its best advantage, cranking the volume up and repeating it over and over. Side One closes with "Head For Backstage Pass", written by bassist Wilbur Bascomb and Andy Clark. The track starts with a short bass solo, which later develops into a riffy theme, complemented by Beck, Bailey and Middleton. The guitar is double-tracked, each answering the other, but the track fades out much too soon, while Beck is playing at his best. Side Two kicks off with Jan Hammer's "Blue Wind," featuring Beck on guitars and Hammer on synthesizer and drums. Synthesizer is featured heavily on this track and it's sometimes difficult to tell the difference between guitar and synth. Walden's "Sophie" starts with a slow, aggressive guitar line and then breaks into a fast 7/4 rhythm. Middleton is particularly impressive on "Sophie." He plays both Fender Rhodes and Clavinet with restraint and feeling. Beck's guitar is double tracked - the melody being played in octaves, and the track ends with some delicate interplay between guitar

and synthesizer. "Play With Me" follows and it's back to funk. Written, as is the bulk of the material, by Walden, the basic melody is played on guitar, with the backing provided by Middleton, Bascomb, Hammer and Walden. It also features one of Hammer's best solos on synth. The finale is the tongue-in-cheek-titled "Love Is Green." Beck plays both electric and acoustic guitars on this, the backing provided by Bascomb on bass and Walden on piano. It's a slow, moody, atmospheric piece, the lead on the first verse taken by acoustic guitar. Beck's Strat is brought in for the second verse. A short track, ending with acoustic and electric played in unison. A small criticism regarding Epic's packaging - like "Blow By Blow", the titles on the album sleeves are out of sequence. However, that is the only criticism. "Wired" is a great album form The Ace That Launched A Thousand Licks.

Produced by George Martin, engineered by Pete Henderson, Dennis McKay, John Mills and John Arrias. Recorded at Air and Trident Studios (London) and Cherokee Studios (Hollywood). Eamonn Percival

The Sensational Alex Harvey Band: *SAHB Stories*. Mountain Tops 112.

And now, the album you've all been waiting for, the watershed for the Sensational Alex Harvey Band. At last, the boys seem to have found some firm footing. With a collection of wit, morals and music, but always, always with a story to back it up. In fact, the story - and some fine, strong playing from guitarist Zal Cleminson and keyboard player Hugh McKenna - is the only common thread in this collection of eight songs. The album gets off to a slow start with some uncharacteristic harmonies on "Dance To Your Daddy," a joint composition by the SAHB and producer

David Batchelor, who incidentally used to be in Teargas (as were both McKennas and Cleminson). Very pretty, but not exactly the band's forte; towards the end it sounds like Tubular Bells. The second track is more like it. "Amos Moses" is just the stuff for Alex to get his teeth into. A real post-war fantasy, re-interpreted by a master. Amos Moses, Cajun guitar hunter, son of the Reverend, lures the law man into the swamp, and another cop bites the dust. This track and the next one, "Jungle Rub Out," brings out one of the best aspects in Harvey's fantastic lyrics: tales. The B movie screenplays have finally found an exponent who can lift them from the prosaic, workmanlike status they found in the hands of Ronald Reagan and Virginia Mayo, and resurrect the real humour and earthiness that first enticed the writers. "Jungle Rub Out" is set in the concrete jungle, funky rhythms underlining the seamy side of urban life, with characters like Frostbite Bill and a host of hookers. A good song, rather like "Actionstrasse," but the scene is New York and not Hamburg, and Harvey seems somehow more at home in an American fantasy. "S25 For A Massage" is the other side of Alex, a little gem found in the commonplace story of a man who goes to the parlour for a massage and ends up wed to the masseuse. Straight from Balzac's Droll Stories, this one. At his best, Harvey has helped to develop a new art form: the short song. Rather like short stories, they last only as long as the particular story takes to tell. Direct, spare, to the point, and never intentionally commercial, a collection of wit, wisdom, anecdote and remembrance. Harvey's best songs at least entertain, and often instruct as well. Will Rogers would have loved him. *Recorded at Basing Street Studios, engineered by Phil Brown, mixed at Air, engineered by John Punter, produced by David Batchelor. Carroll Moore*



The Sensational Alex Harvey Band. Left to right: Ted McKenna, Hugh McKenna, Alex Harvey, Chris Glen and Zal Cleminson

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All the mike signals were split four ways: through the P.A. mixing board, (two Yamaha 16 input consoles), through the foldback mixer (a single Yamaha 16 channel

console) to the Mountain Studio situated beneath the Casino, and a fourth split to Swiss television, who broadcast the concerts and provided simultaneous live transmission in the Casino.

Compounded by the ground rules laid down by the Festival Organisation, the task seems even more formidable. Bose were also required to supply sound for the numerous other musical happenings which are so much a part of the Montreux Festival. The outdoor concerts, the International Jazz Ensemble contest held at the Maison des Congres, and daily jam sessions on the Terrace du Casino, were all reinforced by Bose.

Lorenz Beyeler, head of Professional Products for Bose Swiss AG, organised and executed the operation in Montreux. The prestige of supplying the Montreux sound system and the

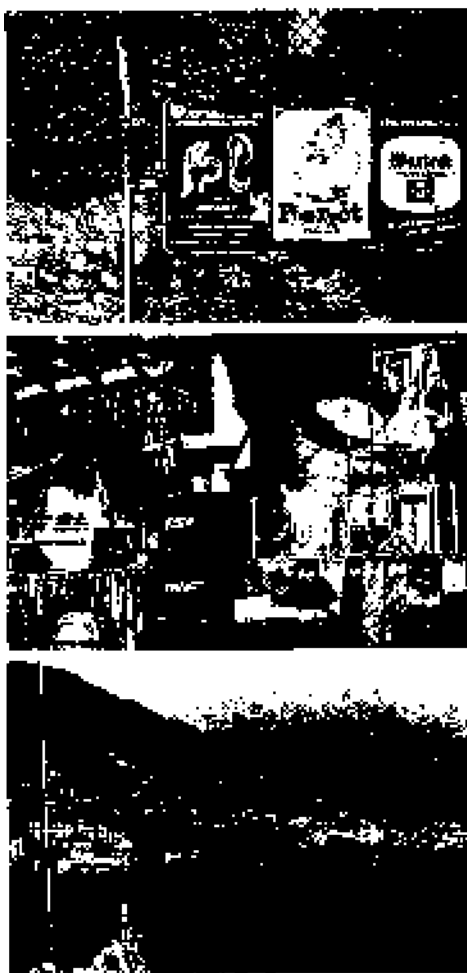
challenge of supplying a good sound to a Festival plagued with a history of poor quality sound aroused Beyeler's interest. Conversations with the festival's organiser Claude Nobbs proved favourable. Nobbs knew of Bose and approved. Switzerland has the highest percentage of professional product sales of all the Bose markets, and Beyeler estimates that 60% of Swiss artists use Bose.

Bose were in a good position, they could be certain of selling whatever equipment they might have to import, and the challenge of the Festival interested Bose in America who pulled out all the stops to ensure that Bose Swiss AG had all the support they needed. Roy Komack, the American Professional Product manager, managed things at that end, and provided the necessary mixing engineer - under the ground rules, either an

American or English engineer had to be provided. Douglas Wilkens, an experienced all-round mixing engineer (and the largest Bose retailer in the U.S.) fits the bill perfectly. A former resident of Monte Carlo, he speaks French, German and Italian as well as having varied mixing experience with his hire company, Dimension 5 of Womensdorf, Pennsylvania.

The long range planning began in November of last year, and preparation began shortly afterwards to iron out the wrinkles which had spoiled previous festivals. Conversations with the Swiss Television network led to a realisation the the power requirements necessitated additional electrical outlets. Television would also mean additional cooling problems.

Bose would also find another possible drawback in the Festival rules - under the



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terms of their agreement, the studio would determine which mikes would be used, and Bose were not overwhelmed with the use of mikes more suitable for recording than P.A.

The actual setting up took a total of three days — often 18 and, at least once, 24 hours at one time. The team was basically European, and included Passport's sound engineer and Matias Mueller of German radio, all under the direction of Lorenz Beyeler.

According to Beyeler, the trickiest problems came after the equipment was set up. "The cooling problem was the most immediate. (Air temperatures throughout the festival reached the mid and high 80's F.) The amps were running at about one third their maximum output, and this is always a problem: to dispense with the heat that is created. We drilled holes in

the top and bottom of the rack plates and put fans both above and below to circulate the air. We gave the system a week of three-hour full-power tests before the festival began, and that helped us to find problems and iron them out."

In addition to the problems of heat created by the lighting, the lights also set off some mains hum which impaired the recording sound quality, and that had to be dealt with. "We had worried about the difficulties of conflicting magnetic fields found in the lighting and speakers," Beyeler continued, "but that proved to be no problem."

Once set up and in operation, the system had to amplify a wide range of music. Frankie Miller, John McLaughlin and Shakti, Gordon Lightfoot, Leonard Cohen, Odetta, Clark Terry, Humphrey Lyttleton, Weather

Report, The Crusaders and Passport — all with varying sounds and styles to be accurately reproduced.

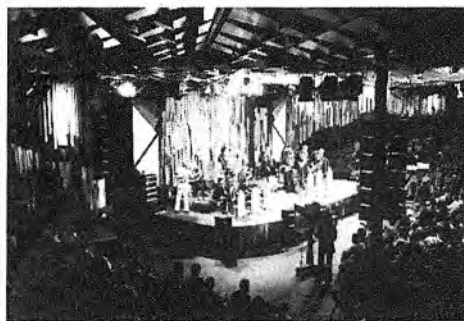
Not everyone was in total ecstatic agreement about the Bose system. Alex Grope of Mountain Recording Studios voiced a familiar complaint. "The system is good, but it has its problems. I had a long argument with Dr. Bose when he was here, and I said to him that there were no highs, no lows, and no air moving. There is not the gut feeling that one gets with more conventional horns and bins. I can hear these sounds from a hi-fi."

Grope, however, did admit that it was the best system in the festival's history. In fact, he and another party were involved in negotiations to purchase the system from Bose in its entirety, making it the permanent sound system in Montreux. That doesn't destory his argument,

but it does put it in a different context.

The Swiss press were ecstatic with the quality: one paper even ran a parable about a Hall that was sick, until Dr. Bose came and cured it with his "magic black boxes." For the first time in years, the papers declared themselves content with the sound.

Performers were also impressed. Odetta had even lost a bet when, walking through the casino, she heard a disco and mistakenly thought, because of the quality of reproduction, it was a live band. Artists including Leonard Cohen and the Dubliners have approached Bose for more information about the availability of Bose Sound systems, both for purchase and hire.



TOP LEFT: The Bose speaker system. The arrangement of the speakers was critical, owing to the Casino's peculiar design—it's shaped in three deep lobes, to the left, centre and right of the stage. The final arrangement, partially visible in the CENTRE photograph of the Pasadena Roof Orchestra, was more than satisfactory: most claimed that it was the best P.A. system in the festival's history.



BOTTOM: Lorenz Beyeler of Bose AG Swiss. Beyeler was the head of an international team responsible for setting up and maintaining the Bose sound systems throughout Montreux.



Carroll Moore examines the sound and power (and sweat) behind the 10th International Festival

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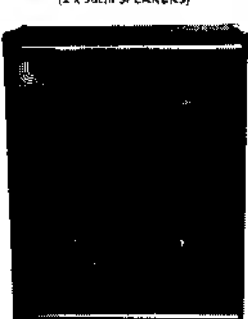
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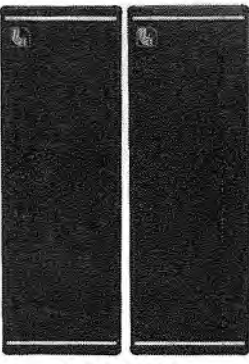
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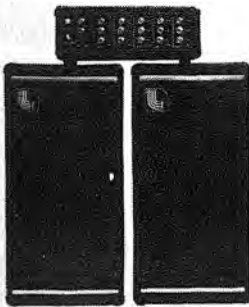
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Synthesizers Unravelled: Part 2 by Graham Hinton

Once a tone has been generated, one of the most important processes is the use of filters to obtain different formants and timbral textures, rather like the function of the body of a conventional musical instrument. Filtering techniques are of two kinds: the use of bandpass filter banks and graphic equalisers to obtain a static formant and voltage controlled filters for timbre modulation (TM).

The quality or timbre of any tone is due to the ratio of the harmonics in it; electronically generated tones have prominent low harmonics that gradually diminish in sequence, but carry on right up to ultrasonic frequencies which gives an artificial quality to the sound. Filtering changes the relationship between the harmonics and can emphasize or de-emphasize any one, or group, of the harmonics. The timbre of a natural note is not constant for its duration; usually the high harmonics die away rapidly while the low harmonics sustain, an effect that is easily simulated by voltage controlling the filter frequency during the length of the note.

The most common type of VCF, found in nearly all mini-synthesizers and some maxis, is what is known technically as the 4-pole lowpass/resonator. It may be recognised by its controls: usually, one for frequency and another variously called response, Q, or resonance, a frequency control input, a signal input and one signal output. When the response control is set to a minimum, the filter behaves as a low-pass filter: all input signals of a frequency below that of the filter are passed unaffected, while any above are reduced by a factor of eight for every octave that their frequency is greater than the filter's (24dB/octave attenuation). When the response control is increased, more emphasis is placed on input frequencies near that of the filter, changing it into a bandpass type, gradually becoming more selective until at maximum settings the filter will oscillate, producing a pure sine-wave output without any input signal. An opposite type of filter, the 4-pole highpass/resonator, is quite rare and only found in some of the larger systems.

The other common type is the Universal or Multimode VCF, so called because high-, band- and low-pass, and sometimes notch (band-reject) outputs are simultaneously available. The response may be voltage controlled on some models, and may even have two switchable values controlled by a keyboard gate signal for percussive effects but it is of a different nature to the previous type, in that the attenuation is a factor of four (12dB/octave) for the high and low-pass and a factor of two (6dB/octave) for the bandpass.

At high response settings, this type of filter is likely to overload and break into a nasty non-sinusoidal oscillation and an overload indicator lamp and a Normal/Limit switch are often provided to prevent this. The Limit mode automatically reduces the signal level as the response increases to obtain unity gain at the resonating harmonic, but if not provided, it is only necessary to reduce the level of the input signal by hand.

The response of the Universal filter is more like that of natural resonators (tubes, pipes, etc.) than the 4-pole types, but it is rarely found in mini-synthesizers due to the large number of knobs and panel space required. Each kind of VCF has its own particular characteristics and uses. There is no "best" type and ideally all should be available in a system.

The voltage control sensitivity of a filter should be identical to the VCOs used in the system to enable the filter to track a VCO: a control voltage into the frequency control inputs of both a VCO and a VCF which is processing it should enable the new tone to be programmed to any frequency without changing the waveshape. Obviously, a VCF should be able to operate over the audio frequency range (16Hz-16KHz), but it is advantageous to be able to process sub-audio signals as well and for this purpose, the low-pass outputs should be DC-coupled. Two requirements for high quality VCFs are that they should introduce very little noise into the signal, especially when there is no input, and that the control voltage signals do not break through to the outputs. These conditions may seem

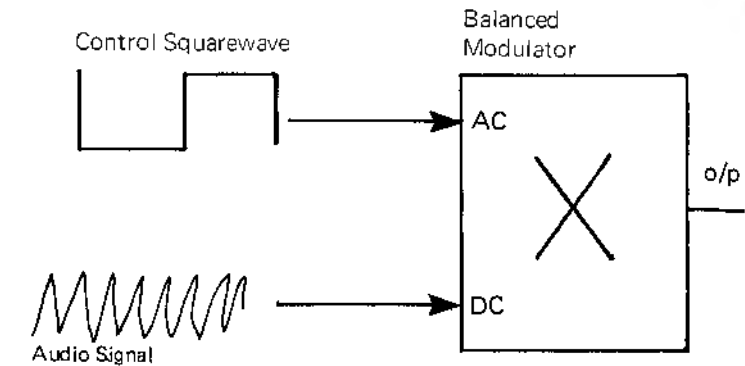


FIG. 4 AC coupling a Balanced or "Ring" Modulator

obvious, but of all the different modules in a synthesizer, the VCF is the most difficult to design properly and these are the usual shortcomings.

The versatility of VCFs make them an integral part of nearly all synthesizer sounds and, in fact, in most minis it is impossible to make a sound without routing it through the filter which gives rise to their characteristic and clichéd "meow" sound. When the frequency of a filter is modulated by a fast control waveform or a low frequency audio waveform, the output signal often bears little resemblance to the input and it is by this method that most bubbling, warbling and gurgling sounds are generated.

At higher response settings, a filter can be made to "ring" — produce a decaying oscillation — by using sub-audio square or sawtooth-waves, or any other waveform with a sharp edge in it as the input, making sounds ranging from deep bongoes to dripping taps, depending upon the frequency setting. "Phased" or "Flanged" sounds may be simulated by using the notch

output of a Universal VCF, or by mixing the high and low-pass outputs together if this is not available, and slowly sweeping the frequency (one interesting non-musical application of VCFs is to produce fantastic spiralled patterns on an oscilloscope which could be the basis of a lightshow).

All the tones discussed up to now have been continuous with no variation in loudness; to alter the volume or level of a sound, a voltage controlled amplifier/attenuator (VCA) is used. This device has a signal input and output and the amount of signal passed through is controlled by a knob and a voltage control input; there may also be switches for selecting AC/DC coupling of the signal and Linear/Exponential control of the gain. The linear mode is used when the control waveform is already exponential, as in the case of AR and ADSR envelope generators (more about them next month) or when the amplitude of a waveform is the factor to be controlled; the exponential mode is used when the control is linear — a low frequency sawtooth-wave for

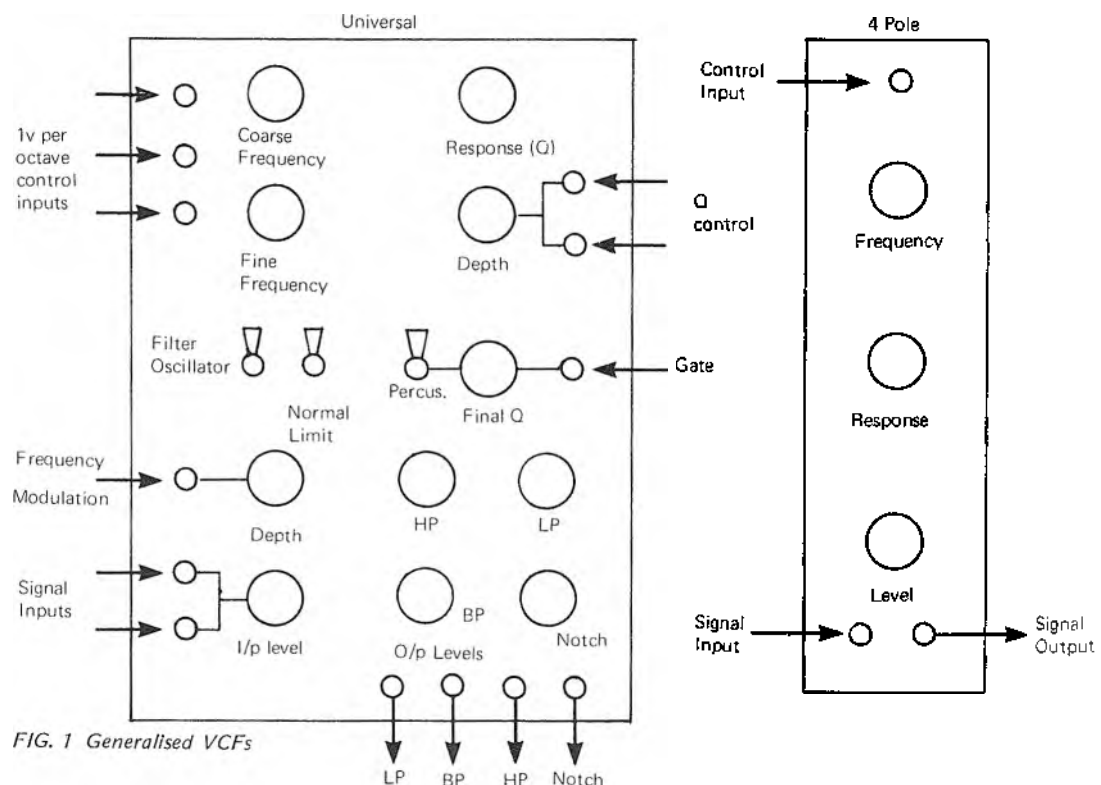
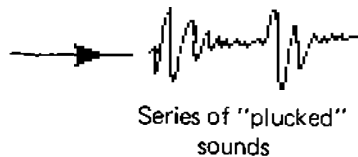


FIG. 1 Generalised VCFs



example — and loudness has to be controlled. Loudness, like pitch, is a subjective quantity which, when increased uniformly, necessitates a change by a ratio in the corresponding objective quantity amplitude, or frequency, hence the exponential control in VCAs and VCOs.

Like all processing devices, the VCA should have very low noise and distortion and a high control voltage rejection with standards comparable to the best studio equipment to permit several devices to be cascaded without seriously degrading the signal. The polarity of the gain of a VCA is also important, but often undefined by most manufacturers, as it is more useful to have an overall inversion of the signal. This makes it possible to mix a signal processed by a VCA with the original and thus obtain a partial or total cancellation which can be used to obtain smooth voltage controlled fades or pans (see Fig. 3.) VCAs are not limited to processing audio signals; when the input is DC coupled, low

frequency signals may be controlled to obtain complex waveforms for programming VCOs, VCFs or other VCAs. The control knob alters the gain from zero at one extreme to a maximum of unity at the other; when programming changes of loudness with other devices, this control is normally kept at a minimum so that silence may be obtained. For other effects, the manual gain is quite important; tremolo can be synthesized by setting the average loudness and using a sub-audio signal to voltage control the gain as well, the amplitude of the control signal controls the depth of tremolo and its frequency the rate.

When the control waveform is itself an audio frequency, the signal becomes Amplitude Modulated (AM), and each harmonic in the original signal becomes a cluster of non-harmonically related overtones; their intensity and separation is dependent on the level and frequency of the modulating signal. These overtones may sometimes be referred to as "sidebands," a term borrowed from radio engineering, and are heard as frequencies equal to the sum and difference of the frequencies of the input and control signals (plus every combination of all their harmonics) along with the original, so keeping its pitch but not its timbre; the modulation pitch is not heard.

The Balanced or "Ring" Modulator is a similar device: it has two inputs and one output, an output level control and sometimes AC/DC coupling switches for either or both inputs. The

input signals may be either control or audio waveforms and the output signal is the algebraic product of the two — they are multiplied together according to the normal rules: $+2 \times -3v = -6v$, $-2v \times -3v = +6v$, etc. This property can be used to manipulate control voltages, provided that the inputs are DC coupled. Polarity changes may be introduced in control sweeps, straight line shapes changed into curves, and complex patterns made from the basic waveforms. When both inputs are audio signals, the output consists of the sidebands of the inputs, rather like a linear VCA except that both the original signals are suppressed, resulting in a new tone that is non-harmonic and often used in synthesizing bells, chimes and Dalek voices.

audio signal, but a control voltage will be blocked and only changes in the waveform will be passed through. If an audio signal is used for one input and an AC coupled control voltage for the other, the output will be the audio signal with its level proportional to the rate of change of the control waveform: quiet for slowly changing voltages and loud for fast. This is a useful technique to use with joystick or ribbon manual controllers: different dynamics are produced according to the speed of operation and silence results when left still. AC coupled control square or saw-tooth-waves can be used to produce a regular series of plucked-type sounds in this application as the rate of change at the "edge" of the waveform is large, but low elsewhere. (Fig. 4).

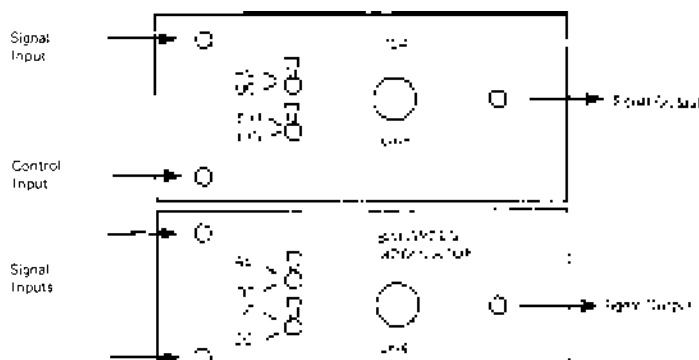


FIG. 2 Typical VCA and balanced or "Ring" Modular Modulator

When the same signal is connected to both inputs, the output will be exactly one octave higher, although the timbre will change for any waveform except a sine-wave. AC coupling an input will hardly effect an

Balanced Modulators tend to have some breakthrough of the inputs due to a difficulty in obtaining an input of exactly zero volts and there is either some means of adjusting this breakthrough to a minimum or what is known as a "Squelch" circuit, which switches off or mutes the output whenever the audio signals fall below a preset threshold. It is normal practice to arrange "noisy" devices like Balanced Modulators and VCFs in a patch before going through the VCAs which tend to be cleaner. In this way, the unwanted signals will be reduced with the proper signals when the VCA is turn off instead of just gating off the proper signal and leaving all the breakthrough.

With the devices now described, it is possible to obtain all the different forms of modulation: frequency (FM), timbre (TM), amplitude (AM), balanced (BM or RM), spatial or location (LM) and all their combinations and permutations, giving a vast range of sound textures. If you have, or have access to, a synthesizer, it is well worth spending the time trying out different modulation forms using every type of waveform at both audio and control frequencies. This is the groundwork for the advanced techniques.

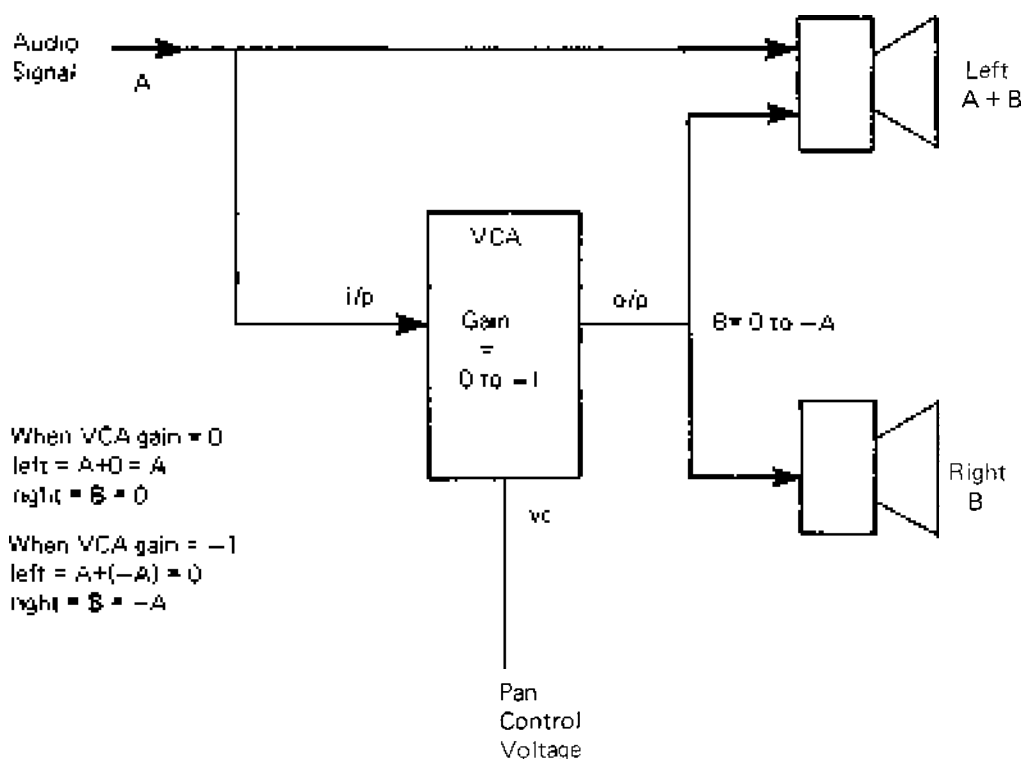


FIG. 3 Voltage controlled panning with one VCA



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Build a Tremelo Generator

by Mark Sawicki M.Sc.

The tremelo sound belongs to the group of basic sound effects found mainly in guitar and electronic organ music. The tremelo sound has been around for many years especially on the pop music scene, and its sound is very pleasant, as it creates its own characteristic "vibrato" effect. In the late 'fifties and early 'sixties, this was obtained by mechanical vibrators, which were popularised by such groups as The Ventures and The Shadows, and owed a lot to the then current mode of music.

Unfortunately, a large majority of existing amplifiers do not possess this particular facility and as a result can to a certain degree limit the artistic and musical production of the player. Happily for musicians, modern electronics came to the rescue, and we are now familiar with a whole range of solid-state circuits which are capable of simulating to near perfection the tremelo sound, and which may even lead to the saving of a broken finger or two. An extra advantage of the electronic tremelo is its ability to correct the tonal characteristic of the created sound and the possibility of increasing the tonal colourisation of guitar music.

First introduced a good few years ago, it has been recently revived, especially in film and television themes, but it is still used chiefly by lead guitarists.

The circuit that I have designed consumes very little energy and the popular PP3 battery will suffice for many months, even with a heavy work load. The approximate cost, excluding all the hardware is

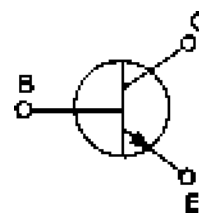
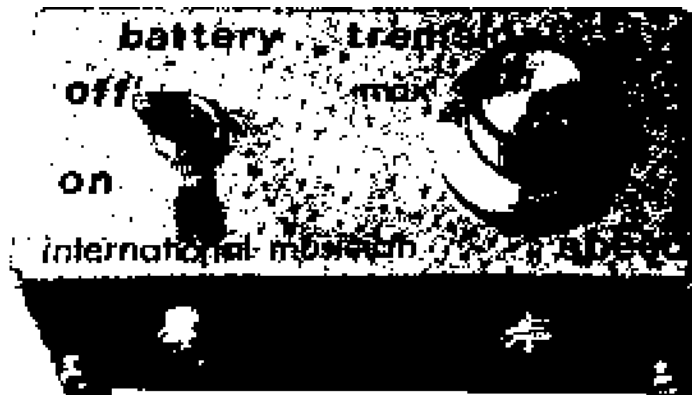
around £7.00, which when compared to the pleasure of creating such an effect, is extremely reasonable.

CIRCUIT DIAGRAM AND CONSTRUCTION

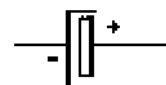
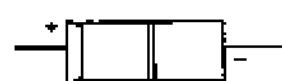
The block circuit diagram of the Tremelo Generator is shown in Fig. 1. The system contains two basic blocks representing the linear preamplifier and the tremelo generator. The generator is switched in and out using the footswitch to provide a comfortable working position for the player. The variable tremelo speed is realised, using a rotary carbon potentiometer, and the whole system is operated by one small PP3 battery. The complete circuit diagram of the Tremelo project is shown in Fig. 2.

The input signal coming from the guitar is fed to the pre-amplifier and temporarily modulated with the frequency 7 - 17 Hz of the tremelo generator. The in and out switch of the generator signal is realised through the footswitch. The frequency of oscillations in the generator circuits basically depends on the value of resistance of potentiometer RV2 and capacity of the electrolytic condenser C5.

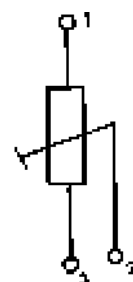
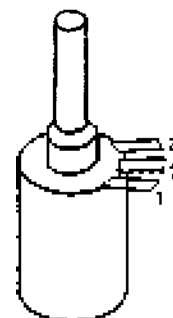
To obtain a change in the tremelo speed, it is necessary to alter the value of resistance of the rotary potentiometer RV2 = 50K ohms located in the circuitry. The preamplifier T3 transistor acts as a conventional amplifier stage, biased near to saturation, with the constant value of gain largely determined by the value of resistor R9.



Transistor (silicon type)
BC 107, 109

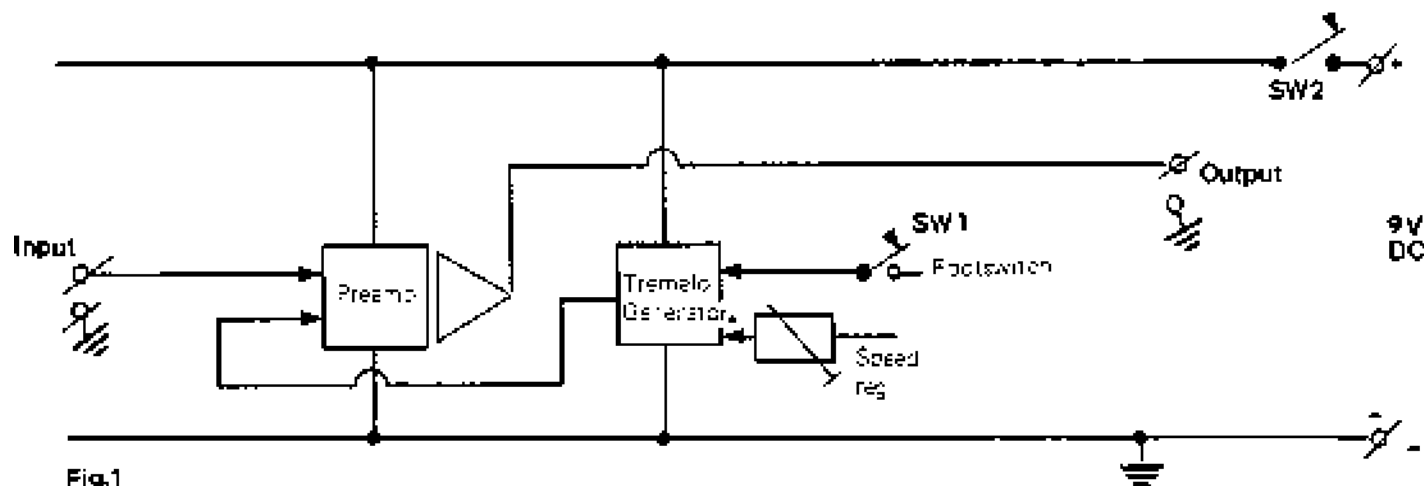


Electrolytic Capacitor



Carbon pre-set
and rotary
potentiometres

Fig. 3



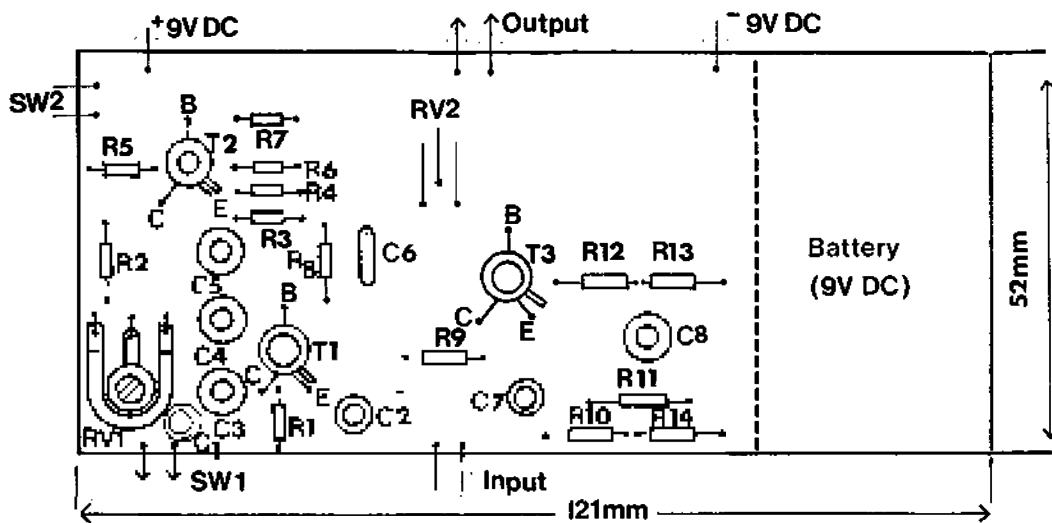


Fig. 4

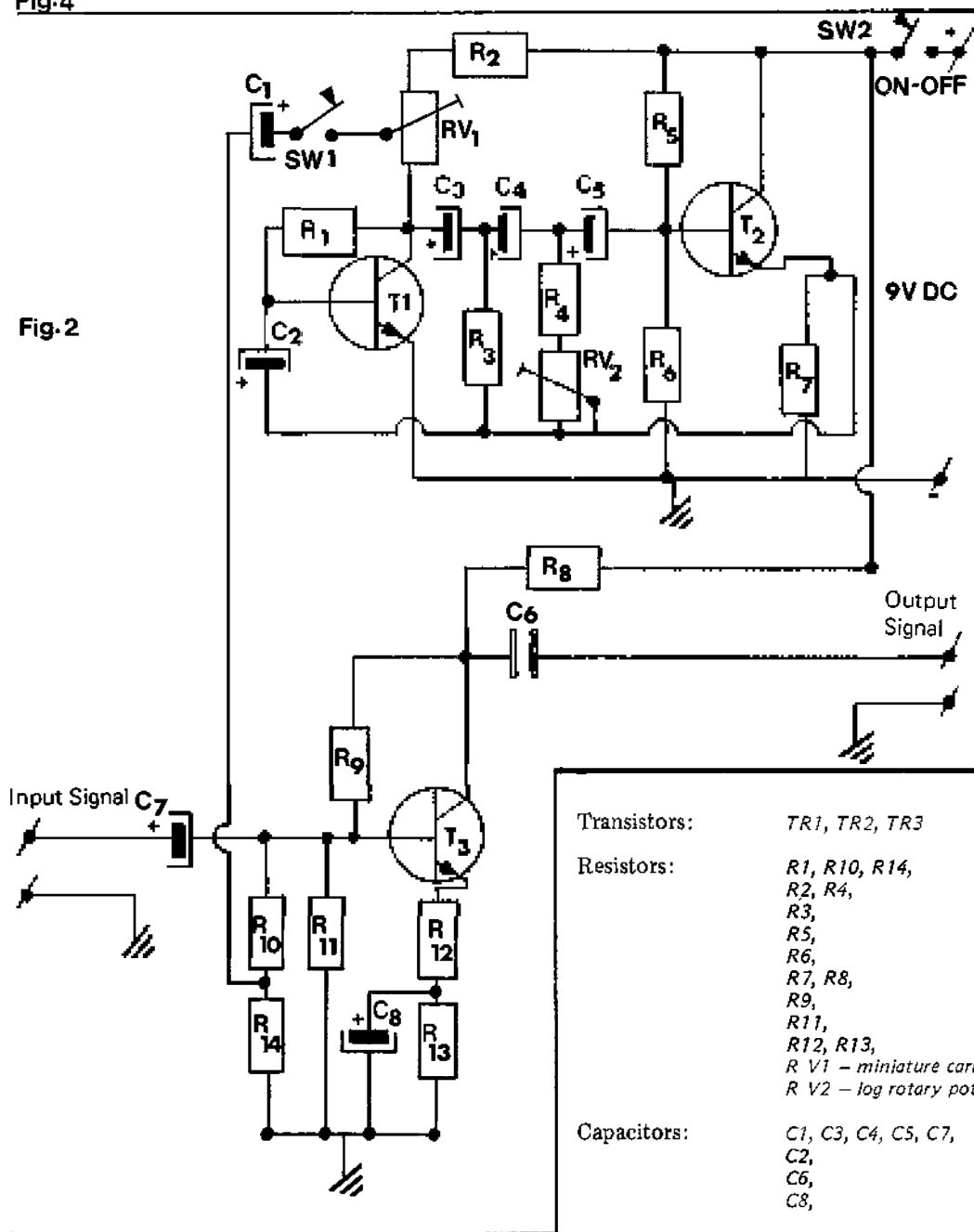


Fig. 2

In the presented circuit, the output voltage was adjusted in the range 0.1 - 0.8v. which satisfies the input sensitivity of the standard guitar amplifier. A correctly built system does not require any special tuning operation and should work without any problems; however, it is necessary to pay some attention

to the carbon pre-set variable resistance RV1, which adjusts the tremelo generator output voltage. There are no special precautions in this construction other than saying it is safer to use a fine soldering iron and pay attention to the polarisations of electrolytic capacitors and transistors. A simple method of solving the identification of the above elements is shown in Fig. 3.

Full constructional details are not given, but the following notes should assist. The unit may be built on Veroboard. The placement of all components on the main P.C.B. is shown in Fig. 4. The description is of a universal nature and can be used by itself or incorporated into an existing amplifier or guitar. In the construction, I used a 50 x 119 mm universal Veroboard, bought in a local radio shop, ready drilled with a hole diameter of 1.1mm. When the printed circuit board has been obtained, the components must be carefully soldered using a T/C connection wire with an activated core solder 22 S.W. 6.

Insert and solder the components in the following order: resistors, capacitors, potentiometers and finally transistors. The transistor leads need to be played out slightly; do not bend too close to the board. To save time, I bought an aluminium box measuring 52 x 58 x 121 mm approximately, and drilled in input/output and foot-switch holes to insert female jack sockets, and then mounted a toggle (battery on/off) switch, and a potentiometer to adjust the tremelo speed effect.

The Tremelo Generator layout is by no means critical and can be altered to suit most available aluminium boxes. To connect the PP3 9v battery, I used a clip made from old battery contacts. Finally, a word about the foot-switch - I used the standard foot-switch for this project containing one single normally open breaker.

Transistors: TR1, TR2, TR3

BC 107 or BC 109

Resistors:

R1, R10, R14, 50Kohms.
 R2, R4, 1Kohms.
 R3, 10Kohms.
 R5, 27Kohms.
 R6, 2.4Kohms.
 R7, R8, 3.3Kohms.
 R9, 470Kohms.
 R11, 47Kohms.
 R12, R13, 200 ohms.
 RV1 - miniature carbon pre-set potentiometer 2.2Kohms.
 RV2 - log rotary potentiometer 0.5W; 50Kohms.

Capacitors:

C1, C3, C4, C5, C7, 5uF/12v electrolytics
 C2, 2-10 uF/12v electrolytics
 C6, 20 uF ceramic
 C8, 50 uF/12v electrolytics

Miscellaneous:

SW1 - tremelo footswitch (standard type)
 SW2 - on/off toggle switch
 3 jacks (female sockets); one - N.O. - type
 i two - N.C. - type
 Aluminium metal box (approx. 52 x 58 x 121) mm.
 P.C.B. Veroboard type (approx. 50 x 113) mm.
 3v; PP3 - type battery
 battery clip for PP3
 tinned copper T/C connections wire
 control knob

Di Marzio Pickups

PATENT PENDING



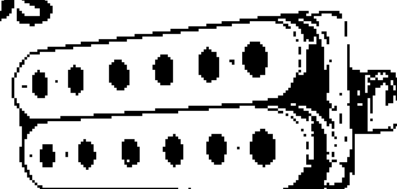
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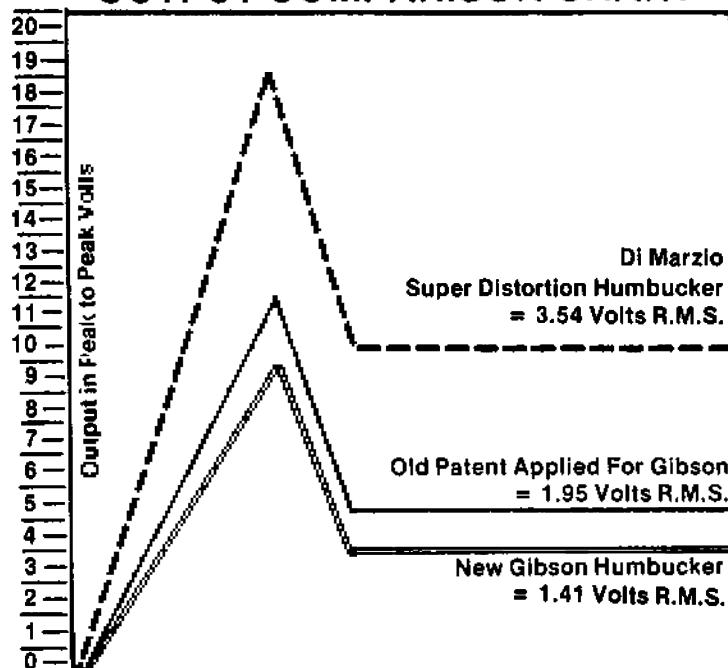
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Super Distortion Humbucker Pickup®

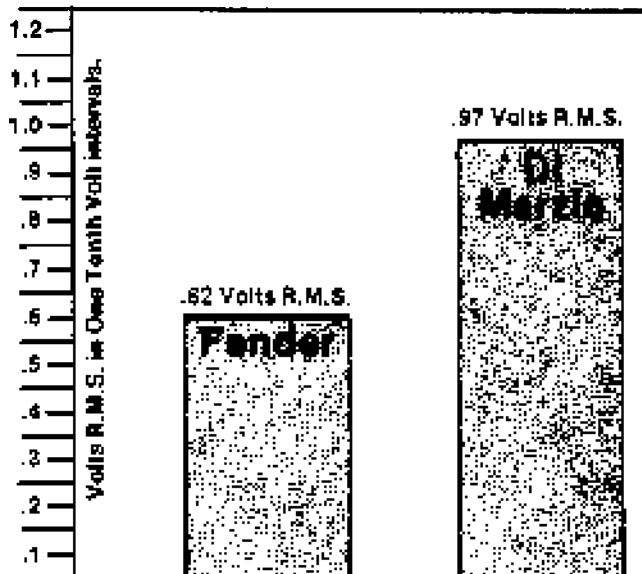
Two cream coils; exact size and hardware replacements for large Gibson humbucker. Individual string adjustments in both coils.

OUTPUT COMPARISON CHART



* Highest figure represents initial pick attack. Straight horizontal line represents average output when pickups are struck with an Open E Chord in the treble position of a new Les Paul.

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Bob Mann (session man)

Nazareth
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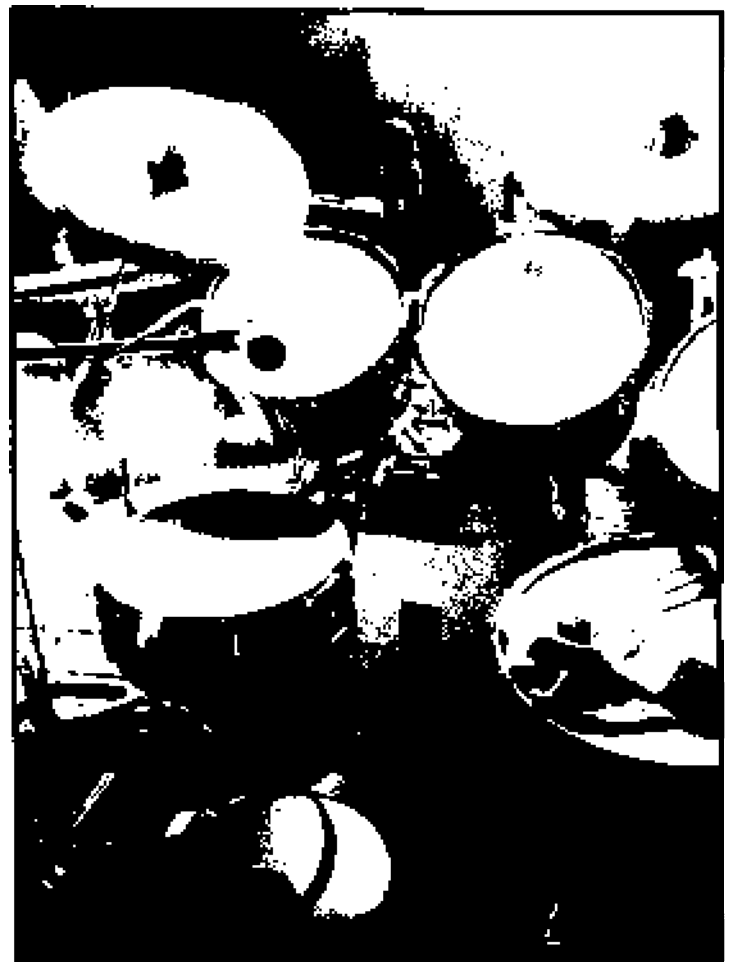
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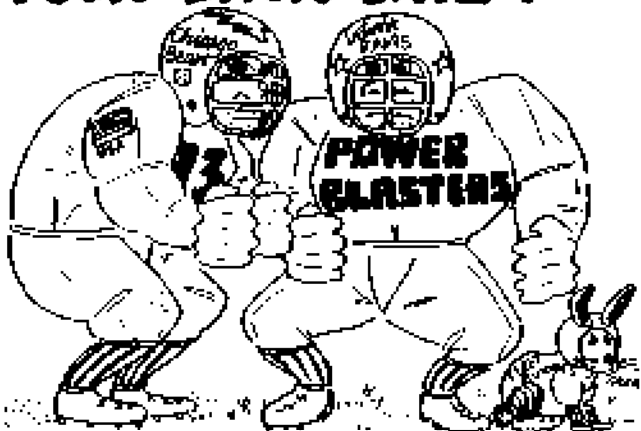


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How to build:

This practical follow-up to I.M.'s article on the dangers of electrocution (June '76) covers the construction of a mains distribution system that should reduce the likelihood of electrocution to an absolute minimum if the "dis-board" is constructed in its entirety. It will, however, still make an important contribution to stage safety if the optional items are omitted in the interests of cost.

It will be apparent that this project is primarily intended for musicians working in the U.K. where 240 volt mains supplies are the norm, but the basic design will be equally suitable for 110 volt supplies in Europe and the United States if the component parts are substituted to comply with local practices and conditions.

The first and most important requirement of a dis-board is safety. Therefore, it must be built of the finest quality components, and designed so that no component (or for that matter, the mains supply itself) can be overloaded under normal operating conditions without the activation of some means of protection to both the supply and the musician using the equipment. In this design, all the outlets are the standard 13A types, and the fuses in the 13A plugs on the stage equipment are used to protect each circuit, while a single main fuse protects the supply mains from overload.

Several combined components, like twin switched socket outlets, combined switch/main fuse/mains indicator lamp fitting, and combined mains input socket/interference suppressor unit have been incorporated in the design to reduce the amount of wiring necessary, and therefore reduce the likelihood of errors or faults to a minimum. In fact, the use of these components will eliminate at least 50% of the wiring.

There are two basic ways in which you can get the mains to each piece of stage equipment: either by plugging each item independently into an outlet on your dis-board, or by running two

or four gang rubber sockets on extension leads out to your gear. A combination of the two may best suit your needs, but some decision must be made in order to establish the number of outlets required on the dis-board.

The next thing you need to know is the total power requirement of your complete stage set-up. In calculating this, do not include such items as fog machines, or complex lighting systems, as such equipment will require a separate supply to, but do include all amplification equipment, including echo units, keyboards and P.A. On most equipment, this information is given in watts (not to be confused with loudspeaker output watts!) on the manufacturers plate. If this is so, simply add up the wattages for all your gear and use this formula: Total current required in amps = total watts required by equipment over mains voltage (usually 240v.)

If your equipment doesn't carry such power supply ratings, a reasonable estimate can be made by taking the rated rms output power of an amplifier or P.A. system and doubling it to give the likely power it will draw from the mains. In the case of solid-state equipment, this should give you an adequate safety margin as well, but if you are using the old valve equipment, it is a good idea to add another 25% to be on the safe side. Once you have arrived at a total, use the above formula to calculate the total current requirement in amps. For example: Suppose that a typical small band set-up consists of a 200 watt P.A. system, two solid-state 100 watt instrument amplifiers, a 100 watt valve amplifier and an electric organ. The P.A. system requires 200 watts x 2, which equals 400 watts; two instrument, amps, 2 x 100 watts each, or 400 watts; a 100 watt valve amp at 2 x 100 watts x 25%, or 250 watts; the organ maker's plate states 120 watts, thus the total power required is 1170 watts, and so: current = 1170 watts over 240 volts = 4.875 amps.

From this information you

can decide how to feed power into your dis-board, and arrive at the necessary rating of the mains isolating transformer if you have decided to include this in your board:

A) If your current requirement is over 13 amps, you will have to feed your dis-board directly from the main fuse box in the building, as you will overload a single 13A socket; if you were to use two 13A sockets, you might well find yourself across two different phases of a three phase supply, with 440V across your gear. In this case, ensure that your mains input cable is thick enough to carry the required current. In any event, a permanently attached mains cable is necessary, as is a special heavy-duty main switch and fuse.

B) If your current total is below 13A but above 10A, then your mains input should consist of a suitable length (e.g. 10 metres) of 1.25 sq. mm three-core cable with an orange coloured outer sheathing, permanently attached to your dis-board. Your main fuse should be rated at 13 amps.

C) If your total current requirement is below 10 amps, you can conveniently feed the mains input via a CEE/22 type input connector, using the same mains cable as in (B). The main fuse rating on your dis-board should be 10 amps.

D) If you can get away with a total load of 6 amps or less, you can benefit from a special type of CEE/22 connector that has a built-in interference suppressor. The main fuse rating on your dis-board should be 7 Amps, and you could get away with 0.75 sq. mm. three core cable, provided that the cable is not over about 20 metres long.

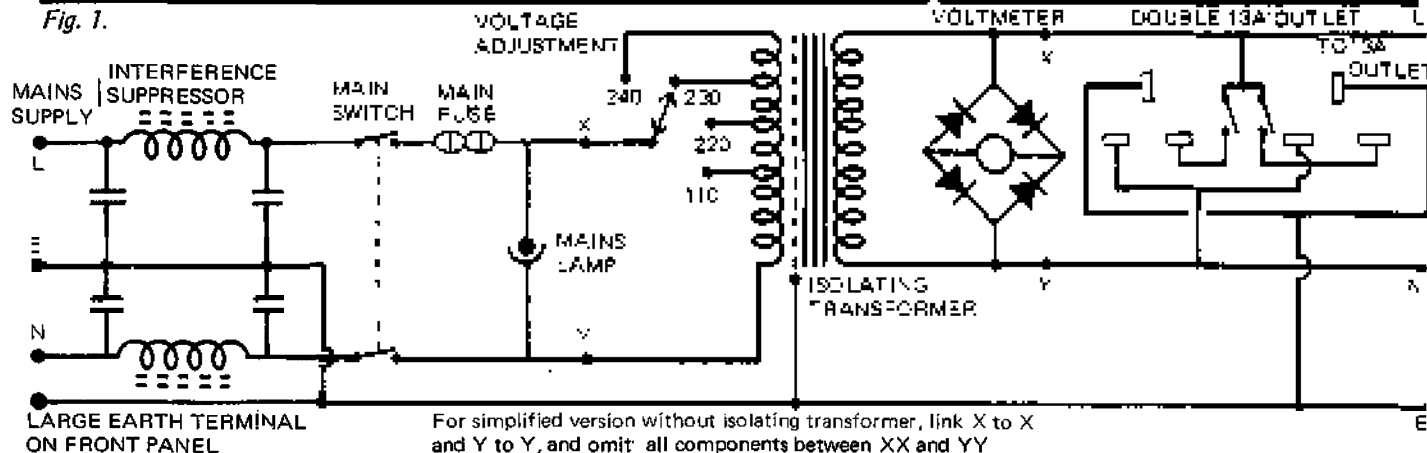
If you have decided to include the mains isolating transformer in your board, then you must use one with a continuous rating at least 10% greater than your total power requirements. Do not accept the cheaper Auto-transformer types as a substitute, as these will serve no purpose whatsoever, and will not isolate your gear from the mains supply at your gig. The specification of the

transformer is something like this: Primary winding — 0 - 240 volts 50Hz 2000 VA; secondary winding - 0 - 240 volts 50Hz. For a more sophisticated multi-tap transformer: Primary winding 0 - 110 - 220 - 230 - 240 volts 2000 VA; secondary winding 0 - 240 volts. 50Hz. (For VA, read watts for our purposes. Substitute your total power requirements +10% for the 2000 VA example shown).

It is quite OK to use a transformer with a higher rating than you need, but on no account should a smaller rating be used. The multi-tap transformers will enable you to adjust the output voltage from your dis-board to suit local conditions, or to run your gear from 100 volt supplies abroad. If a transformer is available with an electrostatic screen between the windings, so much the better. It should be noted that a transformer of 2000 or 3000 VA rating is huge when compared to the small transformers fitted to most amplifiers, and that such a beast is likely to weigh nearly 40 pounds, and to cost almost as much in pound notes! Almost certainly, you will have to order your transformer specially from a local electrical wholesaler, or directly from one of the suppliers suggested below.

Figure 1 shows the basic circuit diagram for the dis-board, and Figure 2 shows a (considerably) simplified equivalent using the combination components recommended; Figure 3 shows one possible front panel layout for the complete dis-board. As much (or as little) of the design can be built depending upon your own requirements, and the board you build will decide the size and dimensions of the box needed to house it. Remember, however, that any transformer will be heavy and fairly large, as will a 3KVA transformer and adequate arrangements will have to be made to properly accommodate this component in your housing to ensure that it doesn't come adrift on the road. It should be secured by large bolts and washers, and it may even be desirable to mount the whole dis-

Fig. 1.



A Distribution Board by Ken Dibble

board on a trolley if a particularly large transformer is involved. Whatever type of housing is used, it must be designed so that all live terminals are adequately protected when all the covers are in place, but also to allow access for maintenance.

To wire your board, it is O.K. to cut a couple of meters off your main feed cable, strip off the orange outer sheath, and use the inner cores to interconnect the various components. Certainly, the interconnecting wire should at a minimum be rated at the board's maximum load capability, and a much thicker wire would be preferable. The actual connections to the switch/fuse/lamp unit, to the double switched sockets and transformer will vary according to the make and type of component used, but the live, neutral and earth connections will be clearly marked on any good quality component, and should be wired accordingly.

If you use a metal front panel, or a metal case, ensure that the metal work is connected to mains earth via the earthing terminal. This terminal is provided so that a temporary earth connection to a cold water pipe or some other convenient earthed metalwork can be made at gigs where the mains earth is not adequate. Connecting metal cases and panels to earth will ensure that any loose wires that may come adrift in your dis-board will short to earth and blow the main fuse, and will not result in a live case or panel to electrocute the first unfortunate person to touch the dis-board!

The only special notes on the wiring are to make absolutely sure that all components are wired with the correct polarity, and to ensure that all connections are sound and that the terminal screws are properly tightened. With most makes of components, the only soldered connections likely to be needed are those at the back of the CEE/22 input connector, and on the voltage adjustment switch. All the remaining connections should be by large brass screw terminals, which simplifies the wiring.

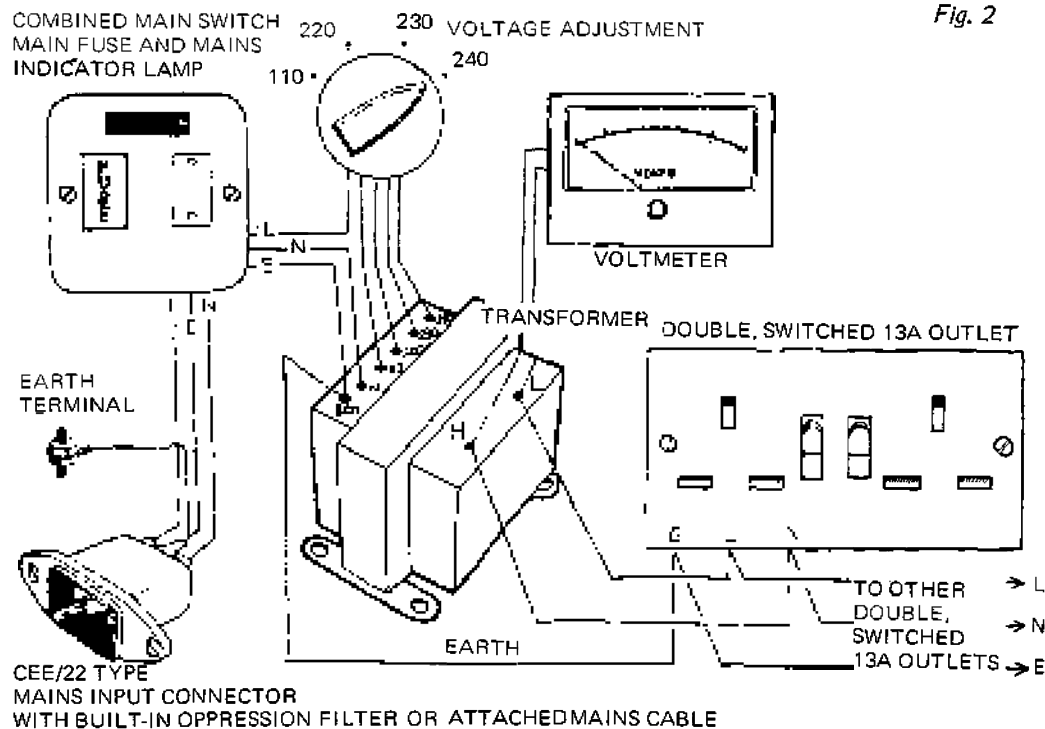


Fig. 2

If stranded wires are used,

make sure that there are no stray strands about that could short onto an adjoining terminal. Keep all wiring as direct as reasonably possible, and cut lengths just long enough to make the connection in hand. Strip off just enough insulation to make a joint, so that there are no un-insulated ends of wire protruding from the back of your components, and be sure to use the correct colour wires, i.e. red or brown for all live connections, black or blue for Neutral and green or green/yellow striped for earth. If these simple guide lines are followed, you should have no trouble, but if you are not used to this type of wiring, it may be as well to have a qualified electrician at least check your wiring afterwards, if not to actually carry out the wiring for you. It might be very well worth the few bob it will cost.

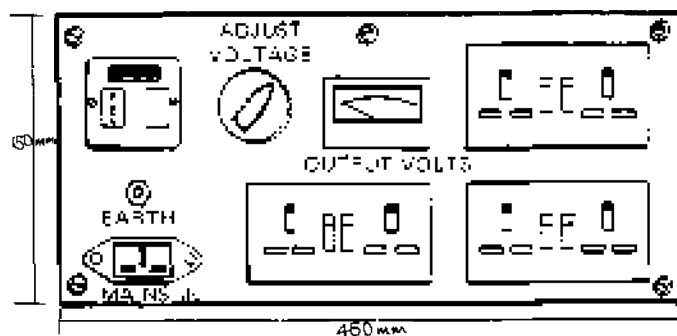
If you have decided to use an attached mains input cable, be sure that the cable is mechanically clamped to your dis-board so that no mechanical strain is applied to the actual termination.

Where to get your components in Great Britain.

1. Combined main switch/fuse/lamp unit: MK Electric type 962/ALM
2. Double switched 13A outlet: MK Electric type 2946/ALM
These particular items are recommended for their reliability, durability and sensible design. They consist of a white moulded bakelite unit mounted in an aluminium frame, and are much less prone to smashing than their all-plastic equivalents. Other manufacturers such as MEM also supply similar items.
3. CEE/22 type mains input connector: Bulgin List No. P580/term. RS Components stock no. 488-191.
Interference suppression version: Bulgin List No. PS/620/6A RS Components stock no. 238-429.
Mating cable-end connector: Bulgin List No. P587 RS Components stock no. 488-208.
4. 300 volt AC voltmeter (if required) RS Components Stock No. 259-533.
5. Voltage adjustment plug/socket, McMurdo type BVS/4.
This component is only suitable for currents up to 6 amps, and then should not be adjusted when under load. Many transformers have an adjustment facility incorporated and in this case, the voltage adjustment plug/socket can be dispensed with if preferred. The McMurdo item specified can be obtained from A.C. Farnell Ltd., Canal Road, Leeds.
6. Isolating transformer.
You will need to work out your specification for this item, and write to one of the suppliers below for a quotation. You may possibly find the odd electrical wholesaler with something suitable in stock. Drake Transformers Ltd., South Green Works, Kennel Lane, Billericay, Essex.
Elstone Electronics Ltd., 81, Kirkstone Road, Leeds.
Parmeko Ltd., Aylestone Park, Leicester.
Partridge Transformers Ltd., Roebuck Road, Chessington, Surrey.
Partridge-Wilson Ltd., Evington Valley Road, Leicester.
7. Housing.
You will probably need to make this yourself to your own requirements. However, standard cases can be purchased, and it might be worth writing to Imhoff-Bedco Ltd., Ashley Works, Ashley Road, Uxbridge, Middx. asking for a copy of their cases catalogue No. H/223. Ready made cases will be expensive, probably somewhere between £15 and £50, depending upon your needs.
8. Mains Cable. 3 core 1.25 sq. mm. orange sheathed. RS Components Stock No. 377-811 13A rubber plugs, and double or four-gang extension sockets are made by Permaplug and Duraplug, among others, and are readily available.

Most of the components listed above are readily available from electrical retailers and wholesalers, although some items may have to be specially ordered — CEE/22 connectors and the Voltmeter, for example.

Fig. 3





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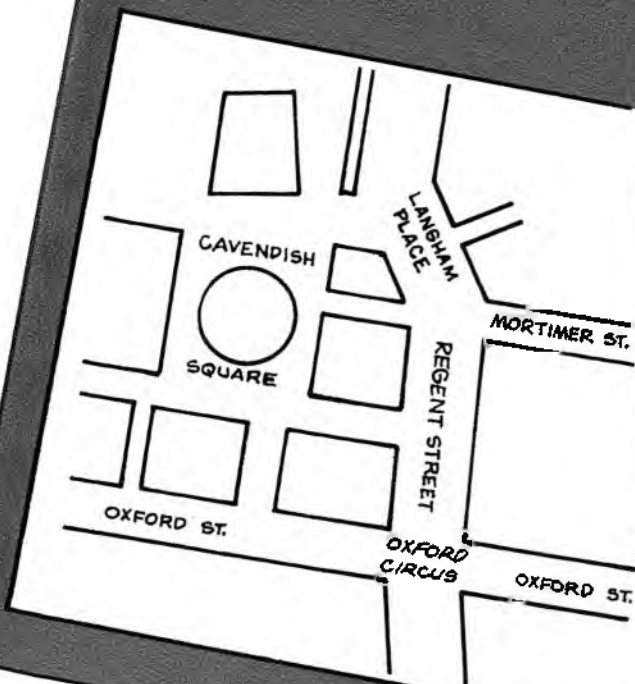
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P.A. systems have come a long way since the days when a 50 watt Selmer and a pair of 4 x 10 columns would be enough for any group. A musician today has an infinite choice of components and applications.

Compressors, limiters, three-way crossover, — the terms are endless, multiplying steadily, and they can be baffling. Mixers, too, can be a little confusing — EQ, foldback, PPM's, L.E.D.'s. Somebody who has only been familiar with an old fashioned amplifier-and-column set-up could understandably be puzzled.

As recording techniques improve, so must the onstage sound of a band. The problem with buying a new P.A. system is now one of choice. You can't go into many music shops and try out a P.A. system at the level you will be using it, nor is it easy to try different mixers with different power amps.

Fred and Thom Friedlein can provide just such a facility for bands who want to buy a new P.A. or upgrade their existing set-up. They have a retail shop called Soundwave in Brentwood, Essex, where a full range of equipment and instruments are available, but the real piece-de-resistance is a warehouse in Bow, London E3 called Soundwave. The premises cover nearly 1,000 square feet of carpeted floors, and the walls are soundproofed. The idea is that a band can come along to try out and compare various mixers, power amps and cabinets. A large stage is provided at one end and various P.A. cabinets and horns are set up on either side.

Fred explained "My brother and I play in a band, and so we realise the problems you come across in choosing a P.A. system, with so many different types on the market. We had been using a pair of 4 x 12 cabinets for our own P.A. and decided we wanted a new one. That was when we

realised the problem everyone must face in that situation, so we thought — why not do something about it. This, to me, is the ideal way of demonstrating P.A. equipment. There's so much on the market and the choices are infinite."

Another key name in the Soundwave set-up is Mike Januszkiewicz, technical consultant and the brains behind another company — Otis Electronics. He designed and built the switch over box which is an integral part of the demonstration capabilities of Soundwave P.A. It can switch between six stereo mixers, six stereo power amplifiers and six pairs of P.A. cabinets. It is also interswitchable for direct and, more important, immediate comparison: at the flick of a switch, a band can compare the capabilities of, say, an MM Electronics mixer and an Allen and Heath model. One can compare frequency response, noise level and the varying efficiency of speaker cabinets. There is no audible "click" when switching over — there is a built-in mute switch to avoid damage when switching at high power levels.

"There are basically two ways of approaching buying a P.A.," explained Fred. "The customer can decide how much he's got to spend on a P.A. and try out the gear within his budget. The other way is for a customer to listen to anything and then work out what he prefers and how much it will cost him. We're aiming for people who are serious about buying a P.A. set-up. We don't want to get into hiring stuff, but we are quite prepared to go out with our gear to gigs and demonstrate."

When J.M. visited the warehouse, a three piece band called Fusion were trying out various systems onstage. They were choosing between an MM 16 channel mixer, an Allen and

Heath mixer, MM, Crown, HH and Wem power amps, and Altec, Vitavox and Wem P.A. bins. Mike demonstrated each mixer, amp and speaker system in turn, giving the band a completely objective judgement. When switching between systems, the levels were identically set on each unit and, although the output level remained constant, the various capabilities, characteristics and voicing of each particular unit were demonstrated to their fullest.

"Fusion are an excellent band and our first real potential customers," remarked Fred. "They're also old friends of ours and this has proved to be the best way of showing what each system will do. Apart from what we're demonstrating today, we also have lots of other manufacturers' gear in stock."

Mixers in stock and on demonstration include Allen and Heath, Wem, MM Electronics and Yamaha, while power amps include MM, Amcron, Wem and the new 500 watt HH power amp, which, like all the HH range, is on sale through the Brentwood shop and on demonstration at the Bow warehouse. An enormous range of speakers are available, as Soundwave are willing to build units to customers' own specifications. Drivers include ATC, Altec, Gauss, JBL, RCF, Fane, Celestion and Goodmans. "We also have various monitor systems, a range of echo systems and mikes — in fact, virtually anything in the P.A. line and its associated ancilliary equipment," added Fred.

A particularly interesting feature of Soundwave P.A. is the availability of a tape recorder, which can be used as an alternative sound source to feed through the various systems; this is useful if a soloist or a single member of a band wants to listen to Soundwave's range of systems.

Future plans for Soundwave P.A. include, according to Fred, "getting as wide a range of P.A. equipment as possible. At the moment, we are demonstrating systems at anything between 100 to 1000 watts. We don't feel we need to go much above that, but we would like to extend the equipment within that range. At the moment, we are going to stick to mid-range systems because we take the attitude that if you want to do something well, you have to specialise. You have to walk before you can run."

"We're aiming at the average working band — the kind of band who do pub gigs and university gigs, who want a good, clean-sounding P.A. So many bands and musicians have heard the names Gauss and JBL and all the technical terms associated with P.A. equipment, but not many have had the chance to listen and compare each individual unit. Now, they can do that."

"What normally happens is that a customer or potential customer will ring us, we'll book an appointment, find out what exactly they want to hear, find out if the whole band want to come down or whether it's a manager or a roadie. If a band want to come down, they can use our back-line gear or they can bring their own down. They can even bring their own P.A. system for comparison and we can wire it into our system here, so they can listen to the difference. The minimum time a band would need is probably a couple of hours, bearing in mind they have to set their gear up before trying the various systems out. The point is, we're not going to charge them for using the facilities. There's no extra charge at all, if they buy a system. The thing is, we understand the problems involved, being musicians ourselves."

SOUNDWAVE PA



Left to right: Fred Friedlein, Dave Wainwright and Mike Januszkiewicz



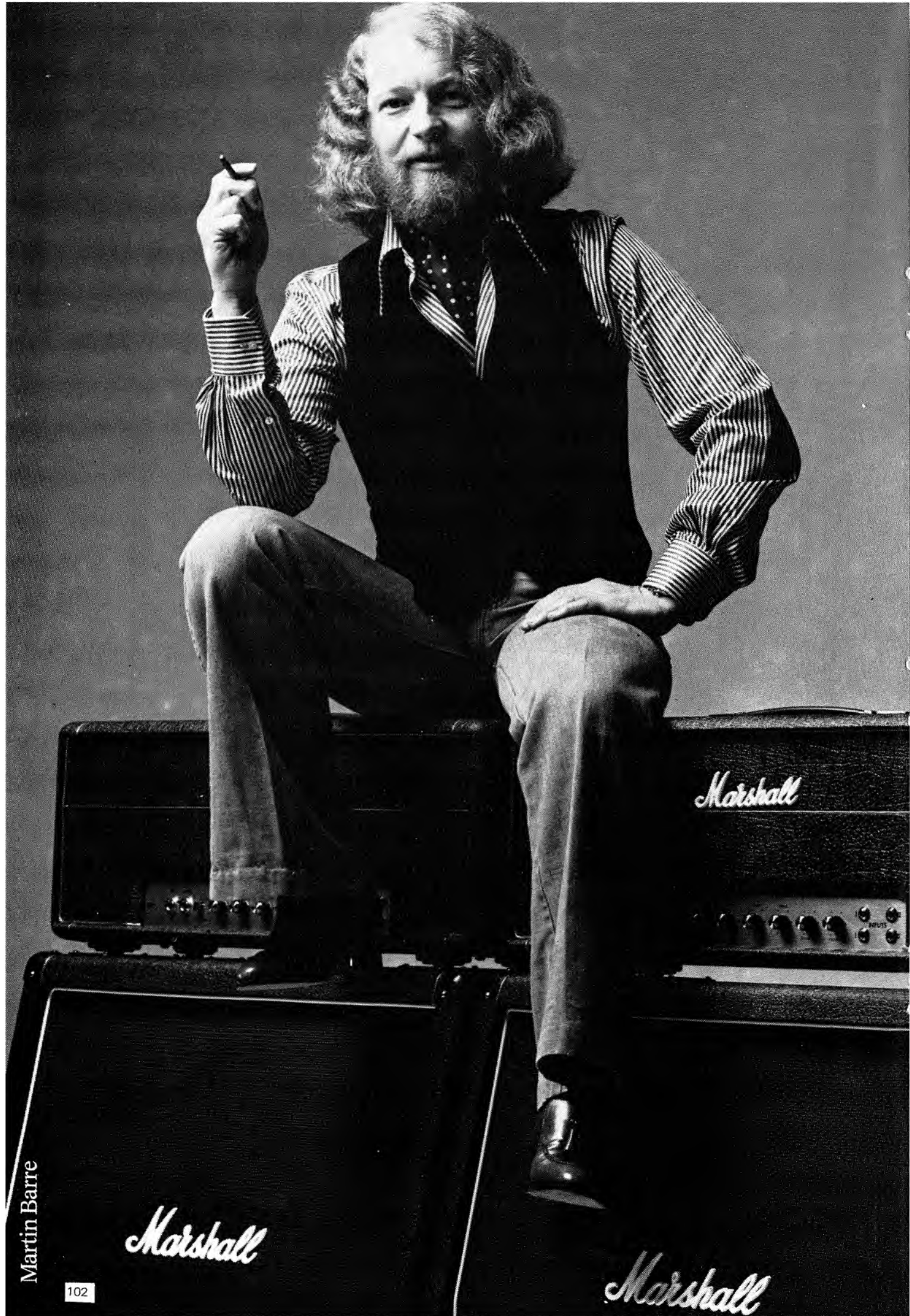
Fusion trying out Soundwave P.A. systems in a live situation



A massed selection of Power amps



Otis switchover box



Martin Barre

Over the years my career has come to rest on two things; a good amp and Clive Bunker's shoulders.

"I remember the day I answered Tull's ad in Melody Maker for a guitarist—along with about 80 other hopefuls.

We all had to audition in front of Ian Anderson while Clive Bunker the drummer laid down a 12 bar beat.

When Ian had heard enough he simply told Clive to stop by tapping him on the shoulder.

The sooner he tapped, the worse he thought you were.

By the time my turn came around I was a jibbering idiot. As I walked over to the amp the room was filled with the sound of coconut shells being knocked together. It was my knees.

I can't remember what I played now because my eyes were glued to Clive's shoulder. And when the tap came it was a lot sooner than I had expected. I went home, turned on the budgie, and talked to the telly. I was a total wreck.

I knew I had to do something. So I grabbed the phone and called Ian.

The first thing he asked me was why had I left so early. And that was when I started with Tull. The very next week we were off touring in Scandinavia. And the rest is history.

But, anyway, here I am. Of course I still get the odd attack of stage fright, but now I know one thing for sure.

I sound a lot better now than I did then. I've been using Marshall a lot lately, because over the years Marshall gear has continued to improve and there are not many pieces of equipment you can say that about.

These Marshalls really belt it out—with lots of top, a nice low frequency response and not too much middle. And that's without using boosters—because with Marshall you just plug it in and it sounds good.

What's more, it has a compatibility of reproduction both on stage and in the recording studio.

And it sounds just the way I like it—drivey and heavy.

Of course there's another basic advantage of using Marshall and lots of volume. It drowns out the sound of my knees."

Martin Barre has played lead guitar with Jethro Tull for seven years, contributing on all the albums from "Stand Up" to their latest,— "Too Old to Rock and Roll, Too Young To Die."

I am interested in knowing more about Marshall. I would like to know more about other Rose-Morris products.

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Rose-Morris
Marshall

How to explain percussion to a Bank Manager.

First, make sure he understands that you're a drummer, and you will be, with or without his help.

Once he's got you branded as that kind of lunatic, there's not a lot more he can say.

He'll know there's a fair chance you want to make money out of music and that if you succeed you'll make a lot more than he does.

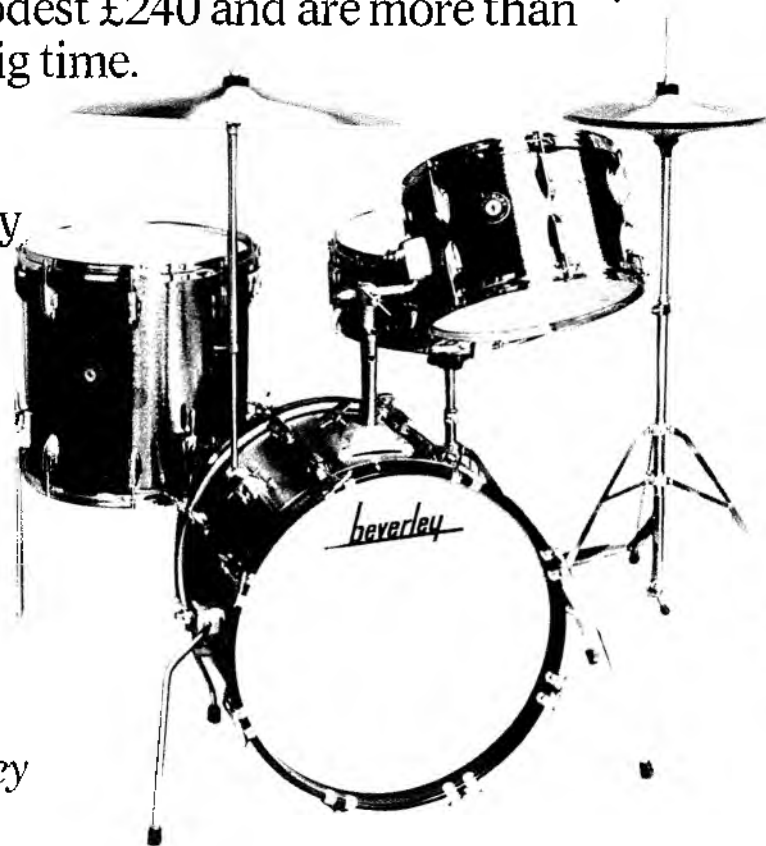
He'll also know that not all musicians start rich. (Maybe you are, maybe not — that's your business).

The simplest way to set his mind at rest is to explain that Beverley drum kits start at a modest £240 and are more than adequate to take you into the big time.

That's all he really needs to know about percussion.

Plus the fact that he's lucky you're not about to spend a Grand on your equipment — as you easily might.

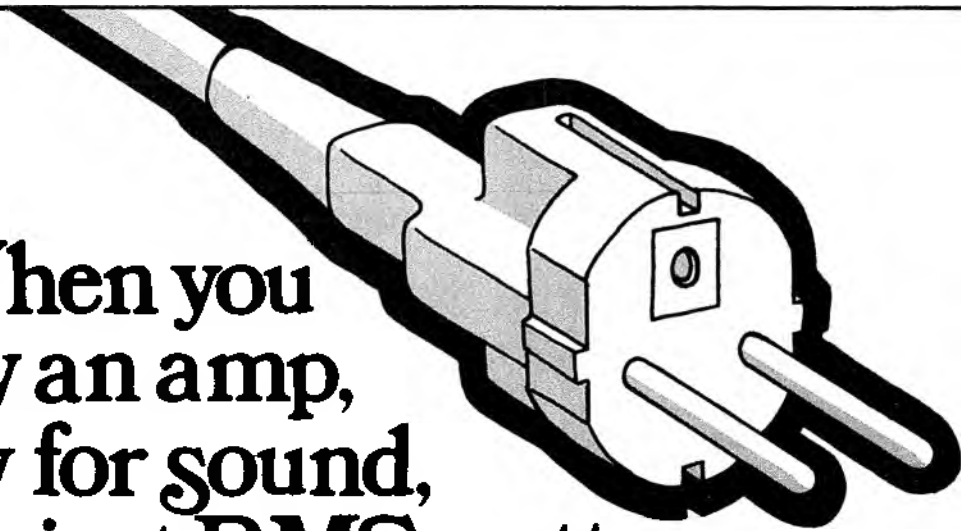
Finally, sit back and drum your fingers for a while, to let him take it all in...



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One last point. Marlboro amplifiers and sound systems are surprisingly low priced. And that's got a great sound to it, too!

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RED

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BLUE

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.009 to .046

GREEN

heavy 10's
.010 to .052

BEIGE

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The Rick Derringer Model



The Chiefster Model



Hammond Organ and Music Centre, Aylesbury, Bucks. Part of the Hammonds of Watford empire. Welwyn and Watford also boast Hammonds branches. The Aylesbury shop opened in 1972.



There's a lively music scene in Aylesbury, and Hammonds look after their clientele. The front part of the shop is given over to keyboards – notably Yamaha, Lowrey, Hammond, Farfisa and Philips. They also have a large range of Arp and Roland synthesizers. Over 40 acoustic guitars line the walls, while their electric range, which includes Rickenbacker, Fender and Yamaha, is housed in the rear of the shop along with amplification by HJH, Wem, Yamaha, and the popular Maine.



The staff of Hammonds. From left to right: Paul Ward (organ demonstrator) Jenny Cowles (secretary), Barry Cowles (promotions manager) and Malcolm Hampton (shop manager).



Opened only two months ago, Free and Easy Music look set for a long and healthy lifespan. The shop is run by Denis Fowler and Stuart Darling, with help from Frank Walsh. All are musicians – Denis and Stuart play in a band called Free and Easy while Frank plays with another local outfit called Tamburlaine.



Just a small portion of Sun's impressive array of stock. In the three and a half years of Sun Music's existence, they have built up quite a reputation for good service as well as good deals. Guitars include Gibson, Fender, Rickenbacker, Guild, Dobro and Epiphone among others, both new and second-hand. They also have a good selection of acoustic and classical guitars. Main lines in amplification include HH, Elgen and Maine, while Pearl heads the drum showroom.



In the heart of High Wycombe's shopping centre – Percy Prior.



Percy Prior Musical Instruments have been here for six years, although the original shop was established in 1905. Ted Prior, the son of the founder, runs the shop now which holds the Premier agency, and also stocks an enormous range of acoustic, classical and electric guitars. Along with Marshall, Sound City and Carlsbro, the name of Elgen crops up again in the amplification complement. Percy Prior probably holds the largest stock of sheet music in the area, and are also well-known for their vast range of accessories.



Complex 7 are based in Abercromby Industrial Estate, High Wycombe. Complex 7 is, in fact, a group of companies headed by Pete Robinson (pictured above) with a board of directors which includes Rick Wakeman. They offer a complete service for the musician: leasing, rehearsal facilities, manufacturing flight-cases, and storage facilities.



The Yamaha demonstration room, where dealers and customers can try out instruments and equipment in comfort.



The Jerry Allen Organ Centre of High Street, Dunstable, Bedfordshire.



Dave Irving, Bill Stanbridge and Graham Smart of the Jerry Allen Organ Centre. Lowrey, Crumar and Solina dominate the keyboards in the shop, which also stocks SAI, Marshall and Selmer amplification. Apart from a varied range of acoustic guitars, they are soon to take on the John Birch

BUZZ: BEDS. & BUCKS.



Frank and Denis of Free and Easy. The accent is on group gear in the shop — names like Marshall, Wem, Funkshun, Traynor and Yamaha dominate the amplification range, while Fender and Rickenbacker rule the six-string section. According to Denis, "We're aiming for the real thing. We won't sell or buy any rubbish." There is also a good stock of second-hand gear at Free and Easy and prices are good.



The Organist — Yeoman Music Ltd of Cambridge Street, Aylesbury, is a small shop aimed at practical music making and centres exclusively on the sales and servicing of organs, pianos and other instruments. National Panasonic and Thomas are main franchises, although anything can be supplied to order. Yeoman Music also offer personal tuition and full workshop and technical facilities for all electronic instruments, and low-deposit finance.



Adrian Yeo, the man behind Yeoman Music. Adrian started playing piano and organ at the age of six and is still musically active as an organist, choirmaster and conductor.



Two young men with their fingers on the pulse of the music scene in High Wycombe and the surrounding areas — Roger Batchelor and Chris Dennis of Sun Music.



Farmyard are another company with a comprehensive service for the musician. It is an old farm in Little Chalfont, Bucks, which has been converted into two soundproofed rehearsal studios. Bands who have used these facilities include Yes, Hawkwind, Streetwalkers, Rollers, Genesis, Lou Reed and Alex Harvey. The third barn is currently being converted into an accommodation area for visiting musicians.



Kemble Yamaha at Bletchley, Bucks. This is where Kemble pianos are manufactured, and the Yamaha range of guitars, organs and amplifiers imported and warehoused.



A view of the Yamaha warehouse, where the complete range of Yamaha equipment and instruments is stored.



Mr. Music's Gig Shop opened eight months ago, to cater mainly for group musicians. While the main shop has an amazing display of brass, woodwind, sheet music and stringed instruments, not to mention an impressive first floor organ showroom, the Gig Shop has an enormous stock of electric guitars, percussion and amplification.



Mr. Music himself — Jimmy Gibbs (far left). His daughter Diane runs the sheet music department. Next to her is Barry Freeman (manager of Mr. Music) and Keith Brightman (manager of the Gig Shop).



Bedford Musical Industries is in Midland Road, Bedford. The accent, again, is on group equipment, with amps by HH, Carlsbro, Custom Sound and Kustom, drums by Premier, Ludwig and Maxwin, and a host of guitars including Gibson, Fender and Guild.



In the county of Bedford, Jimmy Gibbs, alias Mr. Music, opened this shop three years ago. In that time, its popularity flourished at such a rate that he had to open a second shop across the road.

continued on page 111



SUN MUSIC



HHH

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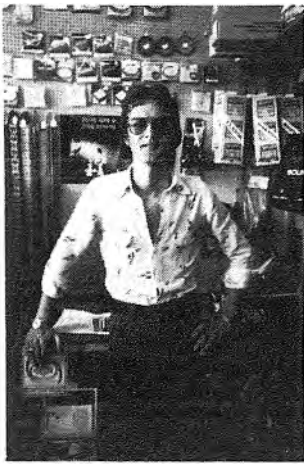
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FULLY EQUIPPED 24 TRACK MOBILE RECORDING

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40 MINS. WEST END.
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Lyndon Norman runs Bedford Musical Industries. The shop opened as a general musical instrument shop seven years ago, but has been specialising in group equipment for five years.



Marshall Music in Luton, Beds. Formerly an old family business — Farmers of Luton — it was taken over by Marshall five years ago. The ground floor houses sheet music, pianos and organs (mainly National and Yamaha), while the second floor is a group musician's paradise.



A multitude of guitars line the walls upstairs in Marshall Music. Gibsons, Fenders, Guilds — they're all there, along with a good selection of percussion and amplification.



The first floor of the Luton Music Centre is overflowing with drums, keyboards, amplification (which includes the complete HH range) and electric guitars.



Richard Watts, Judith Watts and John Crumar outside Milton Keynes Music Limited in Leighton Buzzard. The shop covers four floors, each packed with musical instruments to suit all tastes and applications. Organs, pianos, classical guitars and school instruments dominate the ground floor, while the first floor has an organ studio, showroom and lounge. The second floor consists of a guitar studio and demonstration room.

BUZZ: Beds. & Bucks.



The Luton Music Centre has a lot to offer musicians. Manager Tommy Thompson has a wealth of experience in the music business. He plays woodwinds and strings and has been Chairman of the Eastern District Council Musicians Union for five years. The shop covers two floors — the ground floor holds sheet music, acoustic guitars, amplification and accessories.

continued on page 113

THE MUSICIANS: 60% prefer valves...

(International Musician and Recording World July 1976)

VALVE AMPS £1 PER WATT

"Due to large purchase of pre-E.M.I. type SIMMS-WATTS amplifiers, we can offer the following brand new, fully guaranteed, just like Mother used to make, amps.

PA 100 Valve 100w rms 4 channel, 8 input, individual treble & bass controls, master volume & presence. £115 inc. V.A.T.

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Milton Keynes Music Ltd.

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Milton Keynes Music Limited also houses Boogaloo Basement, a dreamland for groups, with many makes of electric guitars, amplification, percussion and accessories.



This gaily decorated caravan is parked at the rear of Milton Keynes Music Limited. It is their mobile organ showroom and goes out at least once a week to local fairs and fetes.



Jim Marshall's recently re-opened music centre in Queensway, Bletchley.

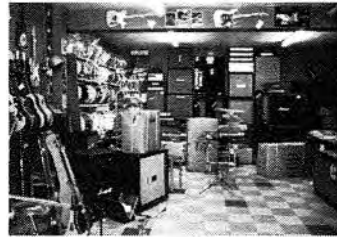
BUZZ: Beds.& Bucks.



Inside Marshall's, almost every available inch of space is utilised. Drums are set out in special racks on the wall, while amps are stacked to the roof. Fender, Rickenbacker and Gibson dominate the peg-board walls.



Aflyn Audio are in Luton and well worth checking out. While their guitars are mainly copies, Gibsons and other "originals" can be obtained if customers want them and, although names like Yamaha and Carlsbro are available in the amplification range, Aflyn also manufacture two lines themselves: the impressive Aflyn range of amplifiers, bins and cabinets, and the budget-priced Bridge range.



At one end of Aflyn's showroom, there is a purpose-built stage. A P.A. system, drum kit and two stacks are permanently set up, for whole bands who want to come and try out gear.

COMPLEX 7

Unit 2 Abercromby Industrial Estate
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COMPLEX 7 STUDIOS

Two sound proofed rehearsal studios available for hire 24 hours per day.
Studio 1 750 square feet plus Grand Piano - £25.00 per day.
Studio 2 250 square feet plus Upright Piano - £15.00 per day.
Other equipment for use in the Studios is available at good rates. There is also a rest room with Pinball, Fridge, Colour TV etc. etc.



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We specialise in supplying Flight/Transit Cases to your specific requirements. Constructed from leather grained fibre glass laminated to plywood with our special double sided aluminium angle for extra strength. Heavy duty locks etc. standard. We also supply custom built Drums Risers, Guitar Cases & Speaker Cabinets.



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The Helpinstall Piano Pick-up and Piano Sensor are designed to provide an isolated signal from any piano, by sensing the strings electromagnetically. It has been found in practice that this signal is virtually indistinguishable from the natural sound of the piano. The many possibilities of a completely isolated signal are readily apparent.
The Grand Piano Pick-up is available at £350.00 plus VAT @ 8%
The Upright Piano Sensor is available at £109.80 plus VAT @ 8%



C7 LEASING

25,000 Cubic Feet available for the storage of equipment on a short or long term basis. 24 hour access by prior arrangements.



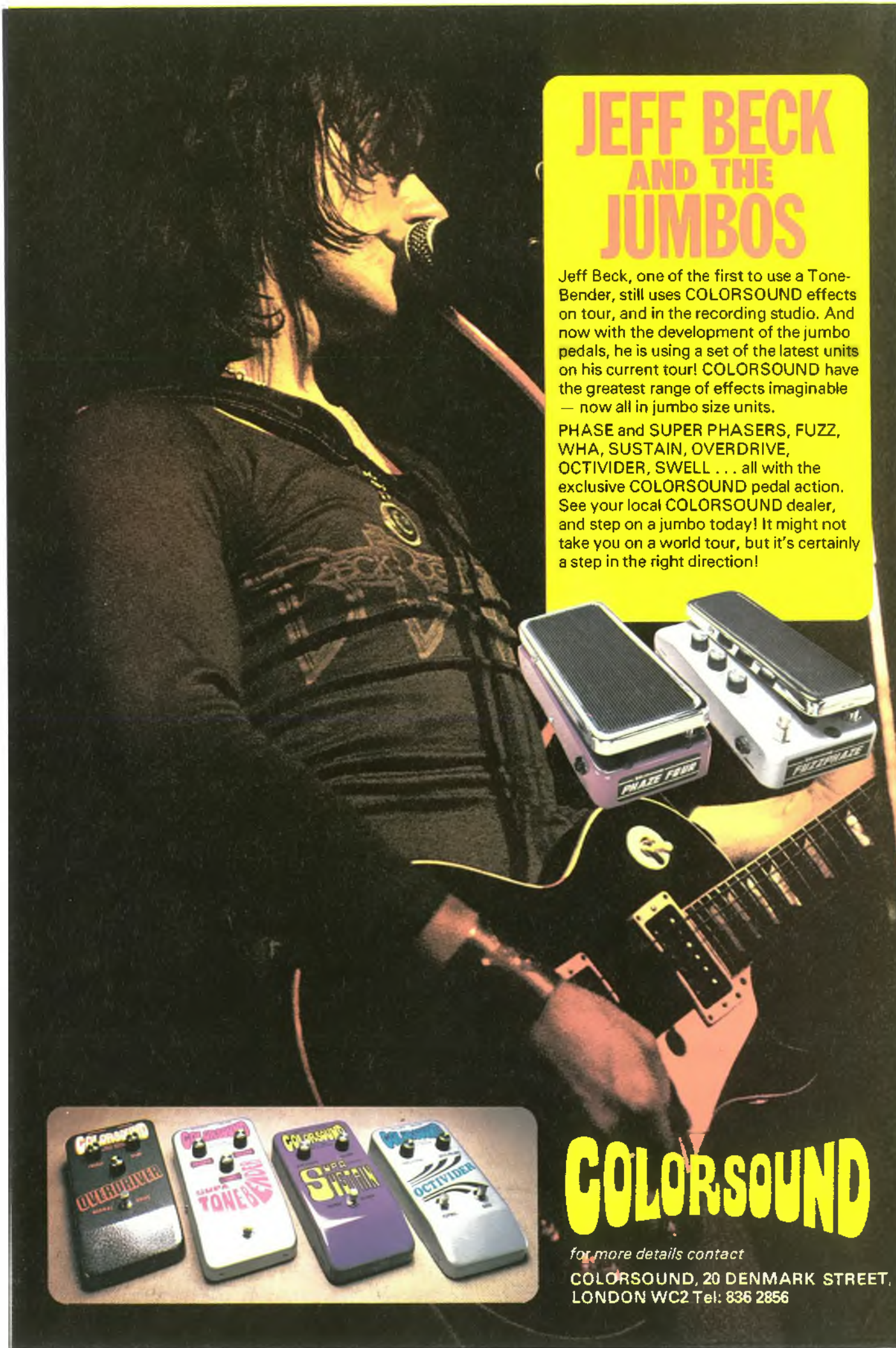
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Jeff Beck, one of the first to use a Tone-Bender, still uses **COLORSOUND** effects on tour, and in the recording studio. And now with the development of the jumbo pedals, he is using a set of the latest units on his current tour! **COLORSOUND** have the greatest range of effects imaginable — now all in jumbo size units.

PHASE and **SUPER PHASERS**, **FUZZ**, **WHA**, **SUSTAIN**, **OVERDRIVE**, **OCTIVIDER**, **SWELL** . . . all with the exclusive **COLORSOUND** pedal action. See your local **COLORSOUND** dealer, and step on a jumbo today! It might not take you on a world tour, but it's certainly a step in the right direction!



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If you had to make a better string for your guitar, how would you do it? Here's how the D'Addario family does it.

- The best way to give a string longer life and stronger tone is to use a hexagonal core wire. Not sometimes. Always. The edges of a hexagonal core grasp the wrap wire firmly, to keep it from slipping. This gives you a more uniform string, all along its length — for stronger response, better harmonics and overtones — longer life.
- That's just one quality that makes D'Addario strings better. Another factor is "strand annealing." Simply, that means we temper the wrap wire a foot at a time under precise control. It gives you more consistency and better dependability than treating wire in batches like others do.
- And where it matters, we guide the winding wire by hand.
- Not everybody makes strings this carefully. But the D'Addario family has been making strings for eight generations. With our name on the package, we can't afford anything less than the best quality.
- We even give you a choice of brass or bronze windings in four gauges for acoustic guitar... nine different gauges for electric guitar... strings from banjo to dulcimer.
- Ask for D'Addario — knowing how we make strings should change the way you buy them.

D'Addario
EXCLUSIVELY DISTRIBUTED IN THE UK BY
SUMMERFIELD

Cross-section of string magnified 50x.



A CONTINGENT of music and hi-fi dealers from Britain recently spent three days at the Montreux International Festival as the guests of Bose U.K.

The dealers attended concerts on each of their three nights in Montreux. The bands who played included Billy Cobham, Clark Terry,

the Pasadena Bowl Orchestra and Weather Report. The P.A. system was supplied by Bose A.G. Swiss.

The contingent, pictured above, included (back row, left to right) Peter Barnes of Musical Electronics, Morecambe; John Ham of John Sound Studios, Swansea; Maureen Ham; John

Hudkinson of Musical Sounds, Sheffield; Jan Murray of REW, London; Jackie Murray; Clive Butler of National Sound Reproducers, Harrow; Martin Kelly of Bose U.K.; and (kneeling, left to right) Nick Pierce, Bose U.K.; David May of S. May, Leicester; and Geoff Gleadall, Bose U.K.

ACOUSTIC RESEARCH DISTRIBUTE DBX

DBX NOISE reducing systems are now distributed in the U.K. and Denmark by Acoustic Research.

The DBX systems are popular for providing a viable alternative to Dolby systems and two principal products lines are available from AR.

Models 117 and 119 expand the dynamic range of playback Models 122 and 124 can be used for recording semi-pro and professional applications.

Musicians recording at home will probably find the 122 and 124 range of interest and details can be obtained from AR dealers. One reason for the working relationship between DBX and AR is the proximity of the company's plants: AR is in Norwood, Massachusetts, while DBX can be found three miles along the road in Waltham.



Dennis Holloway has joined Kemble (Organ Sales) as Executive Director of the Musical Instruments Division

ROCK ON RIGHT ON

ROCK ON, the Edmonton based spare and accessory wholesaler, have steadily built up a network of grateful retailers around the country. Their customers include well-known regional centres like the Carlsbro Sound Centre in Mansfield, Cleartone in Birmingham, Cleveland Music in Middlesborough, and Cass Music in Eastbourne, as well as relative newcomers like John Beeby's Music Place in Hornsey.

Founded two years ago by Steve Ash, Rock On literally began in his front room, when Ash agreed to make some leads for a friend. The business began to expand immediately.

Rock On now supply XLR plugs and sockets, Gaffa tape, GPO jacks and a host of other spares to interested retailers.

GREENHILL JOINS THOMAS

BILL GREENHILL has been appointed General Sales Manager of the U.K. and Europe by Thomas Organ Co. of Chicago. Greenhill will continue in his present role as Sales Manager for the U.K., but he will also assume the sales management role previously handled by Frans Bakker in Europe.

The appointment was announced by Bob Gunts, President of the Thomas Organ Co., Chicago, Illinois.

HOLLOWAY MOVES TO KEMBLE

DENNIS HOLLOWAY, former Sales Director of Henri Selmer Ltd., has joined Kemble (Organ Sales) as Executive Director of the Musical Instruments Division.

A former musician himself, Holloway joined Selmer as a representative.

BARRATTS OF OLD TRAFFORD

BARRATTS OF MANCHESTER will move their repair manufacturing and stock room from Denton to Old Trafford.

The new premises, at 652 Chester Road, Old Trafford, are operational from the 16th of August, and Barratts request that clients refrain from making deliveries until that date.

The new telephone number is 061-872-0710

MSL EXPAND INTO INSTRUMENTS

MSL of Rugby, established dealers in P.A. and sound equipment — including their own range of RSE amplification have expanded their sales service to include musical instruments.

The bulk of MSL's new guitars are Fender and Gibsons, and they also stock Hayman percussion and a variety of strings. Plans are currently afoot to include keyboards.

MSL are also importing second-hand guitars. John Grindle stated that MSL can specifically order anything via MSL's American office, a part of Revox of Syosset, N.Y.

CARLSBRO MUSIC CENTRE OPENS

CARLSBRO SOUND Centre Ltd. have opened a new Music Centre in Mansfield, Notts. The premises are at 39A West Gate, in the centre of Mansfield, and they are opposite the main entrance to the Four Seasons Shopping Precinct. The Music Centre will specialise in organs, pianos, brass, woodwind, sheet music, military and educational supplies.

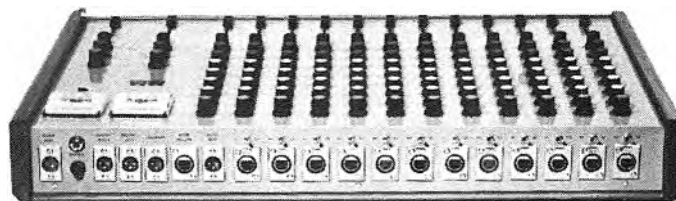
The shop opened with a week of in-store demonstrations. Featured performers included Christopher Gradwell of the London Saxophone Quartet and BBC Recording Organist Brian Lake.

PA:CE TO MOVE

P.A.C.E. LTD. of Cambridge are planning a move to larger premises in Royston, Hertfordshire.

A spokesman for P.A.C.E. stated that the move was planned as a result of an

increasing demand for their MM range of mixing consoles. They are currently supplying consoles to 22 countries, and their new MP185 Super 16 has found considerable world wide acceptance.



MM's popular 12 channel mixer

PERCUSSION SOUNDS CLINIC SPONSERED

THE FIRST of a series of Pearl drum clinics sponsored by Percussion Sounds of Nottingham was held recently at the Nottingham Palais.

The clinic featured performances by a galaxy of percussionists, including Barry Ford, Gaspar Lawall, Robert Jones and, Andy White, who demonstrated their various styles of drumming. Bob Henrit was also in attendance.

The first clinic began at noon and, mid-way through the day, the film "Jazz On A Summer's Day" was shown. The evening was devoted to live music, with performances by Deuce, and Jubiaba.



Richard Burgess of Landscape, one of the many excellent drummers who graced the stage at Percussion Sounds recent Pearl Drum Clinic.

Music News Music News

GUILD UK

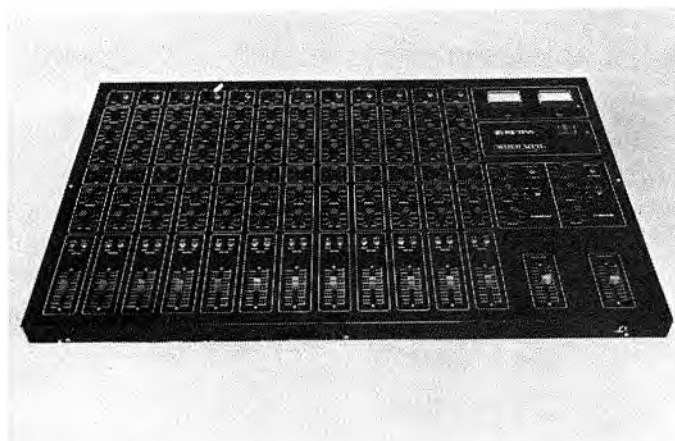
GUILD GUITAR U.K. have taken over the distribution of Guild products in Great Britain. Their address as of August 1st is 151 Portland Road, Hove, Sussex (Tel: Brighton 722687).

Alan Grant will head the company, and Fergus McDougall has been appointed National Field Sales Manager. Both Grant and McDougall were formerly with Top Gear.

IMMEDIATELY BELOW:

Custom Sound's 700 MXR
12 channel stereo mixer.

BELOW: (L-R) Jim Rodford,
Rod Argent and Geoff
Seopaedie pictured be-
fore a CBS clinic



CBS visit Paiste

14 MEMBERS OF the CBS/Arbiter sales team recently flew to Switzerland for a long weekend which included sightseeing and a trip to the Paiste factory.

With Robert Paiste and Paiste General Manager Hank Fryling as their hosts, the CBS contingent combined recreational tours of Alpine lakes and mountains with informative lectures on the background and theory of Paiste cymbals, with special attention given to the Chinese and Dark Ride models.

The visit concluded with a tour around the Paiste factory and workshops.

Hornby Skewes hold group gear seminar

JOHN HORNBY SKEWES & Co. recently held a group seminar at the Mercury Motor Hotel in Garforth. The morning session of the Seminar began with a welcome and introduction by John Skewes and Peter Watkins, the Area Sales Manager. This was followed by a discussion of guitars, with special reference to Kasuga and JHS electrics and Terada acoustics, and a demo by Trevor Holroyd and Mike Donald.

A Hoshino Drum Clinic featuring Bob Stevenson on the super model HSD500 followed, just before an interval in which cocktails and lunch were served.

The afternoon session began with an amplification seminar, followed by a discussion and demonstration of add on units, including Systech Pedals and the Concert Echo Chamber again featuring Trevor Holroyd.

The seminar concluded with an all embracing keyboard seminar, which covered products from Crumar, Logan, Eko, all demonstrated by Howard Beaumont.

CBS/Arbiter Argent Clinic Success

CBS/ARBITER have announced that their recent series of clinics featuring Rod Argent, I.M.'s keyboard consultant, has found considerable success.

Combining music with relevant technical information, the clinics, held at main dealers around the United Kingdom, saw Rod Argent accompanied by Jim Rodford on bass and Geoff Seopaedie on drums.

Andrew Wallace, Sales Director of CBS/Arbiter, was well pleased with the clinics. "It was a hell of a scoop to put what amounts to half the Argent band on promotions for us. What especially pleased me was their enthusiasm to help dealers and musicians."

VITAVOX NAME GERMAN DISTRIBUTOR

VITAVOX U.K. have appointed Amptown Sound Equipment as their German agent for the Vitavox music P.A. range of loudspeakers.

Peter Matthes of Amptown, commenting on Vitavox, stated that "The performance of the S3 Pressure Unit is well-known and now we are particularly impressed with the bass response of the Thunderbolts."

CUSTOM SOUND

CUSTOM SOUND of Oswestry, Shropshire, have announced two new products.

The CS Trucker is a 45 watt RMS combination amp with carefully designed acoustics and circuitry which aim to provide a very wide range of sound character. The Trucker is backed by a full two year warranty, and the price including 8% VAT is about £81.

The CS 700MXR is a 12-channel stereo mixer, which offers a fully comprehensive specification at the rock bottom price of £360, exclusive of VAT.

Barratts Newcastle

Hedgehog Pie came into the shop recently and ended up leaving with a Carisbro Stingray Super Combo which they'll use for guitar . . . A fine band called Last Exit have had a variety of equipment from Barratts, including a complete Carlsbro P.A. system driven by a Marlin amplifier, a Fender Rhodes piano and a Gretsch drum kit . . . Local band Fogg are regular callers at the shop . . . Barratts do a lot of business in brass instruments, and have supplied items to the Northern Sinfonia and the Norway Youth Band . . .

John Beeby's Music Place Hornsey, London

Musicians calling in at John Beeby's recently have included Moon, Gonzalez, Robin and Barry Dransfield, Big and Ugly and East of Eden . . . John Beeby reports that a lot of big P.A.'s have been going out recently (mostly Electro Projects), as well as a run on the new Gibson Marauder, S1 and L6 range, and a high level of interest in Peavey and Maine amplification has been noticed . . . The Avon Voice Box has also attracted favourable attention from the local musos, who

include a high percentage of professional gigging musicians, as well as session players . . .

Woolwich Trading Post London

Local groups calling in to one of London's most unusual shops have included Sweet Tea, Grass Roots, Stone Cold Sober and Squeeze, all of whom were in the market for amplifiers and speakers . . . Woolwich offer part exchange on their equipment, and will accept cameras, hi-fi equipment, and just about anything — including a sailing ship . . . The ranges of equipment they now hold include second-hand HH, Custom Sound and Marshall gear, a Martin Tenor guitar and a collection of brass and drums . . .

S.A.I. (Sound Advice Installations), Coppull

Champagne were in for a Traynor P.A. system and various SAI cabinets . . . Liverpool Express came in following an unfortunate motorway accident to have their gear repaired and to hire some equipment . . . Simon of Alberto Y Lost Trios Paranoias bought a Gibson 335 and the inevitable Vox AC30 . . . Wigans Own Ovation bought a massive SAI P.A., comprising a Canary mixer,

JBL 15" front loaded horns, Vitavox radial horns, an HH TPA slave bank and SAI rack mounting . . . Big Jim Sullivan towered over the audience at an in-store whistle stop visit prior to leaving for the States . . . Emile Ford called, played everyone a few demos, and bought some SAI F/2 x 12 + horns and an FC 150 slave . . . Real Thing bought a complete SAI rig, a four bin system utilising JBL and Vitavox drivers, and a Canary mixer . . . Chicory Tip took a leaf out of Keith's book and bought two 2 x 12 front loaders, two Jensen Tweeter boxes by SAI, and then left for a Scandinavian tour . . .

McLaren Music Edinburgh

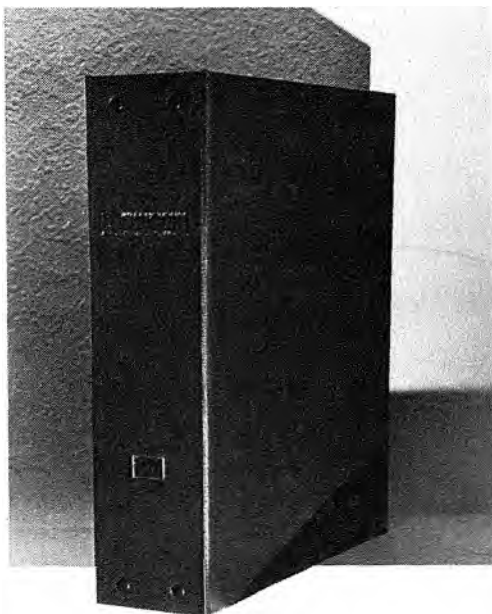
The Bill McDonald band were in recently to buy a CMI 100W P.A. . . . Mr. Bo Jangles bought a Carlsbro 100W P.A. and a Marshall stack . . . Tears came in and left with an Orange bass bin and a Graphic 120 amp . . . Davy Scott of the Hi Watts had a Gibson SG . . . Dennis of Talon was in for a Fender Jazz Bass, while the band were getting a Marshall 100W P.A. system . . . Stride were in, and staggered out with a Marshall 100W stack and a Sound City 100W Stack . . . Brian of Highway bought a Fender Strat . . .

Hobbs Music Lancaster

Martin Simpson, a Folk performer, is a regular visitor to Hobbs, and recently purchased a P.J. Abnett custom made guitar, (Hobbs are the main agents), and a Martin Mandoline. Martin has also just purchased a Gibson L 6S guitar.

Martin Carter and Graham Jones are also regular customers and are always in for odds and ends . . . Vic, the vocalist of local band Subway Joe, now has a clear vocal sound, thanks to a new Carlsbro P.A. system from Hobbs . . . Don Leathwaite of Deja Vu is the proud owner of a twin-neck Gibson 6/12, recently purchased second-hand . . . Pat Tate, who's playing folk clubs in the Windermere area, bought a nice Martin 00018 . . . Joe Beard, of the Purple Gang, came in for a Dobro . . . Local player John Lewis had a P.J. Abnett Guitars built to his specifications . . . Drummer Richard Hoather, recent star of TV, is changing from Hayman to Ludwig percussion . . . Gavin Noble, who plays at the Lakes Folk Club in Ambleside, purchased a Martin D35 . . . A band called Decimals, based in Barrow, filled out their sound after adding a Logan string synthesizer to the line-up . . .

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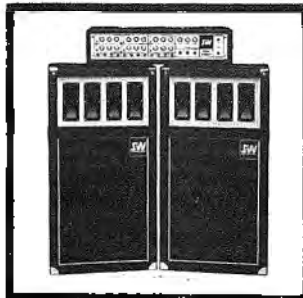
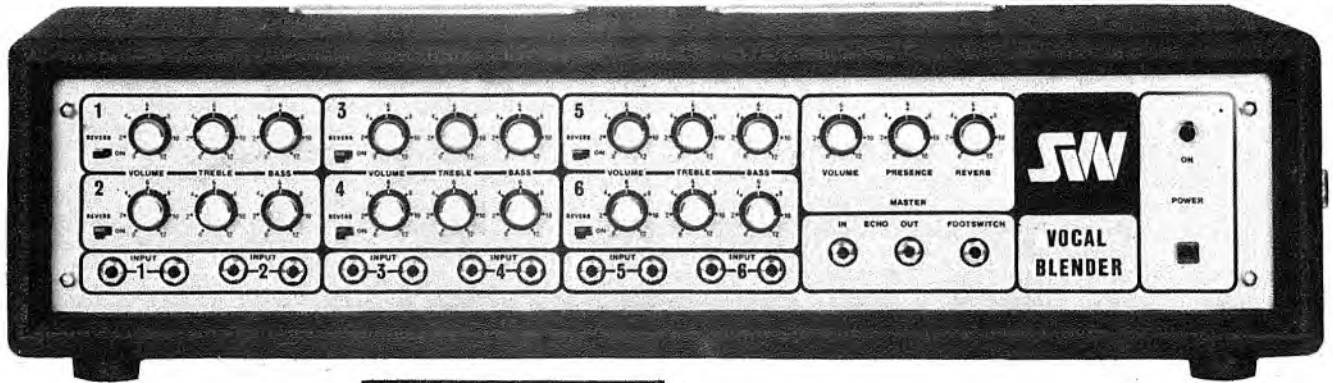
New is PA plus

Because

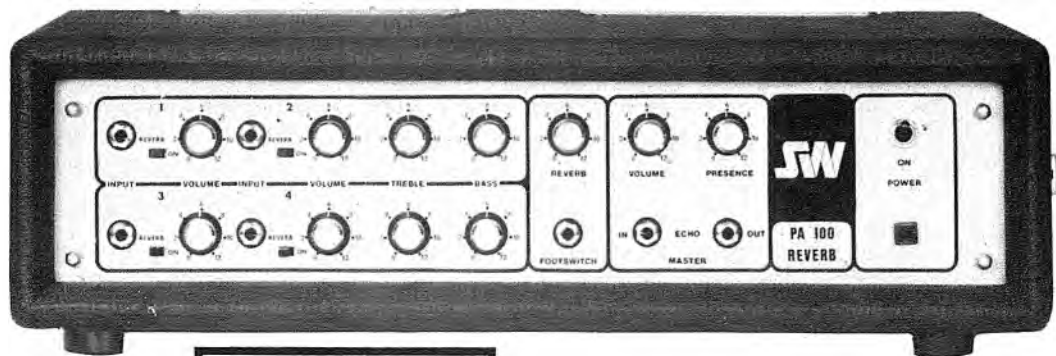
it is designed for utter reliability, with capacious heat sinks and built-in air vents. With light strength in chassis and cabinet. With thoughtful layout, tested components and new systems of construction. For example, the whole range of amplifiers springs from just three basic printed circuit boards. Each is easily replaceable, complete, in minutes. And spare PCBs are immediately available. And can be free, not just during warranty, but throughout the life of the amp.

Another because is the sound of SW. Crisp, clear, solid, big, beautiful, controllable sound. Sounding like amplification should: when you buy it and while you live.

A third because is the Rosetti back-up. They want no problems and make no fat promises. Which is why they offer you an illustrated leaflet and full specification sheet on all the amps, columns, cabinets and other gear in this new SW range. So you can sit and make up your own mind. So send the coupon. Be convinced.



Above: the new, compact 6 channel Vocal Blender (with Hammond Reverb) teams with two SW H100 Universal Cabinets. The VB gives you 150 watts into 4 ohms. From just 27 1/2" x 11 3/4" x 6 3/4", and costs £199.95. Full specification on request.



Above: the new SW PA100 Amplifier (with Hammond Reverb). With two 12054 Horn Columns makes a compact, powerful, reliable PA set-up of moderate cost and massive impact. There is a full range of other columns and cabinets, amplifiers and combos. Full details on request.

To SW Amplification, Rosetti, The House of Music, 138-140 Old Street, London EC1V 9BL

Please send me full details of all the new SW amplifiers, combos, columns and cabinets.

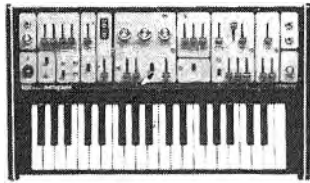
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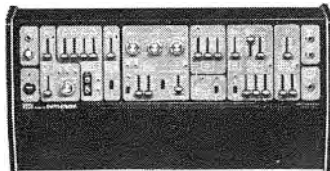
ROLAND RECIPE OF THE YEAR

Take a basic synthesiser.....



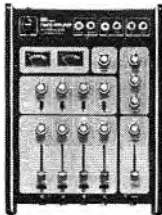
ROLAND 101
All basic synthesiser elements (VCO, VCF, VCA, ADSR, LFO and Noise Generator). Audio Mixer. Variable pulse width modulation of the VCO, a high pass section in the VCF section, plus headphone jack and computer jacks.

add an expander.....



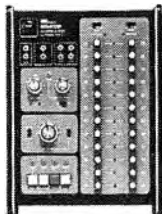
ROLAND 102
and you have 2 channel sound, using patch cords with the 101. Facilities as 101, plus Sample and Hold with variable lag time. Can trigger ADSR or 104 Sequencer. Ring modulator.

mix in a mixer.....



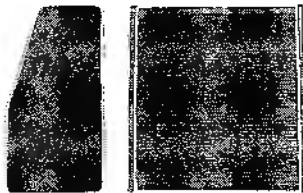
ROLAND 103
giving you a basic recording studio. Facilities include Panpot for stereo adjustment on each channel, separate volume, mic, hi/low line, effect control per channel. VU meters. Monitor level, 4 channel inputs, with outputs L & R speakers, L & R line out & ext echo in/out. Master controls for pan, reverb, echo, volume and balance.

subsequently add a sequencer.....



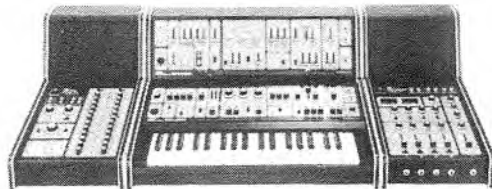
ROLAND 104
and programme a repetitive phrase or tapes. Facilities include step controller, clock oscillator, gate outputs. Series outputs for each channel to give a note sequence using the VCO or sequence the VCF cut off frequency. Parallel outputs for sequencing duets with 2 other VCO's - or one channel driving the VCO and the other VCF cut off. All this plus Master controllers.

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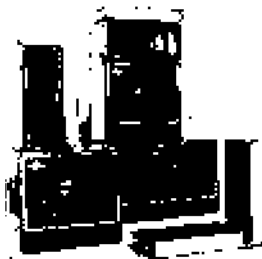
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August, 1976.

Dear Drummers,

Before you buy a drum kit from us it will have received a thorough P.D.I. (Pre-Delivery Inspection) in our workshop, to ensure that every part is in perfect working order. This is necessary because, due to to-day's methods of mass production, drums often arrive with minor faults undetected. It is not unusual for us to find as many as ten detail faults on any one kit.

Since we began selling Pearl Professional kits some three years ago, we have found the following faults out of a total of over 200 kits:-

Item	Fault	Correction
Snare Drum Stand (1)	Casting cracked	Stand replaced
Hi-Hat Pedal (1)	Clamp binding	Pedal replaced
Bass Drum Pedals (3)	Hoop-clamp loose	Screws tightened
Cymbal Stands (2)	Chrome poor	Stands replaced
Tom Tom Holder (1)	Faulty weld	Holder replaced
Tom Tom Bracket (1)	Screw sheared	Screw replaced
Snare Drum Damper (1)	Thread stripped	Damper replaced

Yes! Only ten faults out of over 200 kits - which, for those of you without a pocket calculator, means less than .05 faults per kit! This makes Pearl, without question, the most reliable, trouble-free kits we have ever handled.

Yours Sincerely,

Graham Allcard.

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The Pearl Family

No.1

Basie Swings with Pearl



The most famous big band in the world, The Count Basie Band, swings on Pearl! The Duke's drummer, Butch Miles is a Pearl Freak and in addition to the incredibly responsible job of laying down Basie's rhythm, Butch takes time off from touring to announce his belief in Pearl by holding Pearl clinics in which he demonstrates the adaptability of Pearl kits.

Butch prefers a pearl finish for his Pearl kit and he's regularly seen on TV with the Duke's band spreading the Pearl Family gospel as well as playing some incredible music.

If you'd like to hear Butch Miles and listen to his dazzling variety of technique on Pearl

drums, it's expected that in the future he will be playing various Pearl clinics. Your Pearl dealer will be able to give you information about drum clinics and the variety of drum stars who are regularly demonstrating Pearl.

Drummers Rock On With Pearl

The cream of today's Rock Drummers are today switching to Pearl drums! All over the world, the powerhouse drummers who hammer out the music of the 70's are playing Pearl.

Tom's Scott's LA Express have rapidly carved themselves a reputation far beyond that they gained as Joni Mitchell's back up band. Drummer John Guerin plays a Pearl Kit.

Today the Express are recording stars in their own right, but still work with Joni on occasion.

Top British band Camel have been breaking attendance records at concerts on both sides of the Atlantic. The band feature drummer Andy Ward (he plays Pearl too) and they are currently working on a follow up to their most successful album to date, "Moonmadness."

The Doobies, one of the most influential bands ever to come out of California play Pearl. The band feature two drummers in their line up and both Keith Knudson and John Hartman have Pearl kits. David Bowie's drummer Dennis Davies is yet another top drummer who insists on Pearl. He was a great success of Bowie's

recent tour of the UK and he has now become yet another Pearl convert.

Three Dog Night are one of the biggest concert draws in rock and drummer Mickey McMeel plays a Pearl kit. The band have chalked up seven gold albums and sold more than 15 million singles to date.

Al Thompson, Pearl drummer with Gladys Knight and the Pips, enjoyed his recent visit to Britain when the band toured Europe. He's been a Pearl drummer for quite some time.

In the last couple of months the Crusaders have taken the London scene by storm. The band flew in for a short tour and drummer "Stix" Hooper blew everybody's mind and converted even more drummers to Pearl, the kit he chooses.

Many drummers yet to obtain international stardom are Pearl converts. Just a few names (and bands) who rock on with Pearl are: City Boy, Brian Hudson of Sparrow, Pete Merritt with Lonnie Donegan, Tony Crombie, Bill Eyden, Art Morgan, John Gilston of Mike Heron's Reputation and Paul Varley of Arrows.



A staggering pic of a staggering band. This Scottish band are currently breaking big all over Europe and, not unnaturally, drummer Kenny Hyslop plays a Pearl kit. The band have their own brand of Scots rock and this amazing picture was taken by Steve Emberton.

Pearl ROCK HIT



This five piece Rock kit, enables the rock drummer to be heard above the loudest of amplification! This Outfit comprises the largest sizes available, previously only obtainable to special order.

The Outfit features a Custom Brass Snare Drum 14" x 6½", a 24" x 14" Bass Drum, 13" x 9" and 14" x 10" Mounted Tom-toms and 18" x 16" Floor Tom-tom. A heavy duty snare stand, two floor cymbal stands, a hi-hat stand and drum pedal.

PW. 24" Bass Drum, Wood Shells, Plain Finish.

SW. 24" Bass Drum, Wood Shells, Satin Finish.

PFW. 24" Bass Drum, Wood-Fibreglass, Plain Finish.

SFW. 24" Bass Drum, Wood/Fibreglass, Satin Finish.

PF. 24" Bass Drum, Fibreglass, Plain Finish.

SF. 24" Bass Drum, Fibreglass, Satin Finish.

PNP. 24" Bass Drum, NP Phenolic, Plain Finish.

SNP. 24" Bass Drum, NP Phenolic, Satin Finish.

Here's the ideal outfit for stage or studio use, handsomely styled and craftsman built. The Powermate outfit includes a Pearl Custom Model Metal Snare Drum, a 22" x 14" Bass Drum with pedal, 12" x 8" and 13" x 9" mounted Tom-toms, a 16" x 16" Floor Tom-tom, heavy duty snare drum stand, two cymbal floor stands and a hi-hat stand. A good looking kit that will get you a lot of attention.

PFW. 22" Bass Drum, Wood/Fibreglass, Plain Finish.

SFW. 22" Bass Drum, Wood/Fibreglass, Satin Finish.

PF. 22" Bass Drum, Fibreglass, Plain Finish.

SF. 22" Bass Drum, Fibreglass, Satin Finish.

PNP. 22" Bass Drum, NP Phenolic, Plain Finish.

SNP. 22" Bass Drum, NP Phenolic, Satin Finish.



Pearl POWERMATE OUTFIT



SHELL TYPES: WHAT'S THE DIFFERENCE?

As the whole of the percussion world knows by now, Pearl offer their drums in a wide variety of shell materials. No other manufacturer has ever offered such a wide choice of shell materials and the result of the spectacular investment in producing so many types of kit is that Pearl can honestly claim to have a drum kit suitable for ANY type of music or style of playing.

There are no less than six basic types of shell material. Each has its own particular reasons for being and each has evolved through exhaustive research by the R & D (research and development) team at the main Pearl plant in Japan.

The choice for you depends on what type of music you intend to play and where you intend to play it. Bearing in mind that many drummers need an all purpose kit as they are all purpose musicians, amongst the alternatives are several which can adapt well to all situations. But the principal of the range is that the pure specialist, in whatever field, will find a kit precisely suited to his needs.

To deal with the shell types in detail here's a summary of the reasoning behind their design.

1. Wood ply shells. Wood has been the traditional drum making material used for shells since man stretched pig skin over the ends of a hollow log. Many musicians claim the material is unbeatable and we agree - for certain things it is unbeatable. There's a certain warmth from wood shells that rounds off the end of the top end of the frequency response and for controlled drumming in a low

volume situation, they're often hard to beat. Small club work and the recording studio are the real home for these drums. They're all purpose for the gigging musician.

2. Wood and fibre shells. Often incorrectly described as a "mixture" these shells combine the best points of both wood and fibreglass construction. The main shell is made from 5 ply wood and on the inside of the shell a coating of fibreglass is applied (approximately 2 ply in thickness).

The end result of this considerable effort is that the round sound of wooden shells is retained and the far "brighter" top end of the frequency range associated with "glass" drums is also allowed to come through. Many drummers consider that the combination is unbeatable offering an extremely responsive kit which still retains great warmth and colour. These drums will take the stage in a large auditorium happily and can also be controlled to offer a subdued, but still cutting, sound on small club work or recording dates.

3. Fibre glass. There's nothing new about fibreglass drums. They first appeared in the 'sixties, being used extensively for recording because of their ultra "dead" sound. Today's Pearl "glass" kits bear little relationship to those early efforts, as they project strongly offering a tight, crisp sound that makes miking up a dream on stage and cures many of the usual tonal headaches that beset professional drummers.

Fibreglass has proved its resilience and longevity over the years and they're now building 100ft boat hulls from the material $\frac{3}{8}$ in. thick! It's a



Louie Bellson, drummer with the fabulous Oscar Peterson chooses a fibreglass kit. In choosing the right shells it's important to bear in mind the type of work the drums will be doing. Louie finds the "glass" kit perfect for his concert and recording work.

fabulous material for drum shells over real strength coupled with great projection properties. More and more the choice of professionals.

4. Phenolic. This is the newest material used in drum making and layers of Phenolic are hand wrapped around precision moulds to produce a shell of uniform thickness. This produces perfect circle shells of non-warping Phenolic which has an exceptionally smooth inner surface. The result is a brilliant sound which is really alive and is perfect for application in which high, penetrating volume is required.

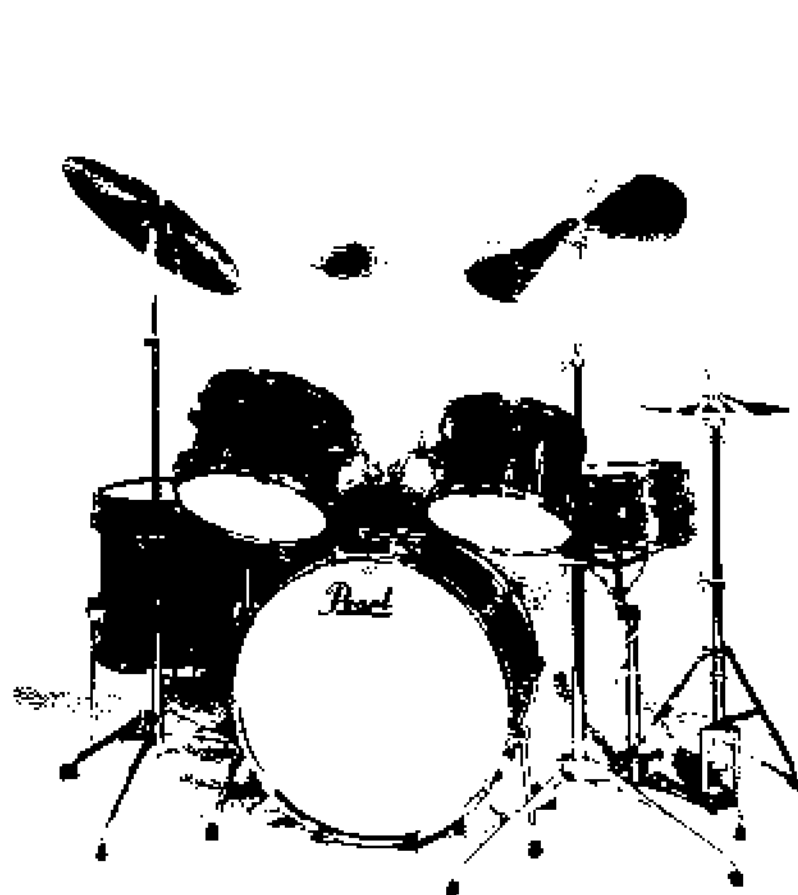
5. Maple. This is the latest drum shell in the Pearl range and features one of the most famous woods available to drum makers. Layers of pure American Maple are laminated together to form a rock hard shell and there are several major bonuses for drummers available from this material. One is that the wood has exceptional

tonal characteristics, another is that it projects exceptionally well and last, but by no means least, the appearance of a natural finish maple shell is incredibly beautiful.

6. Acrylic. The seamless drum shell is a Pearl exclusive and in this range the drummer benefits from new moulding technology which allows totally seamless drum shells to be produced. As a direct result, the drummer gets a shell that has a strong, hard tone, really superb projection qualities and a dramatic appearance. The shell is hand finished in every instance and is available with a "see through" style or in an opaque finish.

In judging the quality of Pearl drums, it is necessary to realise that the Pearl drum making operation is the largest in the world and that because more drums are produced there than anywhere else, research and development into the future of drumming is also particularly intense.

"You can't beat Pearl Drums"



says Robert
"Congo" Jones of

SASSAFRAS

ANOTHER SUCCESSFUL
DRUMMER WHO ENDORSES

Pearl
DRUMS



PEARL CONCERT IN ENGLAND

Nottingham Palais saw the first of an ambitious and, if I might make so bold, necessary series of Pearl Drum Clinics and demonstrations: This one was set up jointly by 'Percussion Sounds' probably the best equipped drum shop outside of London, and Norlin UK the Pearl concessionaires. Mike Jackson the enthusiastic shop owner and some time teacher from Nottingham masterminded the venture in close collaboration with Glyn Thomas Norlin's Drum Promotions and professional manager, the event optimistically started at noon and eventually finished around 11 p.m. As I said they were enthusiastic!

No less than twelve of Pearl's kit's taking in their whole range were on display and unlike most exhibitions these were actually on show to be played. A complete set of "eight-brothers" concert tomtoms made from Phenolic (re-cycled paper) were also available for the passing drummer to "bash". (Very few were able to resist the temptation). Boomstands, foot pedals, cymbal stands, stools, and snare stands were all in abundance as were the updated hi-hats which have a more conveniently adjustable spring these days. A selective range of cymbals were freely available for inspection and evaluation

The "Drum Day" opened with a very "laid back" performance and "rap" from Barry Ford and Gaspar Lawall who showed their heritage off to great advantage with a demonstration of how un-complicated (to them) African polyrhythms fit into the new wave of music from a percussion standpoint. Definitely some food for thought.

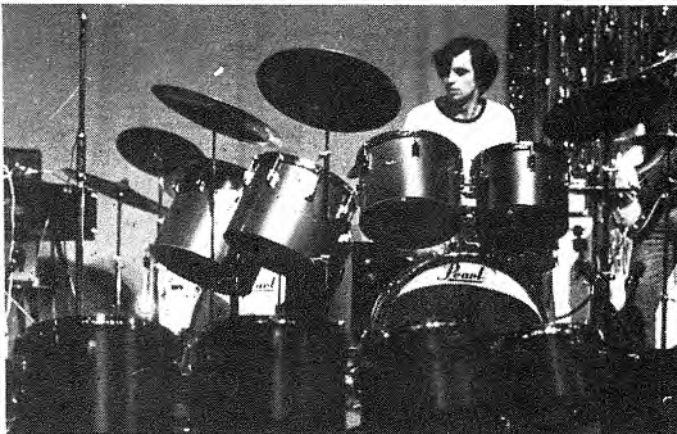
Glyn Thomas then mentioned Pearl's six or so different shell

materials and their suitability for different styles of music. He also talked a little of the innovations which the Japanese company will be unleashing on the world soon. Watch these pages in the very near future for more information.

Robert Jones from Sassafras has recently become a member of Pearl's exclusive endorsee fraternity and happily picked up his new "rock" set from the Palais prior to Sassafras latest British tour.

Andy White gave a dazzling display of rudimental parade drumming which for its expertise and ease of playing and execution blew every one's minds and proved exactly why he has been the Scottish pipe band champion. His exhortations to the youngish audience to learn the rudiments and their application I hope did not fall on deaf ears. Incidentally its not generally known but Andy White played on the first Beatles hit. A band called Landscape followed Andy White and their drummer Richard Burgess - ex National Youth Orchestra - explored and explained a lot of different time signatures including 15, 17 and 19/16 which I had never heard in this context before.

After a brief interval



Richard Burgess plays Pearl at the Palais!

Martin Drew came on and spoke very funnily about drumming and illustrated his ideas with a cassette player and a dozen or so examples of modern drummers. His philosophy and its applications were very interesting and yet he hardly touched the drums. He saved his playing until he was joined by Bill le Sage, bass player Steve Hook and Glyn Thomas who were then joined by Gasper and Barry Ford who were consequently then joined by Andy White during a latin number to play some Scottish Drums !! As Martin said, "everything fits in Jazz."

The afternoon closed with the obligatory and in this case impromptu drum duet from Barry Ford and Gasper Lavall playing a pair of Pearl's full dimension outfits

The film "Jazz On A Summer's Day" was then shown which I watched for the first time in sixteen years or so, mainly to see Chuck Berry accompanied by of all things a Clarinet player, Chico Hamilton with his sensual playing with mallets on his single headed Kit and the Jimmy Gueffre trio's trained the player."

That evening was devoted to live music

which was remarkably well held together by an ex-drummer now comic/impressionist, from T.V.s Who Do You Do. Maxton G. Beesley. This hilarious (to me) comic is still an excellent drummer who was voted Ireland's best drummer in 1974. An excellent although unfortunately brief performance by "Deuce" an amazing full sounding duo with a drummer/vocalist and a guitarist playing a double-neck with the ingenious application of organ bass pedals. The vocal point of the evening's performance was Jubiaba an occasional band which Martin Drew was propelling for the first time (although no one would have guessed) and featuring among others the talents of Henry Lowther on Trumpet, Barbara Thompson on saxes, Bill le Sage on Vibraharp, Steve Cook on Electric Bass and Glyn Thomas relentless percussion.

Altogether an interesting and enjoyable Sunday Drum day. All credit to Mike Jackson and Glyn Thomas who put on a remarkable show under adverse circumstances. It can't have been easy. I look forward with relish to more "Pearl-days" in the not too distant future.

the henrit interview

Bob Henrit has often been described as a "drummer's drummer". He's been Argent's drummer for eight years now and he's still managed to find time to write about drums and to do demonstration clinics.

He's the Drum Consultant of International Musician and today he's part of the new band Phoenix, which also includes Jim Rodford and John Verity from Argent.

He's been a drummer for 20 years and here he talks about the love of his life.

You've been off the road now for six months. Do you think your technique has suffered because you haven't been playing live?

Oh, yeah. Emotionally I suffer because it's a need that I have. I have to get up now and again in front of an audience and show them what I can do. It's not quite the same because you don't entertain in the studio at all.

You're only working in front of the musicians then...

Well, yes. My technique has suffered a little because I don't take as large drum kit into the studio as I do on stage, therefore I need a couple of weeks to familiarise myself to stretching my arms out a bit more, stretching my legs out a bit more, cause I mostly don't play double bass drums in the studio and other than that it is a question of getting the energy together, because in the studio it's energy in short bursts. You do one song, then listen to it, then maybe play it again, whereas of course on stage you're going non stop for an hour or maybe an hour and a half.

So what will you do in regard to routining again when you do decide to play live again with a new band? What will you do to get yourself fully fit?

Years ago people would have advocated wrist exercises. But it's a question of stamina at the moment so probably I would find if I were game enough to get up in the morning and run around the block that would be the sort of thing I needed and other than that it's familiarisation to stretch myself.

To what extent do you think playing with a new band has changed your drumming style? I know that even while you were with Argent you were playing with other musicians. Has it actually changed your style of playing, playing a different style of music?

I think in a way I'm schizophrenic. I think if you're going to do sessions you have to be vaguely "schizophrenic" because people will say listen can you play this like Keith Moon or can you play this like whoever? Or though hopefully one is going to be rung up and the person who wants you to play will say listen I want you to do what you normally do.

Play like Bob Henrit...

Right, that's what I hopefully want.

Do you listen back to playbacks of what you're doing at the moment with Phoenix and say "that's interesting, I would never have thought of doing that with Argent"?

The first thing that everybody is going to notice with this new band is that it's a three piece and by definition, because it's a three piece and doesn't have with the best will in the world the keyboards to cloud what's going on from the drums and by and large the drums are playing in a little hole on their own if they're not playing actual time and because of that their audibility is much better and of course you can get a better sound in a three piece than you can in a four piece.

Are you actually putting things in to fill the hole or are you leaving things out?

Well, of course, it is what you leave out rather than what you put in, I mean this is where taste comes in. I have always been a busy drummer mostly and so a three piece suits me more than a four or five piece does. But it's not a question of actually playing more. What happened was we started off doing demos and we did a load of demos and I was feeling hungry to play at the time so I did a lot of what may or may not be considered over play.

So you are aware of a lack of sound in a break, therefore you do more?





Oh, yeah. What we did, we actually put (this was a studio trick we had never even thought of before)...I found that the drums weren't stimulating, as you say there was a gap that needed drums and it needed them to be really good, so what we did was put some echo on the drums in the cans which is something you don't normally do and of course they weren't recorded with heavy echo. It made a great deal of difference to it, it gave me much more feeling and made me feel much better about hitting the drums. Because on the stage if you haven't got a decent sound and you hit the drum, if it disappears immediately then you have to hit it again and so therefore in that situation you could overplay.

Right, were you consciously saying 'I want to put something in there? Having thought yourself that you overplayed with demos did you go into the master recording saying 'I won't overplay, I know there's a gap but I won't fill it'?

Yeah, I suppose, I think there was a certain element of that but what there actually was was, "Oh, I never played that as well, I think we were so knocked out with the demos, everyone that we played them to, suggested we try to do the same sort of thing in the proper studio with the master, of course you can't work that way. So I found I kept thinking... now I used to play a break there, tending to that break I played there isn't as good as the one I played on the demo. It was familiarisation and it took me maybe three weeks after the album was finished to finally get rid of what I heard on the demo which I liked, to suddenly start liking what was on the album.

Do you think you actually play better with a live audience than you do when you are recording?

I feel like I'm playing better to a live audience but of course to a live audience, unless you're doing a live album you never have the opportunity to listen.

But you have done some live recordings?

Oh yes, but I have never been completely happy with them.

Is that because of the playing or because of the quality of sound?

Well, you fall between two stools. You fall between trying to communicate to the audience and trying to put onto the record something else. Really for a record you should be very very concise and very laid back but of course for a concert you're trying to communicate excitement. Funnily enough the English drummer seems to create excitement in a completely different way to the American drummer. It's a little technical really.

Are you talking about what they play? Or the way they play it? Is it what they put in?

Well, with Americans it is very much a question of what they leave out. The Americans have got this technique. They can, without seeming to play more or to play any harder, go into a sort of overdrive and all of a sudden the music or the feel of the thing starts to take off. This is something that British drummers tend not to do as well and if they go it, they tend to double up the number of beats.

Do you know how to do all this?

Oh yeah.

What has taught you that? I mean was it experience working in the States taught you that or did it come by rehearsal or by observation?

I found out with the use of magic pills, like adrenalin. We were doing nine forty-five minute spots a night. And this was only 1967 and this was in Cologne. It was Unit 4+2 and

we were getting that together, Russ Ballard and I had joined it. They had all the vocal ability but really didn't have musical ability so we joined to inject some of that. The only way you can do that amount of spots and still create and still be happy about it is to take a little something... Now they had these things which were completely innocuous, you could buy them in the chemist over there but I don't think you can buy them anymore actually. They were made for students and people who need to be up late or need to concentrate. They were called AN 1's, and they were completely innocuous unless you drank with them. So you take one and you drink and all of a sudden you're speeding. Never let it be said that I am an advocate of taking drugs. But if you want to know where I learnt how to inject that particular feeling into my music it was under the influence of that.

Didn't it seem to slow what you were doing down so you could observe it more?

Yes, and it made me more aware.

You sped your thinking up so it seemed slower and you could observe more closely. Is that true?

Well, what actually happened, how it manifested itself was if it's a 4/4 bar, there's four crochets in the bar and the off beats are on 2 & 4—Now if you hit them smack on 2 & 4 then it will push the music along. Now this is something I learnt under the influence of this thing. Further more if you put it that millisecond after 2 & 4 it lays it back more. So this is what the Americans do.

They alter the tempo?

No. It shouldn't do, not if you're anything of a drummer. Because after all a drummer's stock in trade is that his one arm can be doing this while his other arm is doing that and his legs are doing something completely different. If drummers can play 5 beats against 4 beats, or 7 beats against 4 beats or whatever, which is reasonably difficult then they ought to be capable of finding this imperceptible place to put their off beat in. When we all came back from Germany, the first thing I did was to do a session. Somebody phoned me up to do a session. So I got my drums together, got the car out, put the drums in the car and thought, shit, where are my pills—right—so all of a sudden I thought 'what's going on?'. Then I suddenly sussed that I was about to get involved in something I didn't want to get involved in. So it taught me where this off beat lay and that was good, but that was enough.

So you were, in actual fact, then having learnt it, able to do it cold.

Yeah. I mean the thing about any stimulant, if you feel happy enough you don't need it. If you want to play enough you can get that same sort of adrenalin high which is all it is. I don't advocate drugs for anything, it's just that under the circumstances we were labouring under it was the only thing to do. I mean I was doing three drum solos a night.

Having worked that much, what would be the ideal length to set for Phoenix in your opinion?

Well, you see, I don't think any band by and large, especially a new band, can be on stage for more than an hour because it's much better to leave them wanting rather than to think... oh shit... I saw Phoenix last night, it was good but it went on a little bit. I personally feel guilty of going on a little bit in the past five years. And that's the idea of a new band, that we don't go on a little bit. It's got to be very concise, it's got to be saying much the same things as Argent said only it will say it straight and to the point.

So where's it going to be, States first time?

Well, I would think so, yes. Though it may not be, it's just that over there we could get off to a reasonable start and do sort of maybe not co-headline but a support thing over there and that wouldn't be quite so bad, but to start off on a support over here would be a bit of a position after having just finished.

So this is the reason you are going to choose a sort of moderate type venue in the States to kick off the tour? Do you think it will be a tour or selected dates?

I don't know. I've spoken to Russ Ballard about it, Russel's in America at the moment. He's doing lots and lots of club type gigs, you know. For Russel that's OK because I saw him at the Marquee and he is very happy in that sort of situation, and his sound is very suited to that.

What would you be happy doing with the band?

Well, I think that here I am with this huge bloody drumkit and I can't see it going on stage in the Marquee, I can't see it going on stage in... Kansas City... or...

Is it necessary to the act, the enormous drum?

I think it is, yeah, I think it is now. It may not have been to Argent, it probably was debatable with Argent but it certainly is with this new thing.

So it's got to be a fair size then?

Well, yeah.

Tell me about the kit that you're playing now.

I changed over at the beginning of the year actually. Having reviewed drums in the magazine *International Musician* over the past 12 months, I have found Pearl to be a most amenable company, who are open to changes and progressive ideas. From my experience, they appear to be genuinely interested in drummers' requirements. And I decided that from my check on Pearl that the set that I wanted was something that was called wood and fibreglass.

This is a mixture kit.

Yes. With wood on the outside and fibreglass on the inside.

It's not actually a mixed material then. It's like two seams welded together.

Yes. It's fibreglass sprayed onto the inside rather like they do ceilings. I found that I wanted that because it gives the warmth of a wooden kit which is something that I'm used to after all, I've been playing for 21 years or whatever it is. In that time I've used basically wooden drums and I like the warmth of that but I like the extra brightness given by the fibreglass. I never have been much of an advocate of fibreglass drums per se.

Do you get projection out of it? Is it the projection of the sound or the brightness, or what is it that you get from fibreglass shell-lining?

Well, you get a much harder brittle sound. I mean which is perfect for Billy Cobham although he's made it his own because he's been using it and so it's a bit of a chicken and egg situation. But for the sort of music he's playing it sounds great. I don't think it would sound great for the sort of music that we're up to.

What sort of sound are you looking for from this mixture kit?

I think that... is what I'm looking for. I think that pure fibreglass or pure plexiglass or pure metal don't have the... they clang a little bit more. Which for some applications is good. □

MAXWIN THE YOUNGER BROTHER



Maxwin drums, by Pearl are the world's top selling "value for money" drums!

The Maxwin operation is established entirely separate to the Pearl factories, and the Maxwin factory, on the tiny Island of Taiwan, formerly Formosa, is the most modern drum factory in the world.

By specialisation and highly advanced mass production techniques, Pearl are able to

build and sell Maxwin drums at a fraction of the "quality" drum kit price. The result has been a fantastic breakthrough for Maxwin, as no other drum offers drummers so much at such low cost.

The Maxwin factory is an entirely self-contained operation. "In house" operations include such processes as chrome plating which are usually performed by a sub-contractor and by keeping all operations under one roof, Maxwin have achieved maximum efficiency.

The parent company Pearl are now the largest drum company in the world.

Maxwin are the only drums in the world that are produced entirely by automated processes.

The four basic kits available from Maxwin are the Stage 705 and 704 and Studio 504 and 503

Examples from the range are: The Studio 705, a five drum kit with a 22 x 14 in. bass drum, a 14 x 5 1/2 in. snare (metal), 13 x 9 in. 12 x 8 in. and 16 in. x 16 in. tom-toms, bass drum pedal, hi-hat, snare stand, wire brushes and drum sticks. Finishes are available in black, silver, blue or red hairline and blue or red glitter.

The Studio 503 is the kit designed for either the student or for the gigging

drummer who needs to travel light. It's a three drum kit which features a 20 x 14 in. bass drum, the 14 in. x 5 1/2 in. Power Shell snare, a 12 in. x 8 in. tom-tom, bass drum pedal, cymbal holder, snare stand, sticks and brushes. The 503 kit is available in red, blue or black Naugahyde.

EIGHT BROTHERS



Considering that Pearl's a family, it's appropriate that the range of tom-toms made by the company are called The Eight Brothers.

The reason is obvious when you see this range of stand-mounted, single-headed tom-toms. They're available in either fibreglass or phenolic shells and they are in four pairs. The pair sizes are 5 1/2 in. x 6 in., and 5 1/2 in. x 8 in., 6 1/2 in. x 10 in. and 8 in. x 12 in., 9 in. x 13 in. and 10 in. x 14 in., 12 in. x 15 in. and 14 in. x 16 in.

PEARL PERCUSSION

Pearl is not only drums, it's a whole range of percussion. Perhaps the most interesting item in the Percussion range are the all fibreglass shell conga's in three sizes Quinto, Tumba, Timbador, sizes 10", 11", 12" x 28" which are available in black or white finish.

The fibreglass shell gives great tonal response coupled with tremendous strength. Specially selected split calf heads are fitted for ease of playing, plus tremendous projection. They will be available initially in matched pairs of Tumba and Tumbador 11" and 12" initially with the 10" Quinto available to special order.

The pairs come complete

with double stand with long legs for playing in a standing position. Traditional method of construction for hand drums has been the wooden coopered shell, usually maple-wood, fitted by patient bending with application of heat or steam to the wood the result shell held together by a jubilee clip. The main problem has been that wood is still changing its shape (remains porous); this inevitably leads to the wood splitting at the joints with result at loss of quality.

Fibreglass has some of these problems being completely nonporous with great resonance and volume. Pearl have invested thousands of

pounds in a completely new top secret fibreglass machine and with the success of the construction of the all fibreglass shell of the fabulous drum kit a natural and logical step was to progress to Conga drums.

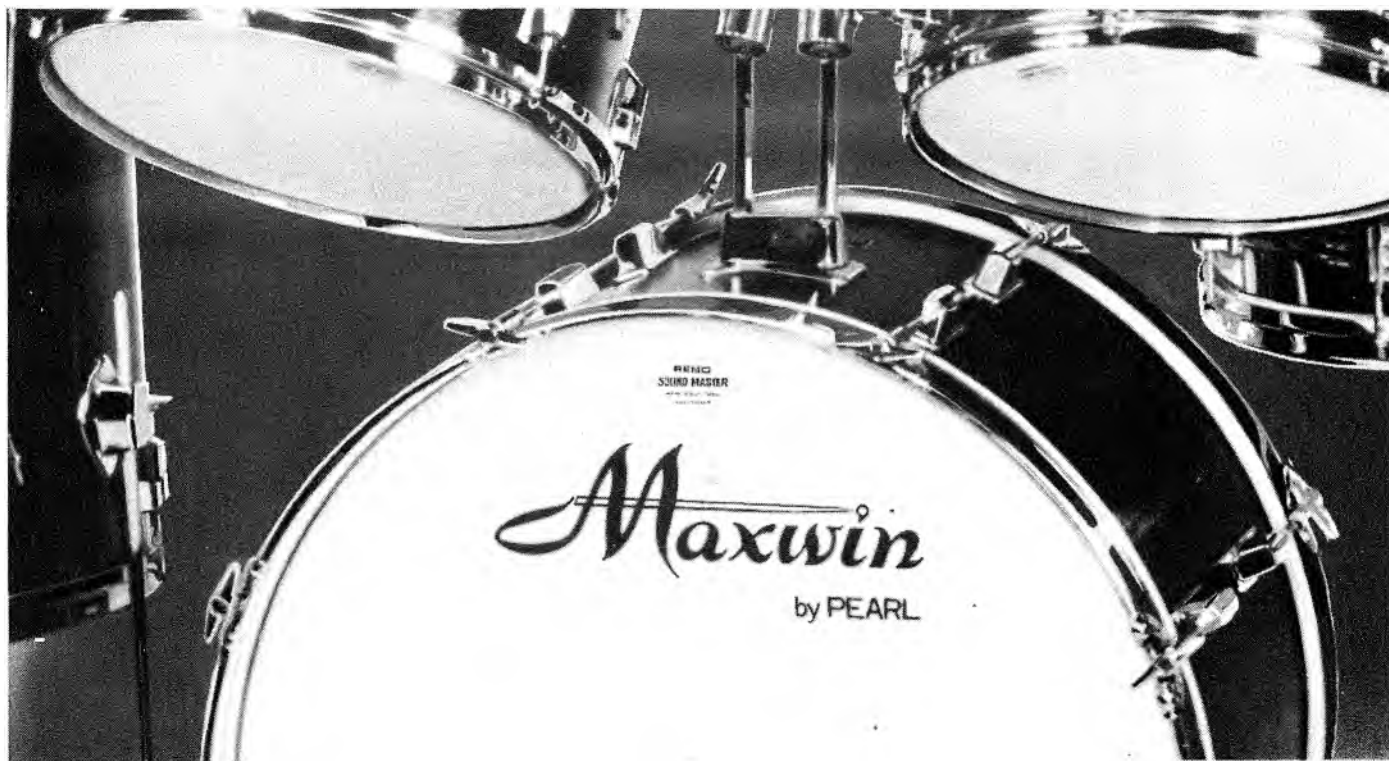
The colours at present are limited to black or white, but with the application of the fibreglass being self-coloured right through the construction of the shell, scratches can be polished out with ease.

To complete the Latin Percussion, Pearl includes timbales with brass shells and also offer a range of timbales with a choice of shells which include the normal range from chromed steel and an

extra special brass shell of similar quality to the superb range of snare drums.

Also to be available shortly will be phenolic constructed shells. These are layers of paper and resin fused under tremendous pressure into a shell of uniform thickness and with perfectly smooth inner surface for extra tonal brilliance. The drums are 13" and 14" shell size and are fitted to a very sturdy rigid stand with a tilter to enable them to be incorporated into the drum kit if required.

On the tuned percussion front, Pearl are introducing a new vibraphone 3 1/2 octave which made their debut at the London trade show.



If you can't beat them, join them

As Butch Miles says, you can't beat Pearl Drums. But you can join the happy band of drummers who enjoy Pearl quality even if you aren't quite ready yet for the full Pearl experience.

Because Maxwin drums are made by Pearl to match the needs of young drummers on their way to the top, at a price they can afford.

Get behind a Maxwin kit soon!



Pearl
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DRUM OUTFITS AND ACCESSORIES

Ed Shaughnessy gives his Pearls a lot of stick.

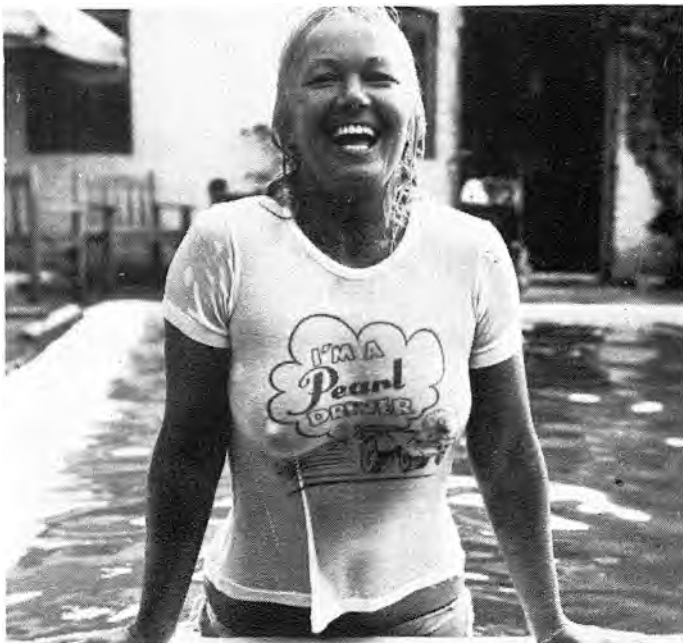
Great performers like Ed Shaughnessy and Louie Bellson give their Pearl drum kits a lot of punishment. And still expect them to perform perfectly.

And they do—because they're the best you can buy. So why not follow the big performers' example and choose a Pearl drum kit. You can choose from Fulldimension, Rock Kit, Soundventure, Powermate, Image-Creator or Dynamax-Thundaking.

Or if you're a semi-pro with an eye on your bread there's the new Maxwin range of professional drums at semi-pro prices. It's worth noting that all Pearl and Maxwin drums are fitted with 'Remo' heads. And there's a complete range of accessories

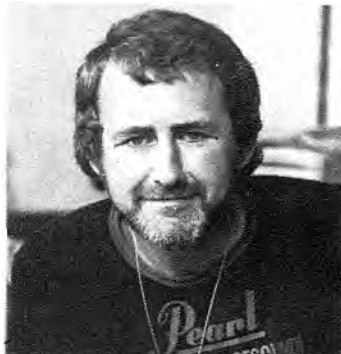


Pearl at all good music shops and drum specialists



The delightful Helen has forgotten to take off her Pearl Driver T-Shirt before diving in! Pearl T-Shirts are available from your Pearl drum dealer.

GLYN THOMAS



Glyn Thomas is the man who links British drummers to the Pearl Family. He's the U.K. Percussion Promotions Manager for Norlin, Pearl's U.K. distributors and

mounts all of the drum clinics and promotional activities that have made Pearl top of the league in Britain.

He's a drummer and has been playing sessions for well over 10 years. In the 'sixties he played for several well known bands including the Bo Street Runners and today he's still doing session work for broadcasting and recording.

If you'd like to write to Glyn regarding any aspect of drumming, write to him at Pearl, Post Box, 17 Tavistock Street, London WC2E 7PA.

Pearl Necklace

The drumstick necklace is the universal symbol which means you're a member of the Pearl family.

Doesn't matter where you're from, if you see somebody else with a necklace, you know he belongs. You can only get a drumstick necklace when you buy a Pearl drum kit. It's like joining a club, the language is international: it's drumming.



Drum Recording

Drum recording has almost come full circle! In the beginning of recording, the drummer would cause the most problems. Listen to recordings made before the WW II and the worst sounding instrument is always the drums. This is because drums are the most dynamic of all instruments and dynamics is the biggest problem microphones have.

In the 'fifties and 'sixties, recording techniques developed at astonishing speed. The really big breakthroughs occurred in the 'sixties when separation techniques were fully explored and the drummer often ended up in a room all by himself, looking at the other musicians through a window!

In this way studio engineers could control the drumsound from spilling over into other microphones and at the same time they could work the kit to improve the sound.

The drum sound is always the give away in amateur recordings. Engineers spend hours getting a good drum sound in the studio and many American studios have installed permanent kits so that they can be sure of a really superb drum sound on every session. The process that developed in the 'sixties was to approach the drums as a totally different instrument to their original conception.

When you listen to a drummer on stage, the sound you hear is a combination of many different sounds. The original tone produced by the batter head moving the air in the shell is resonated (and altered) by the bottom head and the sound produced is projected and reflected by the floor, walls and ceiling. The end result is that the listener hears a sound that is the product of two heads, a shell, many rattles and squeaks and many reflections.

In the studio, the sound changes. The studio walls, floor and ceiling have traditionally been made non-reflective so that the mike only has to listen to

one sound source so that once in the studio the drums will sound different, because the sound reflection is not going on. For that reason, the bottom head on a drumshell, which is usually provided for projection purposes, becomes less important and may actually interfere with the clarity of tone. For the same reason, and also because the microphone can be placed within a few inches of a drum, volume is not required, so the projection devices built into the drum are not required. For this reason, engineers have taken to controlling the "ring" on drums by using damping devices like blankets in the bass drum and dusters taped over the snare head (batter) to deaden the sound and make it record better. That is the general state of play in drum recording.

But the wheel has turned full circle. Many recording drummers are now saying that this approach to drum recording (which has dominated recording in the last ten years) is no longer justified. They claim that the "life" is sucked from the dead drum kits and that although they might have a pleasing "thud" sound in the studio monitors, they don't sound like drums ought to. At the same time as this opinion was being voiced (for the first time about three years ago), studio technology had advanced to a stage when mic. controls (like limiters, compressors etc.) had advanced enough to control many of the problems that had best drum recording.

Today, studios are being built that aren't totally sound absorbing. Live studios are becoming the order of the day and the more adventurous engineers are doing little work to the drum kit (there may well be a few perspex separation screens) but concentrating on getting the right sound on the monitors by using graphic eq.

The result is that the drummer can play natural, the kit sounds the same as usual, and the "new" drum sounds are often more exciting than the old ones.

This newspaper is not called the Pearl Family without reason. Pearl is a Family. Apart from being a family firm run on the same lines today as it was in 1917, Pearl make their distributors and customers in



About Pearl



every country part of the family by involving them in the world of Pearl.

Many distributors visit the instrument factories in Japan on a regular annual basis and in addition to normal business conferences, the Directors of Pearl spend a considerable amount of time socialising with all their major distributors at the International Trade Fairs — in London, Chicago or Frankfurt for example. The aim behind these meetings is to discuss the requirements of each country and plan together promotional campaigns and new product launches.

The drummer is brought into the family by the activities of the Pearl dealers who, Pearl believe, are vital members of the family in recruiting new members. Dealers all over the world mount Pearl drums clinics and promotions and drummers are invited time and time again to get to know Pearl and the Pearl family.

Marketing Director of Pearl is Gerry Evans. He's a drummer himself (from 'way back) and at one time or another has worked in promoting almost every major make of drums available in the world. Now Gerry's found his home as part of the Family and he sees the role of the Distributor as the most important factor in bringing goods into any foreign market.

"Without the distributor, it would not be possible to offer good delivery times,

comprehensive ranges and such keen prices," Gerry says explaining his marketing philosophy. "The distributor has to programme his ordering schedule six months ahead of the market and commit himself to large financial obligations. The distributors effort is backed up by his Main Dealers, and he is given up to date information by his salesmen who are continuously touring their areas ensuring that the Pearl situation is good for all relations of the Family.

"Everyone plays a highly important role in the Pearl Family operation and the success is a matter of teamwork. The local music dealer stakes his hard earned reputation on the quality of Pearl drums and because he has confidence in the family and its products he relates this to his customers. All Pearl products are *TRIPLE* guaranteed; once by the music store, again by the distributor and once more by Pearl themselves. Because the two Yanagisawa brothers are carrying on the Pearl business as their father did before them, they are concerned with maintaining the fine traditions already laid down. Pearl don't sit back, however, and congratulate themselves on their outstanding success. Whilst other drum manufacturers have museums glorifying their past, Pearl is busy looking to their young research and development team to show them the future.

Inflatable drums or electronic drums — you can be sure Pearl have researched the possibilities for the future.

Keep looking at Pearl — there's going to be a lot of good things happening.

ANDY RECORDS WITH PEARL

Session man Andy White has been playing drums for about 30 years. He's played on many, many hit records and he's also the percussionist Marlene Dietreich insists on whenever she appears.

Andy started drumming in the Boy Scouts where, with the encouragement of his father, who was also a drummer, Andy developed his playing. He didn't become professional immediately when he left school, but he was living by his playing within five years and he has never stopped.

Today Andy plays a Pearl drum kit. His choice is the wood and fibreglass combination shell and the



drum sizes he uses on his standard kit are 22in bass drum, 13 x 9 and 16 x 16 tom-toms and a regular snare.

Rubettes pop on Pearl

John Richardson, drummer with the phenomenally successful Rubettes, plays a Pearl Rock Kit!

John's a zany member of one of Britain's most successful Pop bands and his kit is a five drum fibreglass outfit — he needs maximum projection.

Highspot of the Rubettes fantastic act is when he and the guitarist do a drum duet — which has to be seen to be believed!!

The Rubettes have been one of Polydor's most consistent chart scoring groups in the UK and their act now travels the world.

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THIS month's special offer ! Any one

spending £30,000 or more get a free yes free music shop !

Bring some gorgonzola and have a cheese roll on the drums. We stock everything from Evans heads to chocolates with the less fattening centres and cheap ! our prices are so low if we cut them any more we would be paying you to take stuff of our hands!

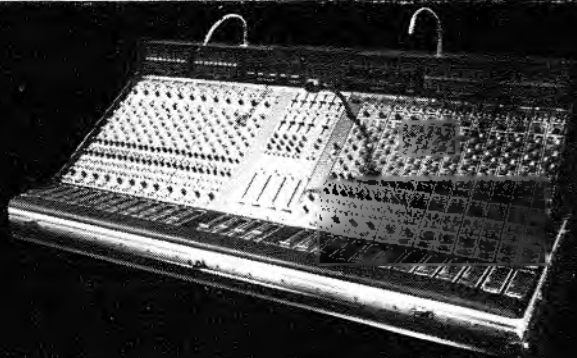
All this and more at Bongo Bills (the little shop with the big heart)! YUK!!

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STRAMP



GUITAR SYNTHESIZER "SYNCHANGER 2"

This true synthesizer has been developed especially for guitar, and other sources like microphones (voice), etc. This unit produces a complete new tone scale quite different from the original source.
SPECIFICATIONS: Voltage controlled oscillator (VCO) producing pulse wave form with variable pulse width, voltage controlled filter (VCF) with resonator, voltage controlled amplifier (VCA), temperature compensated frequency follower and tone oscillator, changing pitch into voltage, low frequency oscillator (LFO) for modulations, envelope generator and source generator.
Voltage selector: 110, 220, 240 V, 50-60 Hz, 1 mains switch w. indicator.



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The MPS-21 portable mixing console has been designed for highest professional requirements. It offers 9-band EQ per channel, LED's peak reading meters, overload control plus VU per channel, independent routing to submasters and masters, large faders with 100mm fading way and an extremely low noise level (127dB). The MPS-21 is built into a rugged aluminium tight case for maximum protection and easy transportation.

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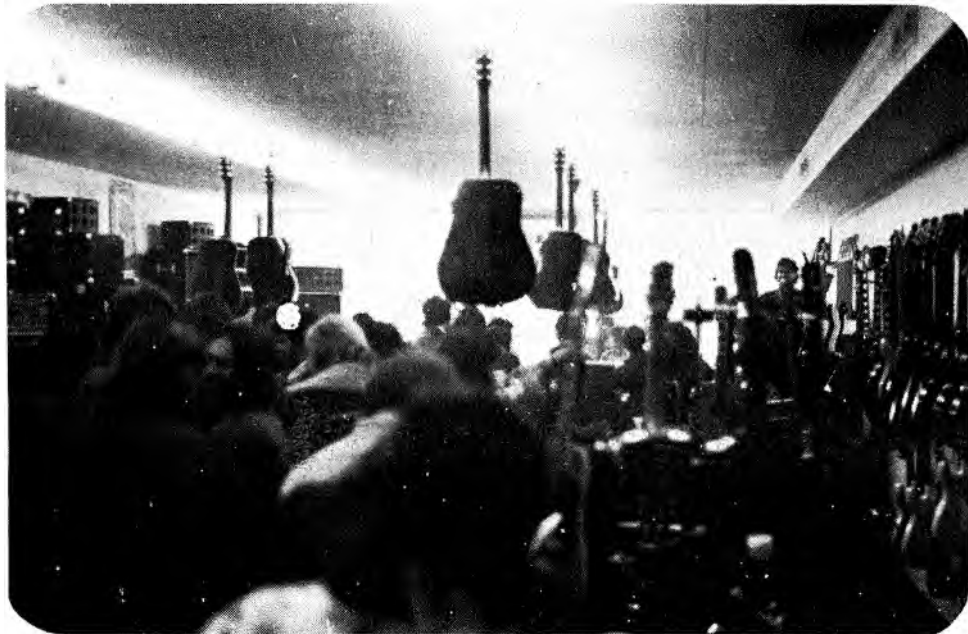
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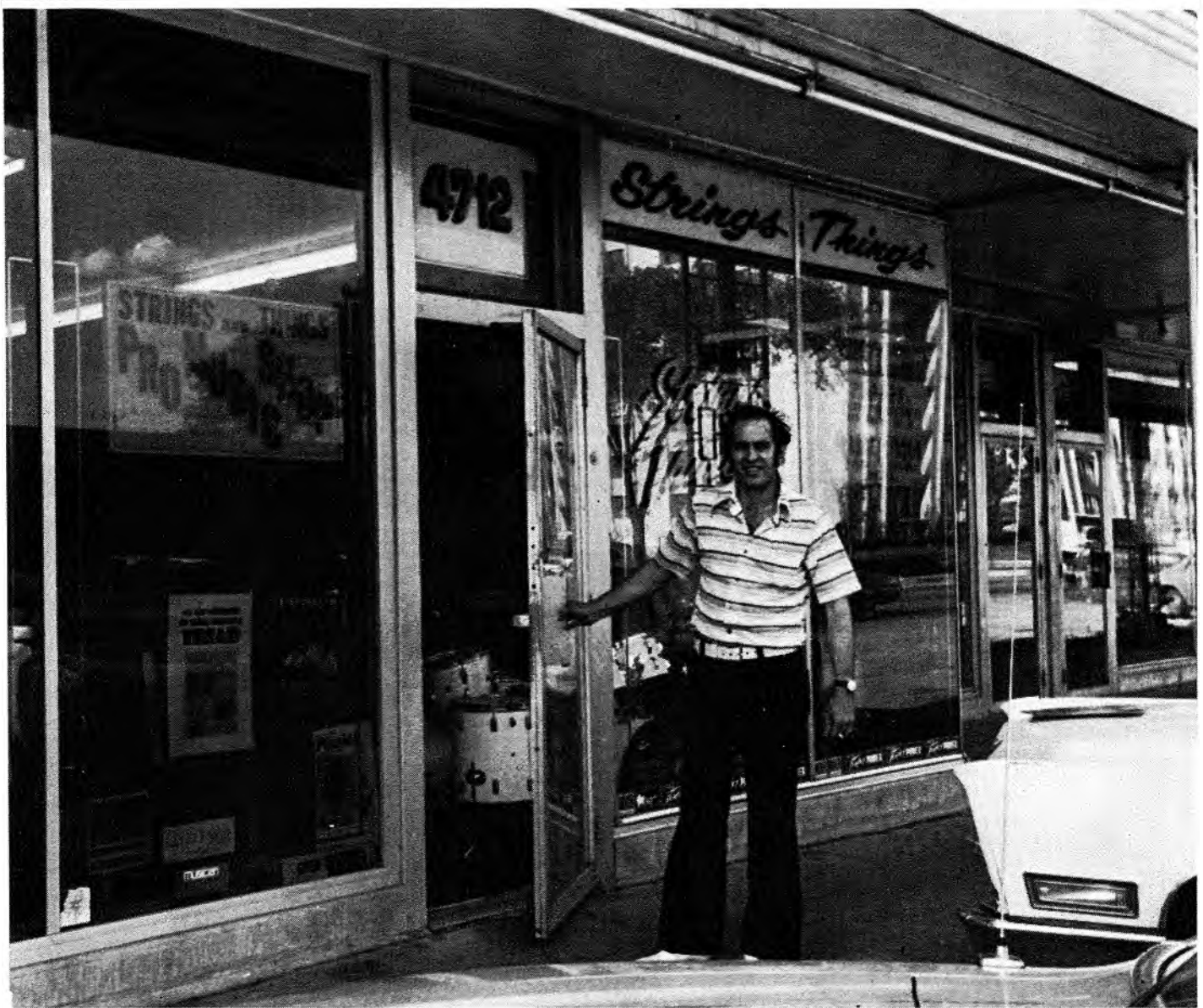
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Chicago's only PRO SHOP
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TERRY FIELDS, Mgr.
ANDY PAPPAS, Owner



STRINGS & THINGS

Life is tough on the South Side of Chicago. When someone tells you they were brought up on "The South Side," you know they understand the same language as those from Brooklyn, London's East End or the Gorbals. Andy Papas comes from The South Side. Today he's an international record producer and runs one of the best musical instrument stores in Chicago - Strings and Things.

The shop describes itself as being a "Pro Shop" and a policy of stocking only professional-type equipment and instruments has been adopted since the opening in October 1974. The shop is sandwiched between a Deli and a shop selling New York bagels and, once through the door, the visitor is aware of how remarkably well-stocked the shop is. Strings and Things exhibits the proof of Hartley Peavey's success. From floor to ceiling for the full length of the shop, Peavey gear is stacked high. The satin steel knobs glint dully against their matt black panel backgrounds and the design is one which speaks of almost limitless power. Down the other side of the shop is a fantastic range of guitars. Business is hot at Strings and Things and Andy and shop manager

Terry Fields say that new Fenders and Gibsons are hardly on the shelves before they're out the door.

Andy hangs out in the shop as much as he can. He's a musician from way back, is as well known amongst the musicians in Chicago as he is at the studios. His sister Vasi helps out in the shop and, with his associates Billy Dennis, Jimmy Stognoff and Richard Evans, Andy is able to find the time to look after his varied interests.

Andy started out as a drummer but took the safer route of study and left college with degrees in Architecture and Engineering. During his studying and later, even whilst working in his chosen field, Andy kept playing drums and it was whilst he was working on Chicago's most impressive skyscraper, The John Hancock building (where he now lives), he developed his love for music.

In 1964, Andy started producing pop, Rhythm 'N' Blues, Jazz and Greek ethnic music. The recording bug hit him hard and by the late 'sixties his career had switched to music full time and his records were selling all over the world. For a while Andy played the role of "jobbing" producer, making jingles for commercials and generally getting a feel for the recording industry.

"I started Strings and Things because there wasn't a pro shop in Chicago," says Andy, explaining his reasons behind opening the shop. "My sister-in-law had been running a shop called Strings and Things in Denver and I thought that was

a really good idea, so we opened here. Terry was the manager over at Denver and he came here to get us going but there's actually no connection between the two shops."

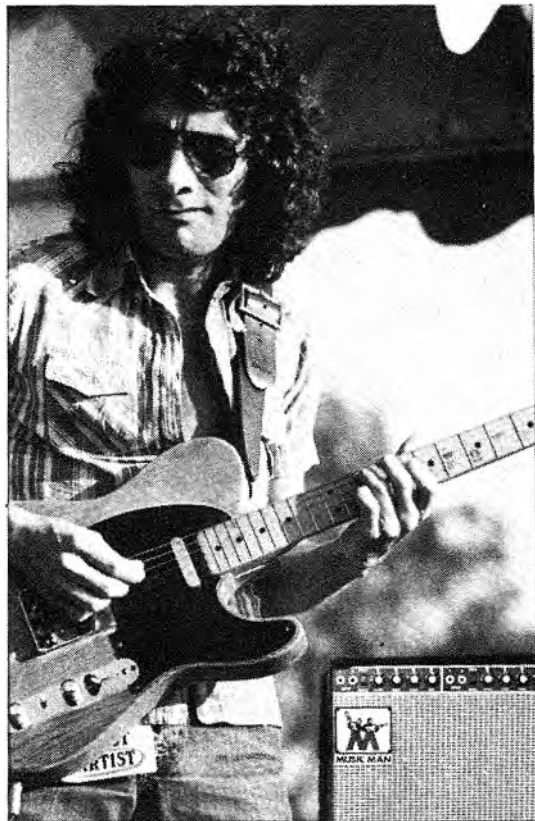
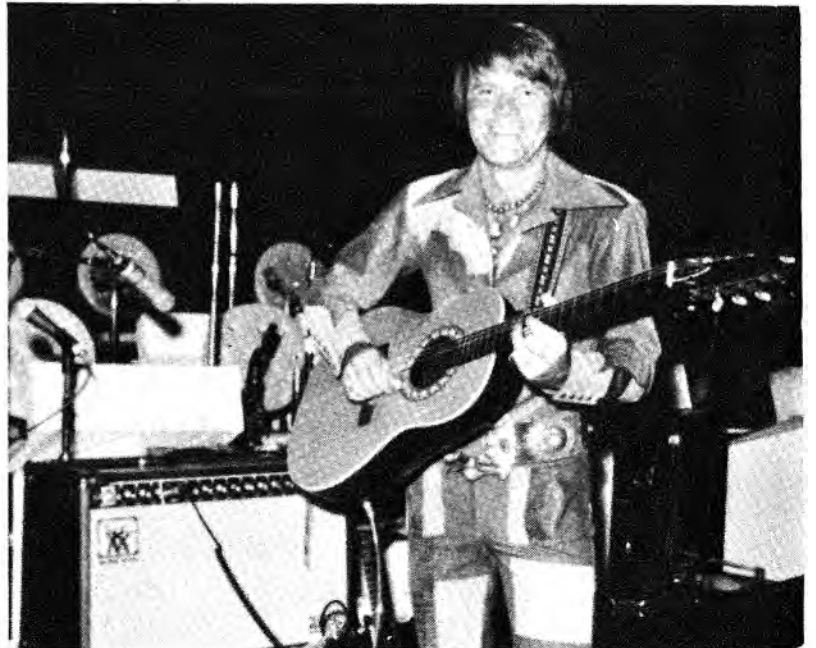
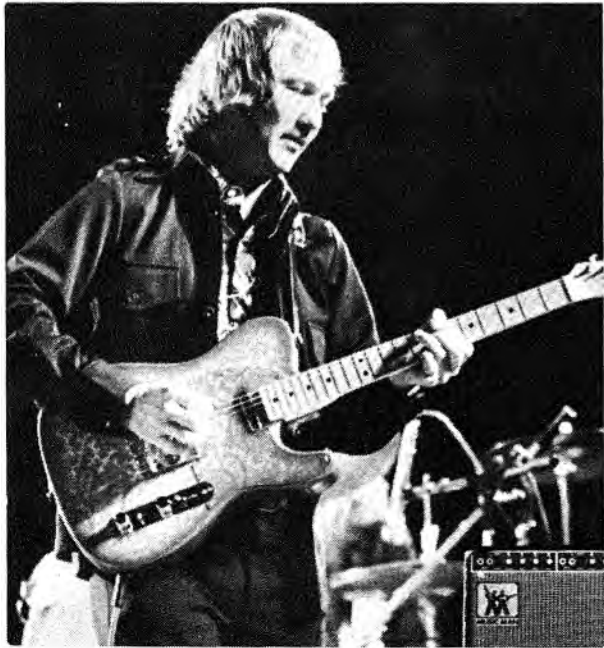
A major side of the Strings and Things operation concerns P.A. rental. The shop has several high-power rigs available and they are constantly adding to their rental stock as the P.A. rigs they have are booked solid for months ahead. The gear is usually rented out including a crew to operate it, and several major tours have been undertaken in this way.

Because Strings and Things is a pro shop, a lot of British equipment is carried. Marshall and Orange equipment is on display for the big touring bands who stop by, and despite the fact that there isn't a percussion display, a large range of spares and drum accessories are carried.

Electronic repairs are about to be undertaken "in house" with a full-time electronics engineer joining the staff, and the shop can also carry out the more straightforward instrument repairs.

Opening hours for Strings and Things offer a chance for almost every musician to make a visit. Monday to Friday it's 11 a.m. to 8 p.m., Saturday 11 a.m. to 6 p.m. and Sunday 11 a.m. to 5 p.m.

Strings and Things is a pro shop run by a professional. Andy's as concerned that S & T is successful as he is that his new group Rasputin Stash or singer Andres Barnoulis sell a million records.



Top: Eric Clapton; centre left: James Burton;
centre right: Glen Campbell; bottom: Albert Lee.



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From President Roy Morris

General approval has been expressed at our decision to remain at the present venues (Bloomsbury Centre and Russell Hotels, and the Connaught Rooms) for at least 1976 and the two succeeding years, and until a suitable exhibition centre is built in the London area capable of accommodating the entire B.M.I.T.F. (including, of course, organs and pianos) under one roof.

When we returned to our traditional London venues in 1975 after an absence of one year, I predicted that the move would lead to new records in terms of both turnover and number of trade visitors. In the event that forecast proved to be justified, despite the period of recession through which many countries (not least the United Kingdom) were then passing. Now that the economic climate is improving there can be little doubt that new records will be established in 1976.

Export markets in the main are buoyant, and early reports indicate that we can confidently expect to see more overseas customers than ever before — naturally, spending more money with us than ever before!

The U.K. market has undoubtedly benefited as much from the rationalisation of V.A.T. rulings, and the removal of previous uncertainties, as it has from the lowering of the "luxury" rate from 25% to 12½%.

On behalf of all members of the A.M.I.I. and our two sister organisations the E.O.D.A. and the P.M.A., may I extend a warm and hearty welcome to all our visitors from home and abroad, whether old friends we have seen many times in the past or new friends for whom this is an initial visit — but whom we hope will re-visit us often in the future.

BARNES & MULLINS

B & M will be showing a broad range of instruments at the AMII exhibition this year, including the Shergold Masquerader guitar, a twin pick-up, maple neck six-string, and the Marathon bass guitar. Also on show will be a full range of Barnes and Mullins' Spanish guitars.

BARRATT AND ROBINSON

The frequency of new piano models tends to be a slow business, but Barratt & Robinson will be showing their Kastner model, first introduced last year. Also on show at the B & R stand will be several standard pianos, including their own Barratt & Robinson models and the Challen model.

BELWIN MILLS MUSIC LTD.

Belwin Mills will display a wide and complete range of educational, serious and popular music publications from the following catalogues: Belwin Mills Music, Edwin F. Kalmus, Mel Bay Publishers, Dover Book Publications, Southern Music Publications, Edition Sikovski, Reids Music, MCA Publications, Hal Leonard, Da Capo Books and Recordi & Co.

BENELUX MUSICAL INSTRUMENTS LTD.

Two new organs in the Riha range will be show at the exhibition. The Saturn is a new organ which features three pitches, percussion, vibrato delay and pedal sustain plus memory. The Jupiter is similar, but also includes polyphonic voicing giving an ensemble effect plus solo voices including Hawaiian guitar, harpsichord, piano and clavinet. The rest of the Riha range will also be on display.

BENTLEY PIANO CO.

Bentley will be showing their usual full range of pianos, with no new models this year. They include six, seven and eight and a quarter octave upright pianos in a variety of finishes including mahogany, walnut, teak and ebonite.

BOOSEY & HAWKES

B & H are proud to present their new B flat Sovereign Trumpet and are asking dealers to come along and judge for themselves. Other new lines include the Golden Strad Bow, available for cello in 3/4 and 4/4 sizes, a new oboe which should be on show at the fair and

available soon afterwards, the ARP Synthesizer, which will be demonstrated continually and will include the latest clip-on unit, the Sequencer, plus one or two new goodies from the Diamond Organs range.

JOHN BROADWOOD & SONS LTD.

The showpiece for Broadwood at this year's exhibition will be the new Omega piano, previewed at Frankfurt last March which features a strong but light cast iron frame which needs no bracing. The piano is overstrung and has an almost completely dome-shaped sound board. Broadwood will also be showing their Model 82, 8F, 22, 10F, Studio, 65, 82B, 58 (7' grand) and 246 (5' grand).

BURNS (UK) LTD.

The recently introduced Flyte guitars and basses will be shown at Burns first AMII show, along with two completely new guitars, the Artist model, featuring a more conventionally shaped body made from solid mahogany. The pick-ups are similar to the Flyte's, although the controls are a little different, comprising two volume and two tone controls. The second new item is the Mirage guitar, which is distinguished by an out of phase switch.

ARTHUR BUTLER & CO.

Butler will be showing their new organ, the Regal Princess, which is manufactured in Italy and features two 44 manuals with excellent reed and string voices. The instrument provides nine rhythm tempos with Auto-chord, percussion and wah-wah effects. The full range of Kawai organs will also be on show, including the Models E60A, E90A, E120A, E220A, E300A, E500A, and E600A, and a full range of WLM organs.

CARDIFF MUSIC STRING CO. LTD.

CMS will be exhibiting the full range of Sound City strings including for the first time a new bronze wound set no.2000, made with exclusive half hard bronze and not the regular brass used and marketed as bronze, which gives a brilliant tone with long sustain and resonance.

Also on show will be the range of Kay guitars, which are still relatively inexpensive although the quality has greatly improved. Most of the Concert size models are now manufactured in East Germany. An example of this

series is the concert size folk guitar Model K320, featuring a 14 fret fingerboard and laminated neck.

CARLSBRO

One of the most exciting new developments on the Carlsbro stand will be the new Mantis Echo. This unit employs the latest concepts in digital technology to create a wide range of clean, undistorted echo, reverb, repeat and phasing effects. Special features include 240 push button selections of echo delay and swell, slider controls, illuminated foot-switch and Rotafaze.

Also new are the Wasp and Hornet amps, rated at 10 and 25 watts respectively. Carlsbro's latest cabinet design is the 1 x 12 1H column, with the Powertone 12" 100 watt speaker plus an RCF horn capable of handling 120 watts in pairs. Also on show will be the Marlin, the Stingray and Stingray Super amps and combos.

CHAPPELL & CO.

Chappell will be displaying a large range of publications as well as a completely new range of catalogues. On their stand there will be music catering for all tastes, including pop folios, standards, classical and educational music plus choral and instrumental folios.

CHAPPEL PIANO CO.

Chappell will show four new models this year: the Chappel Europa, a 3' 7¼" high piano, the Chappel Europa School model, measuring 3' 9¾" high, the Chappel Concerto model and the Chappel Model "C" Remmer Action piano. Chappell also hope to be showing their new Grand, although as I.M. went to press, it was uncertain if it would be ready for the show. Other models on show include the Model "B", the Chappellette and the "C" Schwander Action.

CLEARTONE

To supplement their new range of bins which fit most band's vans (and pockets), CMI have now introduced the Maximin 120 all purpose folded horn cabinet, containing a 12" 50 watt Celestion. The maximin range now includes 50 watt, 100 watt and 300 watt bins, with or without horns, and fitted with Celestion, Marsland or Cerwin Vega speakers.

J.T. COPPOCK

Coppock of Leeds are exhibiting their full range of Antoria guitars, which



Sonny Payne

U.S.A. drum star of Harry James' orchestra and one of America's ranking percussionists, about his Sonor drums. Sonny's remarkable rapport with his instruments is shown in this action picture.



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.



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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



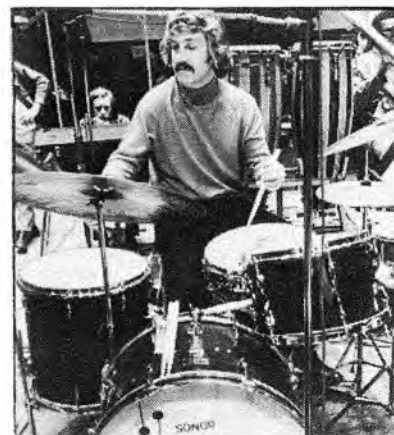
Tony Mann

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now includes the low price range of Cimar electric guitars. Two new models have been added to the Tama western guitar range, and quite a number of new guitar accessories will be on display. For electronics wizards, there are several new effects units and microphones, four Cimar amps and the latest Elgen amps and speaker cabs, some new brass in the student range, and also some new violin outfits.

W. DANEMANN & CO. LTD.

Danemanns will be showing their normal range of instruments at the exhibition, which consists of one Grand and five upright models.

W.G. EAVESTAFF & SONS LTD.

Eavestaff's will be showing a range of their pianos, which will include the 685 walnut setting figured, the 685 figured mahogany walnut coloured satin, the 685 teak, the 88 mahogany polyester, the 88 walnut satin figured, the 88 teak and the Mini-royal 90 teak.

ELKA ORLA

Two main models will be on show at the Elka Orla stand this year, the Artist and the Preludio 22 models. The Artist features two manuals of 49 keys each, the upper consisting of nine footages incorporating piano, violin, cello and clavichord; the lower has the same voices, plus Rhapsody strings. The keyboard also includes a 16 rhythm Rhythm Unit and Pedalboard. Elka Orla will also be showing the well-known Capriccio 33/OL and Notturmo 66/OL, which now include the Rhapsody string effect, along with their usual full range of keyboards and keyboard amplification.

EMI MUSIC

EMI will display a comprehensive selection of music for Electronic and Chord organs, including the first of a new concept in organ music, the Fun Organ Folio. Displays of music for other instruments will include additions to the Music Makers series.

FARFISA

A number of home organs will be shown from Farfisa's full range at their stand this year, including the Balfour, the smallest of the seven Spinnet organs now available from Farfisa; the Beaumont, which also incorporates the Partner 14 Rhythm Unit with

a 44 note (F-C) upper manual with flute 16', flute 8', clarinet 8', oboe 8', flute 4' and piccolo 4' and a 44 note (F-C) lower manual with flute 8', clarinet 8', reed 8' and volume control; the Balmoral, which is a two manual Spinnet model incorporating the Partner 15 rhythm unit; the Berkeley two manual Spinnet, also incorporating the Partner 15 rhythm unit with Bravo and Easichord and 15 note pedalboard; The Beresford two manual spinnet and the largest in the series, the Buckingham.

FLETCHER, COPPOCK NEWMAN

F, C & N will introduce almost 200 new lines at the show. Chief among them is the Kimbara Maestro classical, folk jumbo and twelve string guitars, plus two new classical and three new jumbo instruments in the Lorenzo range, along with an additional classical model in the Spanish Victor Garcia line. The Kent range and the Satellite range of guitars will also be on show, along with the Kimbara effects pedals, pick-ups and machine heads. Guban Saxophones will be on display, with their nickel plated keys and redesigned articulated G sharp, along with F, C & N's normal range of products.

GENERAL MUSIC STRINGS

Heavy emphasis on the GMS stand this year will be placed on wall banners and posters, showing the various top bands and groups who use Picato strings. The most important announcement at the fair, as far as GMS are concerned, will be the brand new Picato string pack designs. Peter Nicholas Engineering Ltd. will have a completely new dealers catalogue showing the vast range of stands which this company now manufacture for the music trade.

GUILD (U.K.) LTD.

This new company set up to distribute Guild guitars, amplifiers and accessories in the U.K. will show a range of Guild amplifiers which are new to this country, including three combos. New Guild guitars on show will include the acoustic folk bass guitar, and Mr. Neil Lilien from the U.S.A. will be in attendance to show some prototypes of newly designed electric guitars.

HABIG KIMBALL LTD.

The European distributors of Kimball organs and pianos



Carlsbro's Mantis effects unit

will introduce a range of new organs, the five Kimball Swinger Organs, models 90, 390, 470, 770, 1090, together with their most recent innovation, the Entertainer III. This model introduces the Swinging Fingers feature, providing rhythmic background patterns on the upper keyboard which range from a few notes to complete arpeggios, plus all the components of the company's Entertainer II. Kimball's Swinger Bass, a recent addition to the Magic Chord feature, will be on the 390, 470 and 1090 models.

HAMMOND ORGANS

Hammond will be showing an extensive range of their well-known organs along with Leslie speaker cabinets at the show this year. New models which have recently been introduced in Great Britain include the Sounder 3, which offers 48 chord buttons, a wide range of solo voices and a built-in memory function. Also there's the Super Dolphin Premier Deluxe, a model which features a Polyphonic Simulator, a special effect which expands the tonal potential of the instrument introducing a wide range of orchestral and organ tones. Also of interest will be the Hammond Aurora which features Polysynthesis Percussion, a particularly useful effect when used in conjunction with the built in Leslie.

HH ELECTTONICS

HH will be showing a full range of their products, including the recent VS range, the VS Musician Reverb 100 watt amp, the VS Musician 100 watt amp, the VS Bassamp 100 watt amp, all of which have valve sound control; the VS Musician Reverb combo 100 watt 2 x 12 and the VS Musician combo 100 watt 2 x 12, both with valve sound control and the corresponding cabinets: the 412BL 4 x 12 100 watts and the 215BL 2 x 15 twin ported 200 watt cab. HH will also show their range of P.A. equipment, including the MA100 and MA100S mixer/

amplifiers, the S130 slave and the 212DC and 412DC speakers.

HOHNER

A full range of harmonicas and melodicas will be on show, and the new Piano Melodicas 26 and 27 with Cassotto sound chambers will take pride of place. Keyboards on display will include the International range including the String Machines and the electronic and electric pianos.

The extended Korg range of synthesizers will be shown including the popular Polyphonic Ensembles I & II. The brand new Hohner Pianet Model T will attract a lot of attention at the centre of keyboard attractions.

Hohner will also be showing Moridaira guitars, banjos and mandolines, along with the hand-made Hops guitars. A complete range of Sonor drums will also be on permanent display.

HORNBY SKEWES

The recently introduced new Terada guitars will be on show including acoustic instruments and hand-crafted instruments along with Terada Classic, Western and Folk guitars. The range this year starts at the Folk Model F603 and ends with the hand made Western Model TW80. The Kasuga range of electric guitars and acoustic models has been extended to include the large semi-acoustic model SA600 and the modern design electric models. At the bottom end of the guitar market Palma acoustic and Zenta electric guitars fill the demand for quality at the right price. New J.H.S. guitars are being introduced, starting this year with three models, an electric LP62B model, a large Western model ME85 and a stereo electric Bass Guitar model RK24, all of which are in Black finish.

Effects on show include the Zenta phase pedal, lead connector sockets, an echo chamber under the Concert name, the American Systech pedals and the Italian Jen Motorphaser.

Various keyboard instru-

ments will be on show, the Eko Tivoli Chord organ, a new model with Auto-accompaniment, the new Crumar Rapide single manual Chord Organ, the Eko Rimini Deluxe and Emerald I with new features, the Logan Melody and String Orchestra and the Crumar Compact Electronic Piano CP77 with "stereo" type walking bass effect.

JAMES HOW INDUSTRIES LTD.

How are well known for their comprehensive range of musical strings, especially the widely-used Rotosound Swing-Bass strings. How are also introducing "two new items of particular interest." Details were not available as International Musician went to press.

KEMBLE & CO. LTD.

Distributors in this country for the Yamaha range of amplification and instruments, Kemble will be showing two British firsts at this year's exhibition: the Yamaha FG 180/1 acoustic guitar, the latest in the fine range of Yamaha acoustics and a much improved version of the old FG180, featuring a three-piece back and retailing

at under £100. The other "first" is the Yamaha G25-112 combo amplifier, a two input, one channel unit with reverb and sustain delivering 30 watts.

Kemble also hope to show some new models in the Yamaha P.A. mixer range, though at press time this could not be verified; the PM430, the PM700, the PM1024 and the PM1036 are the models in question. Also tentative is the showing of some hand-made instruments from Japan. New Yamaha organs on show include the B4DR with 3½ octaves, the B5DR featuring a Leslie-type effect, the BK20C with sustain on the upper manual, the DK40C with a super finish cabinet, plus the E10, the EX42 and the CSY2AE.

KENTUCKY ORGANS

Kentucky will be showing two new models at the show this year; the Chester and Winchester models, which will make their debut at the cheaper end of the range.

ALFRED KNIGHT LTD.

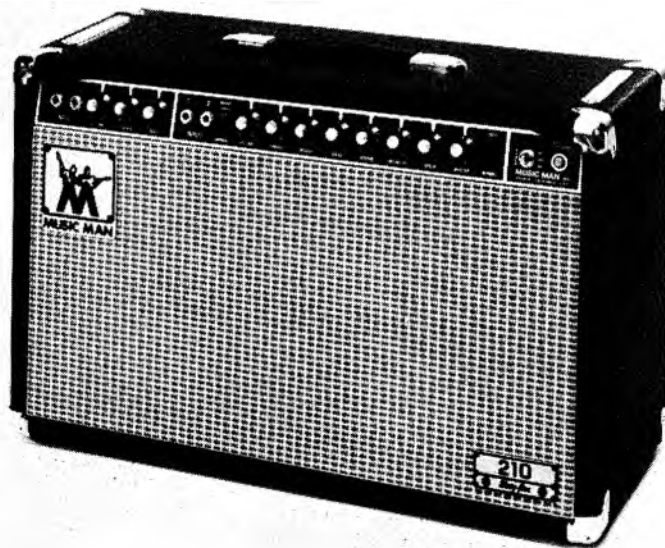
Knight will be showing their range of pianos, including the K10 Slimline Teak open pore matt finish with third pedal, the K10 School

Oak, the K10 Slimline Mahogany bright polyester finish, the K10 exotic walnut satin matt finish, the K6 Exotic Teak open pore matt finish, the K6 Slimline Rosewood open pore matt finish, the K15 Provincial Walnut bright polyester finish and the K10 Slimline Satin matt finish.

BILL LEWINGTON LTD

Lewington will be showing a wide range of instruments,

including Yamaha brass and woodwind. They hope to show the new Yamaha open-hole flute aimed at the student end of the market and the Yamaha soprano cornet for brass bands, assuming they are available in time for the show. Also on show will be the Leblanc and Noblet ranges of woodwind instruments and some unusual Chinese brass and woodwind.



Music Man 65 w lead guitar amp from Strings & Things



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M.C.H.

M.C.H. will be showing their keyboard instruments, including the Solina range of models, the Solina Semi-Horseshoe Model, the Solina Straight Model with multi-voice, orbitone and rithomatic, the Eminent Theatre models and the Solina string ensemble and tone cabinets.

NATIONAL PANASONIC LTD.

National Panasonic will be showing four new keyboard instruments at the show this year, they are the SX2500, which is the smallest in the new range, the SX3500, which includes presets for vibraphone, harpsichord, the SX4500 which will probably generate the most interest amongst visitors as it features a multi-tremelo unit, and the SX5500, the top model in the range.

ORANGE MUSICAL INDUSTRIES

Orange will be showing three new products this year, in addition to the normal full range. The first new item is the Jimmy Bean Voice Box, now coming into its own as an effects unit. Secondly, the new OMEC Digital Amplifier, which is basically a 150 watt

transistor amplifier with full effects including a complete compressor circuit, reverb and sustain, all of which are controlled by a push-button keyboard, with a total lack of rotary controls, and features digital circuitry throughout. Third "newie" is the mini-bin, a small reflex enclosure with a single 15" speaker and two horns, rated at 60 or 100 watts, depending on your choice of speaker.

OVERPELT-PLASCOBEL LTD.

O-P will be showing their full range of electronic organs including two new dual-manual models, the Magnus 3051 and the Magnus 3057.

PEAVEY ELECTRONICS

The new company Peavey Electronics (U.K.) Ltd., headed by Ken Achard, the first full fledged Peavey exhibition at the British Musical Instruments Trade Fair will feature the 24 channel Festival Mixer and the CS8000 stereo power amplifier, which offers 400 watts per channel.

An economic stereo booster amp, the 260S, rated at 120 watts per channel, will also be on display, as will

the 400 Booster, with its 200 watt mono and balanced or unbalanced inputs.

Peavey's PA700, a new Public Address Mixer amplifier offers 120 watts into each channel of the Stereo 7 channel front end, and also boasts pan controls on each channel, pre-monitor and post-effects controls and built in reverb. It is believed that this model, designed for the semi-pro, will attract special attention.

PREMIER

Premier will continue their tradition of featuring new products, including the new Super Olympic B1030, the 252 pedal, a new range of cases and a pair of drum mats. Also on display are more outfits from the 1976/1977 Premier Range, the D717 and the D305, the range of educational tuned percussion fibre glass pedal tympani, and marching drums.

GEORGE ROGERS & SONS

Rogers will have eight or nine upright pianos on show, either Rogers or Steinberg models, plus three grand pianos made by the Japanese manufacturer Kiwai.

ROSE-MORRIS

A whole new range of products will be on show this year, including Marshall amplification, Travis Bean guitars, Ovation guitars, MXR effects units, Avon Supavoice and Ludwig percussion.

New Marshall amplification on show will be the eight channel mini-mixer/amp. Each channel has independent volume, bass, middle, treble and reverb controls. The 30 watt lead combo is a 30 watt transistor amp in combination with two heavy duty speakers. The 100 watt lead combo is an improved model of the current transistor 100 watt combo. The Supa Bins are a compact speaker system, each bin housing a 15" driver unit, two horns and a crossover unit.

The new Travis Bean guitars will be on show, after having attracted so much attention at the NAMM show in Chicago (see our NAMM review in this issue). In the Ovation range, the custom built Balladeer acoustic guitar will be shown, and Rose-Morris will also be showing a full range of Eko, Shaftesbury, Avon, and Suzuki guitars.

New MXR effects on show

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Conventional Bodies



F-40

A deep body guitar to give you the presence you need in a back-up band or solo spot on your own. Beautifully constructed to produce that distinctive Guild sound. Its maple sides and back are available in 2 different finishes—blonde or mahogany shaded.

Details: Natural spruce top. Maple sides and back. Guild slim, fast-action, 3-piece mahogany neck with fully adjustable truss rod. Bound rosewood fingerboard with inlaid pearloid rectangular position blocks. Inlaid headplate. Schaller chrome plated machines. Rosewood bridge. Tortoise pickguard. White ivoroid binding and thin black stripes inlaid around body.

Dreadnaught Bodies



D-35

Beautifully close-grained woods in a dreadnaught body guitar with most satisfying tone quality and projection. Guild's fine construction and careful application of finishes are immediately evident in this more moderately priced instrument which is a favorite of so many players.

Details: Spruce top. Mahogany sides and back. Guild slim, fast-action mahogany neck with fully adjustable truss rod. Rosewood fingerboard with inlaid mother-of-pearl position dots. Rosewood headplate. Chrome plated fully enclosed Guild machines. Rosewood bridge. Tortoise pickguard. Dark shell binding around top and back.

Guild Guild Guild Guild

Hammond portables movable assets

No more need to put up with 'Second best'. Here are two portable organs with genuine 'Hammond Sound' which means good news for the organist 'on-the-move'.

Both the X2 and X5 offer the 'big organ' performance benefits of Hammond tonebars and touch response percussion yet can be easily dismantled for transportation.

Whether you are just starting out 'on-the-road' or already topping the charts, here are the models tailor-made for you.



The X2 and X5 do not have built-in speakers. For the ultimate musical effect, we recommend the use of either the Leslie model 760 or 825.



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will include the six band graphic equaliser, the ten band two channel graphic equaliser and the Blue Box, designed to add up to two lower octaves to the signal generated. The Avon Supavoice voicebox will be on display and the unit, normally associated with guitars, is equally applicable to keyboards and other stringed instruments. New stainless steel Ludwig drum kits will be shown, available in Probeat, Bigbeat and many others.

ROSETTI & CO.

Rosetti will be showing various new products at the show this year, including the complete range of SW amplification which is new to the London show. There will also be several new models in the Epiphone range of guitars.

The British made Hamma drums will be on display. Rosetti have exclusive world distribution rights. The Miazza P.A. set-up will also be shown, consisting of a six channel mixer, a 100 watt slave amp with an echo unit, all mounted on a frame making a very small but versatile unit. The echo-unit will also be available

separately.

The EMI 'R' series of guitars, a new range of acoustic guitars, will be shown, as will the new Shure SR range of amplification. This includes an Audio Console with eight inputs, the SR108 speaker system with six 8" speakers and four hf drivers, and rack-mounted power amps. Shure will also have their two newest mikes on show, the E/Qualidyne and the PE52 close talking mike.

SELMER

As from August 1976, Henri Selmer & Co. will be known as Norlin Music (UK) Ltd. after its parent company Norlin Music Inc. Henri Selmer will be retained as a trading name for Norlin UK's export division.

Moog synthesizers will have a full range of their instruments on show, plus the Mark 7 range of Selmer brass, along with the Selmer Paris Clarinets, Trumpets, Trombones, Flutes and Oboes.

Pearl will also unveil a new Maple kit for the first time, and a new range of Pearl Latin Percussion plus a quartet of Pearl U.M. Deluxe Mikes. Norlin will be showing

the full range of Selmer amps and speakers, plus Saxon Jumbo, Folk, Classic and Electric models, Tosco cymbals, and Maestro Special Effects.

SHARMA MANUFACTURING CO.

The main new model that Sharma are showing this year is the 3000 Multi-Channel Rotary cabinet. The first, Rotary, channel is rated at 90 watts with completely separate speaker units cutting out any cross-modulation between them, giving a better "stereo" sound and independent voices. The other two channels are straight sound, one a full frequency rated at 50 watts, the other a low frequency channel, also rated at 50 watts. These channels can be switched into parallel giving 90 watts of rotary sound or 100 watts of straight sound. Also on show will be the usual range, including the 500 Deluxe, the Sharmette, the 650, the 900, the 2000 professional range, the 2000 Deluxe, the 2300 and the 5000GT. The amplifier in these has been redesigned with a new pre-amp stage, giving a much quieter sound than previously possible.

SOLA-SOUND

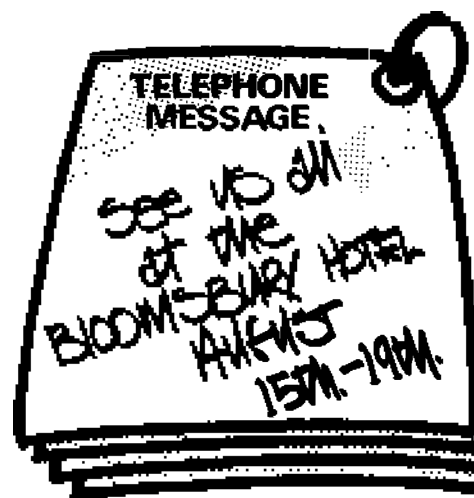
The Black Box effects by Eurotec will get their first British showing at this year's exhibition; these effects may be used either separately or clipped together as one mains-driven unit. The new range of Colorsound Jumbo recording model effects pedals will be shown, including updated and enlarged versions of most of the standard Colorsound range, which will, of course, also be on show.

STENTOR MUSIC

Stentor will exhibit their broad range of musical equipment. Of paramount interest will be a new range of Stentor hand-made violins, violas and cellos, a new and improved range of specialist craftsman's tools for string instrument repairs, Dogal strings, Hokada guitars, and the full range of Rampone & Cazzani flutes.

STRINGS AND THINGS

Strings & Things have been in existence about five months now and will be showing a full range of their various products, including Ernie Ball guitar strings, the



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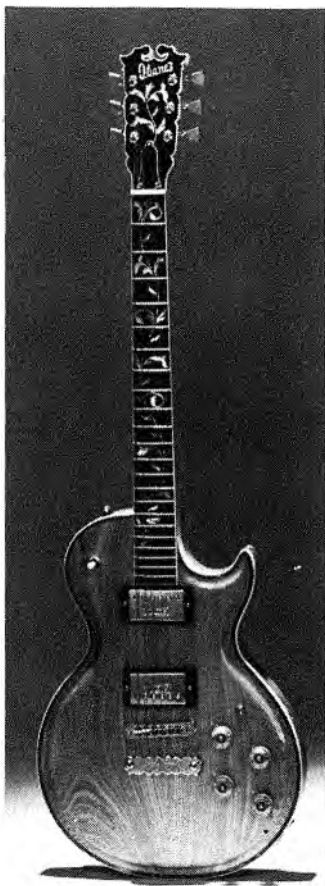
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new Barcus Berry amps, designed to be compatible with their transducer pickups, Rickenbacker guitars, Top Gear effects, D'Angelico strings and Morley effects pedals. Music Man, a separate division created to carry Leo Fender's new amplifier and guitar designs, including a range of valve combos and speaker combos in two power ranges, 65 and 130 watts RMS will debut this year. The complete Music Man amplification line will be on permanent demonstration as will the Music Man Stingray Mark I guitar and Stingray bass guitar which will become available in the U.K. in early 1977.

SUMMERFIELD BROS.

Guitars and percussion will be the tour de force at this year's fair. A new totally original range of Ibanez Artist and Pro guitars will be on show for the first time, along with five new CSL Western guitars. The full range of Summerfields Ibanez and CSL guitars will be shown along with almost 200 stringed instruments including Levin, Tamura, Matsuoka, Kohno, Cimar, Sumbro and Maccaferri. A specially selected range of Tama Imperial drums will be shown



A new Ibanez from Summerfield

on the stand, along with the Vermona range of accordions and the Barney Kessel 4100 amplifier by Univox, with 105 watts RMS output power.

WATKINS ELECTRIC MUSIC LTD.

Watkins, or Wem as they are more generally known, will have their full range of musical amplification on show. Star of the show as far as WEM are concerned, however, will be the new Copicat, a device which has been on the market for about ten years and will now appear in a new vastly improved model and at the same price as the previous one.

WHELPDALE MAXWELL & CODD LTD.

WM & C manufacture, import and distribute pianos; at the show this year they will be showing a representative selection of uprights and grands by Welmar, Marshall & Rose, Lutner, Hoffman and Zimmerman.

WOODS LTD.

Woods will be showing various classical, acoustic and electric guitars by makers including Ramirez, Welson,

Sanchis and Allegro. They will also be showing some new imported Korean guitars at the show. New Welson keyboard instruments on display will include the four channel organ, the Welson synthesizer and the Stereo string synthesizer. Another new range on show will be the Japanese Guyatone amplifiers, comprising a Combo lead amp, rated at 100 watts RMS, a 230 Bass amplifier and a ten watt practice amp.

WURLITZER

Wurlitzer have a new organ coming over from the States for the show, but the exact details were still unknown at press time. They will be showing the Spright keyboard range; the 305, 370, 360, 375, 400 and the 475, along with the 805, 555D, 545D electronic piano and two standard pianos, the M106 and the 2126, plus the 429 Adventurer.

SYDNEY ZENDER & CO.

The full range of models will be on show this year; The Royal, the Kadett, the Imperial 73, the Imperial 85, the Galaxy and the President, all of which were introduced last year.

BEVERLEY AND AVEDIS ZILDJIAN THE SOUND OF SUCCESS



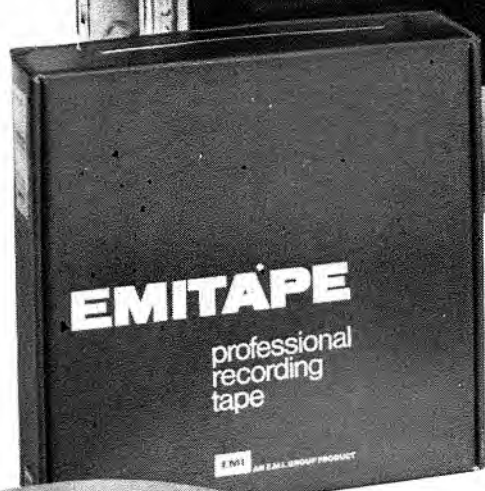
... and Charlie Grima (Village Vanguard), Peter York (Hardin & York), Harold Fisher, Bob Jones, Lennie Hastings, Andy White, Clem Cattini (Top of the Pops Orchestra), Douggie Wright (Michael Parkinson Show), Bobby Gien, Stan Gorman, Edward Wesala, Fred Braceful, Pete Boot (Budgie), Hayden Jackson, Rex Bennett, Ken Hedden (Frankie Vaughan) and many, many more.

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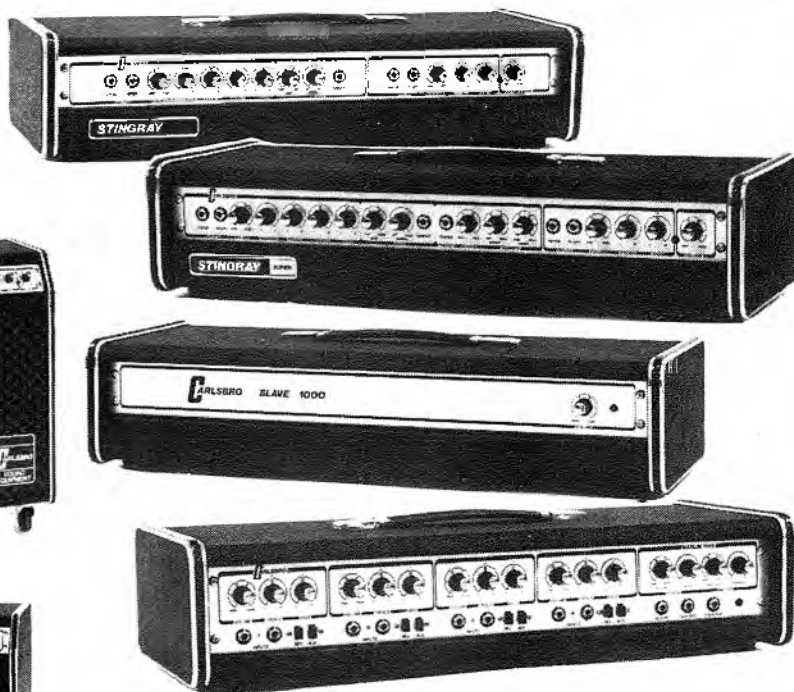
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MARKET REPORT



Carlsbro

This market report on Carlsbro should prove particularly interesting to musicians and trade alike, as it fills in many of the gaps that exists in our knowledge of the British amplification market. Carlsbro is a "main line" product. It's not a "legend" line like a Ludwig or a Gibson and it's not a new name like a Pearl. It's been established in England for ten years now and is a no-nonsense, everyday product. It works well, it's priced well, and it sells well.

The sales structure at Carlsbro is very straightforward. Stuart Mercer is Managing Director, his wife Shelia is Export Director and Tony Taylor looks after U.K. sales. It's a tightly knit trio, working closely with a small team of reps who aren't on a commission basis and therefore don't kill the product with oversell.

Shelia's work in the overseas market, in conjunction with export consultant Colin Barrett, has proved invaluable to the company. Carlsbro products are now on sale in 37 countries and the current figure for export production is around 30%.

1976 has, so far, been the best year ever for Carlsbro. The company has finally committed itself to scrapping the valve amp on which its success is founded. The cost of valve amps is fast becoming prohibitive and Carlsbro's solid-state range, the Marlin and Stingray amps and the Super Combo, have been so successful, Carlsbro can afford to concentrate on those lines.

Several important new products have been announced for launch at this year's AMI Trade Fair. Top of the list has to be the Mantis electronic echo unit.

This is a unit designed to compete with echo tape systems and despite a price tag of £150 (ex. VAT) in the U.K., it is expected to sell well because of its extreme flexibility and ruggedness. Two other lines unveiled for the first time are the Wasp and Hornet practice amps. These little amps deliver 10 and 30 watts respectively.

The Carlsbro factory in Kirkby-in-Ashfield, near Mansfield, Nottinghamshire, is a modern purpose-built plant built by Stuart Mercer just a few years ago. Last year it was expanded to cope with the increase in Carlsbro's business and today it covers 20,000 sq. ft with a large area still available for new building.

Carlsbro is a market leader. They've captured a nice slice of the U.K. amplifier business — in South Wales, Club committees call P.A. columns "Carlsbros" — and are keen to see it increase even further.

CARLSBRO LAUNCH MANTIS

After ten months of intense development, Carlsbro Sound Equipment have finally launched their Mantis solid-state echo unit. Virtually alone in the market place, the unit uses no tapes or other mechanical devices to produce echo and delay, and offers a considerable extension of usual echo facilities.

The unit is surprisingly small and light — 13in. x 9½in., approximately 5lb — but it packs seven control faders and eight effect selection buttons on a satin finish metal control panel.

In addition to delay echo — which has four length options from almost instantaneous to half a second — the unit also has a built in phaser effect called "Rotafaze" which offers really deep phasing at slow speed and an infinitely variable choice to tiny ringing sounds just behind the main note.

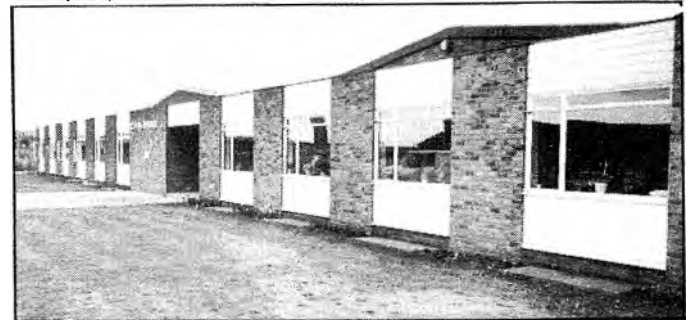
The 16 pre-set selectors at the top of the main control panel offer an almost bewildering choice of echo effects. It takes any newcomer to the Mantis a couple of days to work out the main selections and after a considerable time, one is aware that not all of the combinations have been



Stuart Mercer Managing Director



Tony Taylor U.K. Sales



Carlsbro's modern factory exterior

discovered. The Swell control assured of entirely maintenance free operation. I felt that the ABS case care has to be used with this unit down slightly — when you're spending £150, you expect something to look amazing — but investigation into the interior reveals such a wealth of IC's (even the footswitch has an LED indicator) that it's obvious what you're really getting for your money.

of unit, which is virtually



Typical dialogue at HOBBS MUSIC

- Customer:* I'm thinking of buying an amplifier.
Richard: Yes Sir (grovel, grovel), CARLSBRO sir?
 How many sugars in your coffee, sir?
Customer: Could I ask the advice of Mike, your
 engineer?
Mike: I recommend two lumps, sir!
Customer: No, about the reliability of CARLSBRO.
Mike: Never seen inside one — nothing goes
 wrong with'em.
 Limousine draws up — enter Colin, CARLSBRO rep.
Colin: Hello Brucie baby (addressing the boss).
Bruce: What's availability like, Colin?
Colin: Gotta van outside, how many do you want?
 (sick joke)
Customer: Can I have some discount? (addressing the
 boss)
Bruce: My life! (spreads his hands) . . . you trying
 to ruin me!?

There usually follows a discourse on economics,
 Zen mysticism and women's lib, after which
 fivers are exchanged for CARLSBRO gear.

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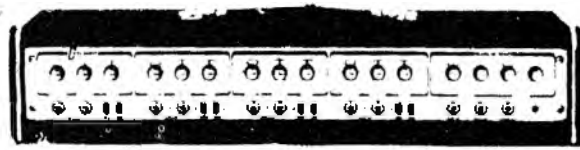
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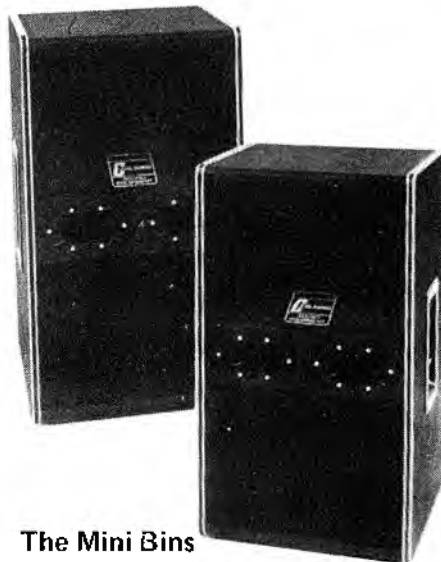
Marlin Mark II

A new versatile portable P.A. amplifier with switchable reverb on all input channels, 4 channels, 2 impedance inputs per channel. Reverb and effects send push button each channel.



Mantis Echo

The Mantis is a beautifully designed all electronic echo unit, employing the advanced concepts of digital technology to create the widest range of clean, undistorted echo, reverb, repeat and phasing effects.



The Mini Bins

Sound as good as they look. The rear facing 100 watt 15" speaker is combined with two high frequency horn units to give superb reproduction over the entire frequency range.



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Marlin Mk. II	£18.00	£176.04
Slave Mk. II	11.00	102.60
Stingray Mk. II	14.00	136.08
Stingray Super Mk. II	17.00	168.48
Stingray Combo Mk. II	22.00	214.92
Stingray Super Combo Mk. II	25.00	247.32
Bass Combo (Stingray amplifier)	29.00	290.52
Bass Combo (Stingray Super amplifier)	33.00	322.92
Scorpion	13.00	123.12
Wasp	74.00	73.44
Hornet	88.00	87.48

SPEAKER UNITS

4 x 12" B/L 120w.	18.00	173.88
1 x 18" 100w.	14.00	135.00
Bass Bin (1 x 15" Twin Horn) 100w.	17.00	163.08
Bass Bin (2 x 12" Twin Horn) 100w.	18.00	179.28
Mini Bin 100w.	16.00	157.68
2 x 12" P.A. 120w. Pair	19.00	181.44

1 x 12" 1 Horn 120w. Pair.	£18.00	£178.20
2 x 12" 1 Horn 120w. Pair.	23.00	222.48
2 x 12" 1 Horn 240w. Pair.	25.00	249.48
Horn Unit (2)	13.00	130.68

ACCESSORIES

Mantis	17.00	162.00
Reverb Unit	79.00	78.84
Fuzz Unit	17.00	16.20
Wah Wah Pedal	17.00	16.74
Wah Swell Pedal	19.00	18.09
Wah Fuzz Pedal	23.00	22.68
Phazer	30.00	29.43
Super Phazer	43.00	42.66
Sennhelser MD413N Microphone	52.00	51.84
Sennhelser MD16N Microphone	70.00	69.12
Microphone Lead	10.00	9.72
Microphone Stand	13.00	12.42
Boom Arm	00.90	8.10
Amplifier Stand	34.00	32.40
Disco Stand	20.00	20.65

MARKET REPORT



Carlsbro

	How Long Carlsbro Dealer	MODELS IN STOCK		Marlin	Slave 1000	4 x 12 cabs
		Stingray	Stingray Combo			
Andertons, 5 Stokefields, Guildford	From beginning	1	1	1	0	0
Assembly Music, 25 Claverton Bldgs, Widcombe, Bath	From beginning	2-3	1	3	1	Varies
A.V.R. Ltd., 44/46 Compton Row, Leeds 9	1 Year	2	1	4	-	1
E.D. Brown (organs) Ltd, 131/143 Leeds Rd., Nelson, Lancs	7-8 years	6	6	2	2	1
Carlsbro Sound Centre, 182/4 Chesterfield Rd. North, Mansfield, Notts	11 Years	7-8	4-5	12	6	2
Charnleys, 177 Main St., Wishaw, Lanark	2 Years	2	2	1	1	-
Chingford Organ Studios, 230 Chingford Mount Rd., London E4	1 Year	2-3	2	2	2	0
Cleveland Music, 19-21 Cleveland Centre, Middlesborough	1 Year	6	3-6	3	1	3
G.H. & J.A. Dawson, 85 Sankey St., Warrington, Lancs.	10 Years	WE KEEP THE RANGE				
Blackpool Sound Centre, 7 Cookson St., Blackpool, Lancs	12-18 mths	1	1	2	1	-
R.L. Brooks Ltd., 96 Duke St., Whitehaven, Cumbria	18 mths.	1	2	2	1	-
Dudley Organ Centre, 18-19 Wolverhampton St., Dudley	2 Years	2	2	2	2	-
Funkshun, 152 Wellingborough Rd., Northampton	3 Years	3	1	4	1	0
Gloucester Soundhouse, 25 Westgate, St. Gos.	2 Years	2	2	2	2	2
Gough & Davey, 13-15 Saville St., Hull, Yorks.	6-7 Years	1	1	1	-	-
Green Lane Music, 372 Green Lane, Smallheath, Birmingham.	2 Years	1	2	1	1	-
Harker & Howarth (Music) Ltd., 28-32 Churchgate, Bolton, Lancs	4 Years	3	3	6	-	-
Frank Hessy, 62 Stanley St., Liverpool	From beginning	6	6	6	6	6
Huddersfield Music Centre, 55 King St., Hudds.	1 Year	2	2	5	3	2
Jimz, 83 Bargates, Christchurch, Dorset	3-4 Years	-	1	1	-	-
Jones & Crossland, 6 Smallbrook, Queensway, Birmingham	3 Years	3	1	2	-	-
Johnson Soundaround Ltd., 227 London Rd., Sheffield	11 Years	3	3	2	2	1
Keyboard Harmony, 82 High St., Redhill, Surrey	2½ Years	2	2	2	-	-
Kingfisher, 20 Kings Rd., Fleet.	From beginning	4	2	3	2	-

Mini Bins	Items Sold per month	Service Personnel	Average Repair Time	Reliability	Delivery From stock	Bands Supplied with Carlsbro	Carlsbro's Sales Service	Good points	Bad points
0	1	Freelance	24 hrs/week	Good	8 Weeks	—	Average	—	—
4	6-8	Freelance	2 days	Very Good	10 Weeks	Roy Love's Stepping	Average	Wide range, service	Delivery time
3	Steady Sale	Staff	Instantly	Best	8 Weeks	Black Onyx	Not bad	Marlin Amp superb	No
1 Pair	6-7	Staff	Good	100%	8-12 weeks	—	OK	—	No
4	50 +	Staff	Minimum	Superb	Month	Be-Bop Deluxe	Good	Price, value	—
2	Hard to Say	Freelance	Overnight	Good	5-6 Weeks	Country Friends	Not enough	Trouble free	—
2	Difficult	Staff	—	Good	1-10 Weeks, varies	—	Good	Value for money	—
2	"A lot"	Staff	Instantly	Great	6-8 Weeks	Cabaret	Good	Reliability	—
	8-10	Staff	24 Hours	No troubles	6 Weeks	—	Fair	No	No
2	6	Staff	About 1 Hr. (don't often get them back)	Excellent	2 Weeks	The Rocking Vicars	—	Output	Cloth rips
Just to order	2	Staff	Only three back	Good	Terrible	Showcase Scorpio	Quite helpful	Clean crisp sound	More Advertising
8	8-10	Staff	Not much to repair	Excellent	"Disgusting"	Splash	Good	Value for money	Some faulty speakers
0	3	Freelance		Good	8 Weeks	August Bank Holiday	Adequate	Sound per price	Delivery
2	Varies	Both	Varies	Good	1-2 Weeks	Brandy Mac Budgie	Very Good	Competitively priced	Dull-looking
1	2-3	Staff	1 Week	Excellent	Poor	Local Bands	Adequate	Reliable	No
1	3	Freelance	2 Days	Competitive	8-10 Weeks	Academy	OK	Very presentable	Chipboard cabinets bit weak
2	12	Staff	Daily	"As good as anything else"	Less than a month now	Blue Sky	Excellent	Transistor range	No
6	Regular turnover	Staff	24 Hours	Fair	Regular	—	No complaints	Good steady seller	No
2	4-5	Freelance	Negligible	Exceptional	3 Days	Remember This	Exceptional	Clinics	—
—	1	Staff	Same Day	Good	Few days	Quill, Ozzie	Pretty good	Fairly good equipment	Dated appearance
—	2	Both	2-3 days	Very Good	4 Weeks	Local Bands	Fairly Good	High quality gear	Delivery times weak
—	6	Staff	24 Hours	Good	2 Months	Local Bands	Good	Reliable seller	—
2	6-8	Freelance	24 Hours	Extremely good	4-6 weeks	Local Bands	Reasonable	Fabulous cabs. Bass gear weak	
6	8-10	Staff	Minimal	Excellent	pre-order	Kingfishers	Average	Good bins, attractive	Bins weight

continued on pages 164 and 165



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MARKET REPORT



Carlsbro

from pages 160 and 161

	How Long Carlsbro Dealer	Stingray	MODELS IN STOCK			
			Stingray Combo	Marlin	Slave 1000	4 x 12 cabs
Luton Music Centre, 114 114 Leagrave Rd., Luton, Beds	3 Years	3	2	2	—	1
Magnum Sound, 67 Stewarton St., Wishaw,	1 Year	2	2	1	2	—
C. Bruce Miller, 51-53 George St. Aberdeen	3 Years	1	1	1	1	1
Modern Music Centre, 30 Castle Hill, Dudley, Worcs	8 Years	2	3	2	—	—
Peter Noble, 11 Station Rd., Llanishen, Cardiff	3½ Years	—	—	2	—	—
Norwich Sound Systems, 80 Prince of Wales Rd., Norwich	18 months	2	2	4	2	—
Organ Loft, 18a, Market St., Huddersfield, Yorks	1 Year	1	1	2	—	2
Reidys Home of Music, 11-13 Penny St., Blackburn, Lancs	From beginning	2	1	1	2	—
Rhythm House, 22 Middle Hillgate, Stockport.	4 Years	4	4	3	2	2
Rumbelows Ltd., 138-141 Friar St., Reading, Berks	4 Years	4	2	2	—	—
Gordon Simpson, 6-8 Stafford St., Edinburgh	1 Year	—	2	1	—	—
Socodi Music Ltd., 9 The Friars, Canterbury, Kent.	4-5 Years	1	2	3	—	—
Sound Centre, 9 St. John's Square, Cardiff	10 Years	1	1	1	—	2
Sound Centre, 98/100 Clay Lane, Coventry	5 Years	1	2	1	1	—
Sound Gig Ltd., 112 Lichfield St., Walsall, Staffs	1½ Years	5	2	3	4	—
Soundpad, 64 London Rd. Leicester	4 Years	6	6	—	8	—
Swans, 84 Oldham St., Manchester	2 Years	2	3	2	—	1
Swindon Music Centre, 21-23 Farringdon Rd., Swindon, Wilts.	From beginning	2	2	2	2	2
Telecomms, 23 Twyford Ave., Portsmouth	18 months	3	2	4	—	—
Wakefield Music Centre, 5 Silver St., Wakefield, Yorks	10 Years	1	—	2	1	—
White Sound Equipment, 3 Albion Place, Sunderland Co. Durham	1 Year	—	1	2	—	1
J.G. Windows, 1-7 Central Arcade, Newcastle	2 Years	2	3	3	1	1
Wisher Ltd., 103 Normanton Rd., Derby	12 Years	2	2	2	1	—
Woodroffes, 119 John Bright St., Birmingham	3 Years	2	2	—	1	—

Mini Bins	Items Sold per month	Service Personnel	Average Repair Time	Reliability	Delivery From stock	Bands Supplied with Carlsbro	Carlsbro's Sales Service	Good points	Bad points
2	4	Staff	48 Hours	Good	2 Weeks	Tommy Christie Trio	Good	Good, reliable	— amplifier
1	6-8	Staff	Same Day	Good	2-3 weeks	Local Bands	Very Good	Reliable	Cramped front panel
1	12	Staff	48 Hours	Good	6 Weeks	Local Bands	Very good	—	—
1	Varies	Staff	Same Day	Good	Varies	Local Bands	Good	Attractive, reliable	—
1	Varies	Staff	Same Day	Average	6-8 Weeks	Club/Cabaret performers	Rep. should learn more jokes	Good finish	Accessibility difficult
1	4	Staff	24 Hours	Very good	6-8 weeks	Local Bands	Good	Transistor amps	Delivery time
1	3-4	Staff	24 Hours	First Class	8 weeks	Numerous	Very good	Reliability Good value	—
1	1-10	Both	24 Hours	Terrific	Varies	Local Bands	Very Good	Reliability	Dowdy appearance
—	4	Freelance	1 Week	Very good	3-4 Weeks	Fragile	Very good	Good all round	—
1	Varies	Staff	3 Weeks	Very good	Advance order	Night Porter	Very good	Reliability	Some delays
1	6	Staff	24 Hours	Good	4 Weeks	Local Bands	Very good	Good appearance, wide range	Delivery
1	2-3	Staff	Same Day	Good	6 Weeks	Legs, Origin	Very good	Mk II's	—
2	8	Staff	48 Hours	Reasonable	6-8 Weeks	Local Bands	Very good	Good equipment	—
1	2-3	Staff	1 Day	Excellent	2-6 Weeks	Highway	Very Helpful	Stingray	No
2	5	Staff	Same Day	Very Good	Varies	Local Bands	Very Good	Good design	—
—	30	Staff	Same Day	Excellent	Monthly order	Leigh Grant Explosion	Excellent	Terrific value	— for money
1	2-3	Staff	Never had to repair any	100%	12 Weeks	Local Bands	Pretty Good	Footswitches	— supplied
2 pr	6-8	Staff	2 Hours	Good	Fair	—	Good Nicely presented	No	
3	8	Staff	Same Day	Reasonable	4-10 weeks	Sunshine Valley	Good	Accessories included with price	No
2	Varies	Staff	24 Hours	Good	Prompt	Local Bands	Good	Satisfactory	—
—	6	Staff	Same Day	Very Good	4-5 Days	Spider Superstition	Excellent	Very good Gear	—
1	Varies	Staff	Very Quick	Excellent	Varies	Local Bands	Good	Very rugged	Appearance could be improved
1	Varies	Freelance	Hardly any repairs	Excellent	4-5 Weeks	Local Groups	Good	Very good staff	—
1	5-6	Both	Hardly any repairs	Good	Varies	Slender Loris + others	—	Very reliable	— good value.

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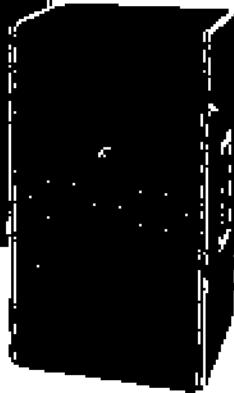
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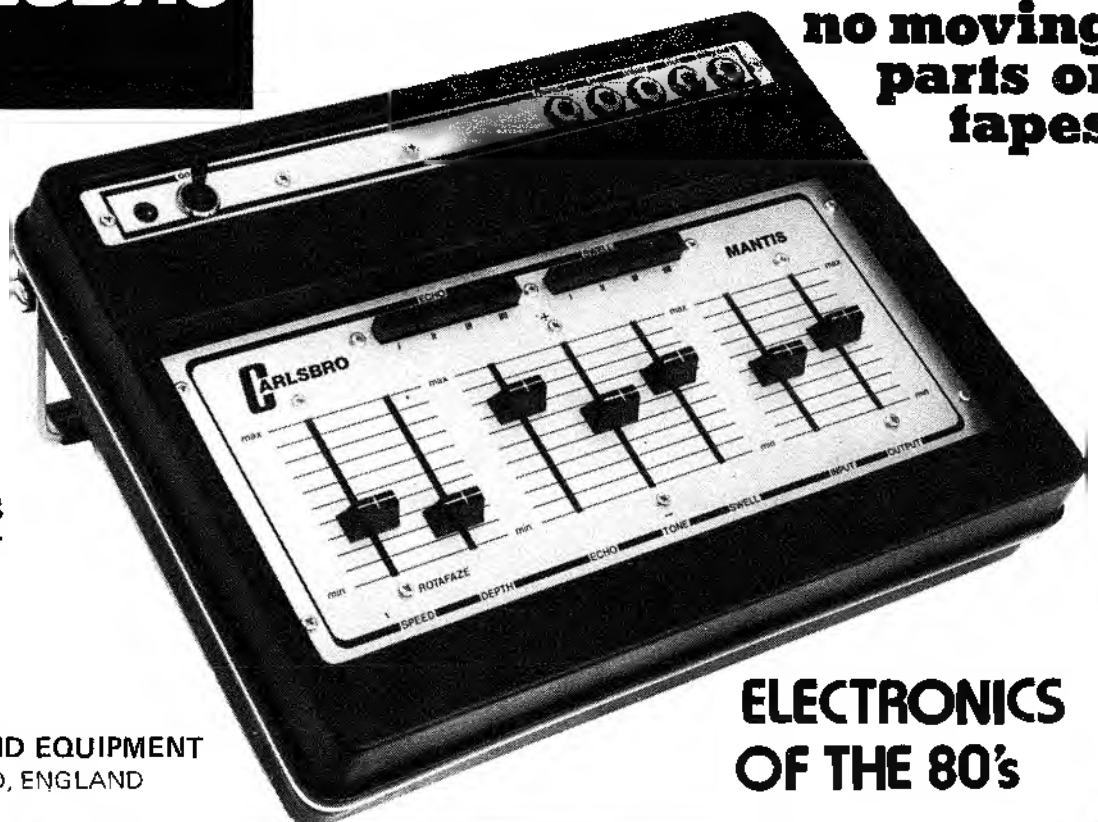
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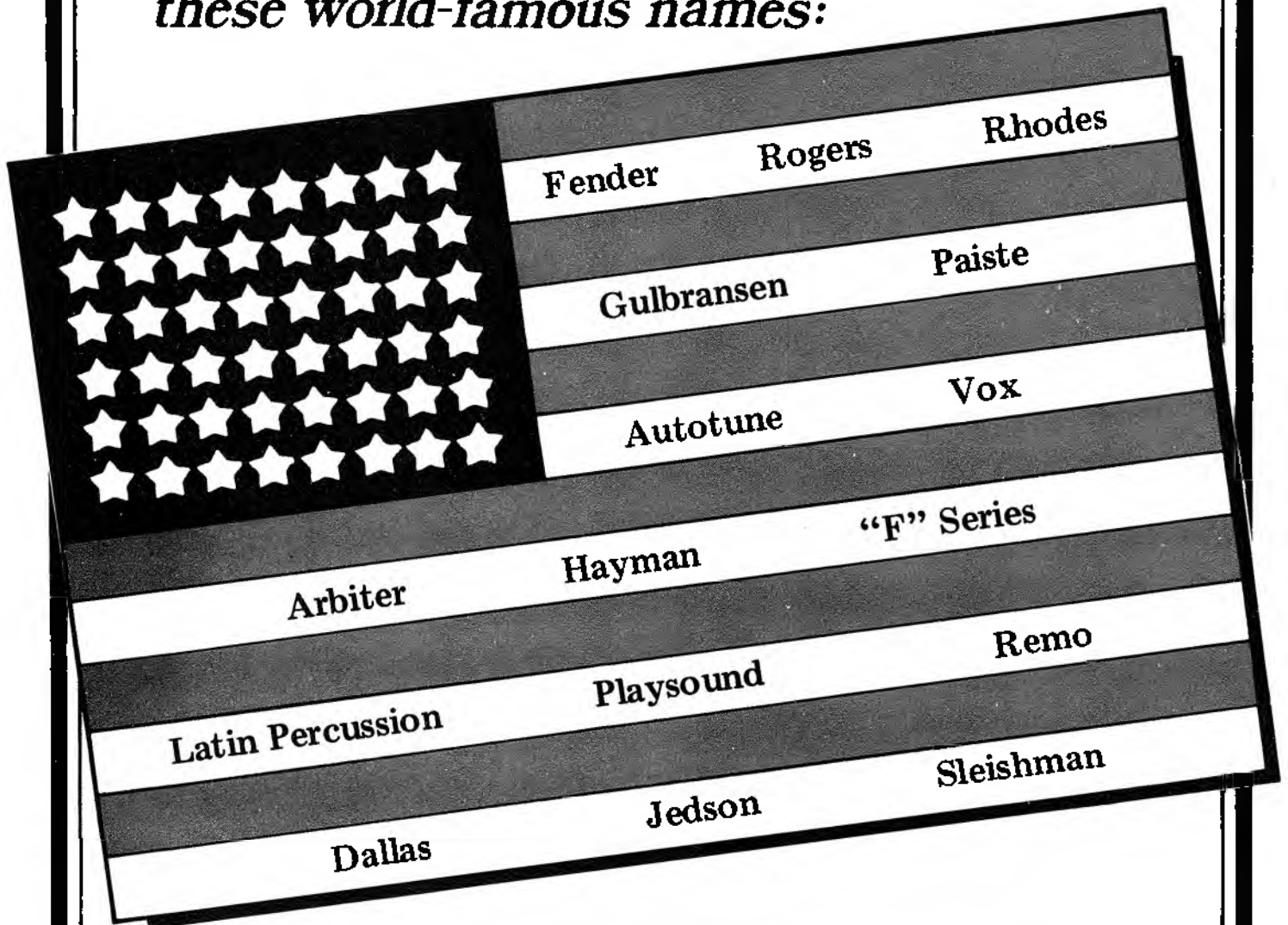
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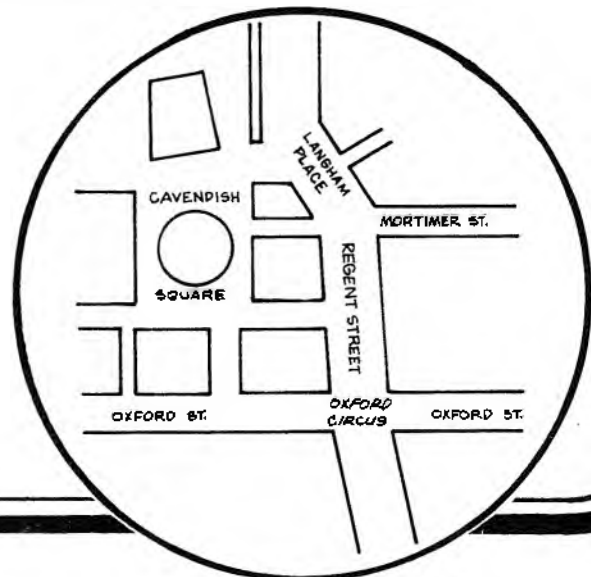


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A Look at London's Summer Music Exhibitions

BRODR JORGENSEN

A new string Ensemble the RS202, will be shown by Brodr Jorgensen at their exhibition in the Panorama Suite of the Imperial Hotel, Russell Square.

The unit will be available in the U.K. in October of this year. A new piano, the MP700, will be shown. This is a portable piano that has taken a year to get together. It features new key action which will impress even the most traditional pianist, and incorporates an oscillator sound source with LSI adaptation.

On the effects units side, one new pedal will be introduced along with two new echo units. The effect is under the new Roland pedal logo of "Boss", featuring the Chorus effect which Roland have made their own, and will be known as the Chorus Ensemble CE1. The well known RE201 Space Echo has a new companion, the RE202, offering the same features as the RE201 but with the built in addition of the chorus effect.

An electronic echo machine with digital chorus, the DC50, has no tapes or other moving parts and features a Hall Echo and Chorus Effect. First of the three new synthesizers on show is the SH5, basically an up-rated SH3A with two oscillators and the provision of an audio socket allowing the user to synthesize any sound source. Secondly, the System 100, which is totally modular in concept. Starting with a basic synthesizer complete in all details, it offers, in addition an Expander Unit, a Sequencer, a Mixer and Monitor speakers, all of which are available separately. Assembled, it produces a studio sound synthesizer.

Finally, the System 700, which is also modular and features over twenty oscillators. The modules cover keyboard controller, main console, VCO Bank, VCF/VCA Bank, Phaser/Delay, Mixer 3 Converter and Sequencer Controller. Other modules will follow and among the first of these will be an analog computer for linking with the Sequencer.

CBS/ARBITER

All the CBS/Arbiter, Dallas and Vox lines will be shown at the U.S. Trade Centre, 4/5 Langham Place, London W.1. between the 15th and 20th of August. The show will witness the debut of the Fender Super Twin 80 watt amp with five band graphic equalisation, the Vox AC30 with reverb, and the 100-120 watt Twin amplifier. Ivor Arbiter, Andrew Wallace and Mart in Fredman head the CBS sales team.

The Rogers Memriloc drum kit, the Fender Starcaster semi-acoustic guitar, and Paiste cymbals will also be of considerable interest, as will all the established Fender, Rogers, and Rhodes lines.

As well as seeing dealers during the aforementioned period, CBS are also making appointments to see dealers between the 2nd and 13th of August, and also between the 23rd and 26th. On the 3rd, 4th, 5th, 10th, 11th and 12th, dealers' customers will be allowed to visit the show to view drums, guitars and keyboards. Admission is however, by ticket only, and the tickets are available from local dealers.



Arbiter Auto-Tune drums will be on display at the U.S. Trade Centre

HAVEN-CRUMAR

Haven Crumar will be showing their products at the Morton Hotel in Russell Square, London, between the 15th and the 19th of August. A full range of the Console organs and keyboards will be on show, including the increasingly popular Haven 61. A lot of the keyboards include some interesting advances in electronic technology, and the instruments will be of interest to all kinds of musicians.

MICK JOHNSON

Mick Johnson will exhibit a variety of goods in the Morton Hotel, Russell Square, London from the 15th to the 19th of August. Hiwatt's new mixers will be shown, available in multiples of four channels, along with the Shergold Modulator guitar and the MM range of mixers. Visitors will also be able to see the ATC speaker and a range of Turner power amplifiers at the stand. The Ashworth Transducer is also likely to attract a lot of attention.

KEYNOTE

Keynote Organs will be showing their range of organs at the Morton Hotel, Russell Square, London during the week of

August 15th-19th. Jerry Symons will be in attendance to speak to the dealers.

KNELLER MUSICAL INSTRUMENTS

Ted Kneller will be exhibiting at the Elizabeth Room of the Bonnington Hotel, London, between the 15th and the 19th of August. On show will be the new range of Road amplifiers, direct from the States, the Washburn range of amplifiers plus the new Washburn phaser effects, the new Banjex Mixer rehearsal desk, the Shadow transducer pick-ups, a wide range of Evans drum heads and a selection of Vinci guitar strings.

P.A.C.E.

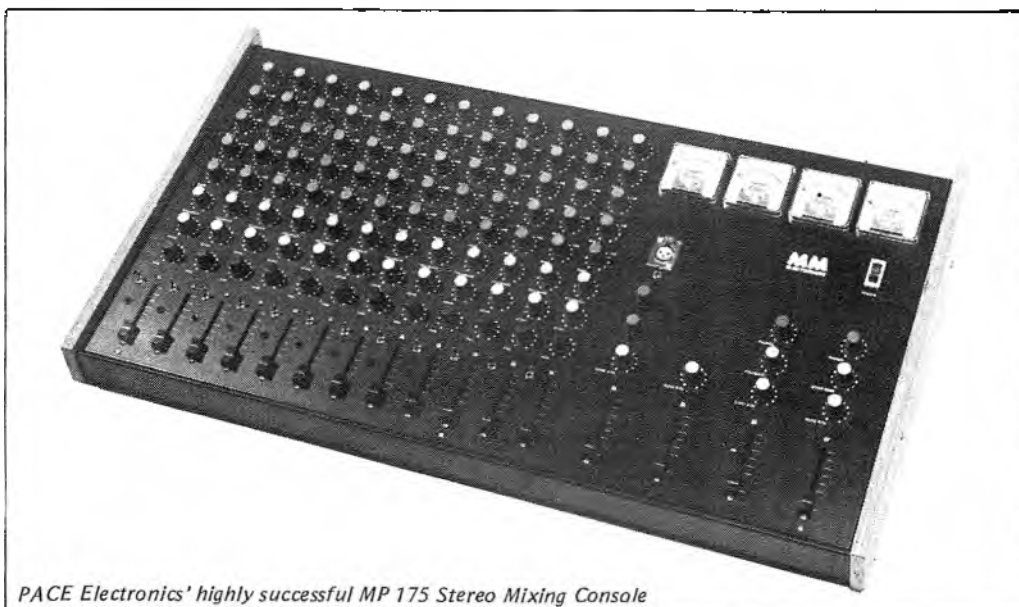
MM Electronics will be announcing their new range of 19" rack mounting units, intended to complement their range of mixing consoles, which enjoy continuing success, especially the MP175 twelve channel mixer and the new MP185 Super 16. The rack-mounting range includes electronic crossovers, graphic equalisers, compressor limiters and fast cut-off bass-bin filters.

PEARL

Pearl will be showing all their equipment, including amplification, mixers and percussion at the President Suite in the President Hotel, Russell Square, London between the 15th and the 19th August.

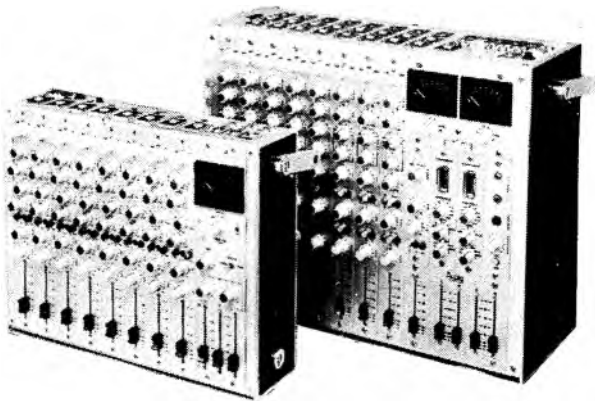
BEN PAGE & SON

This exhibition will take place at the Bonnington Hotel, Southampton Row, London between the 15 and the 19th of August from 10 a.m. - 7 p.m. A large range of Sunn equipment will be on permanent display, including the new Automated Sound System mixers and the new Concert keyboard amplifier, specially designed for use with keyboard instruments. The rest of the Sunn range will be shown, including the Concert lead and bass amps and the various combination amplifiers.



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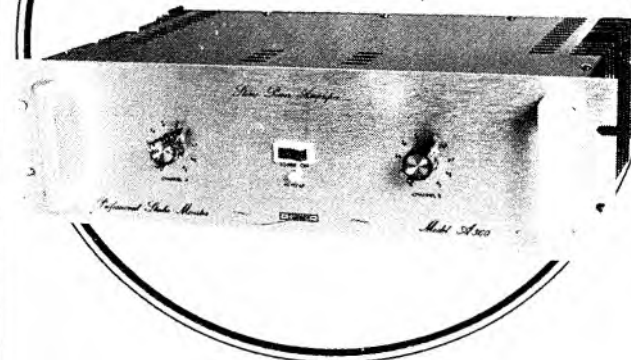
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REVIEW: APRS

Acoustic Transducer Co. Ltd. (Bill Woodman)

"From our point of view, it was as good as ever. One rarely makes direct sales at the exhibition - it's a long term business. Our experience is that the APRS is the only one worth doing."

AKG (Mr. Wells)

"We've done very well, gaining many orders, with the new Dynamic D149 microphone and the BX15 Reverb Unit being received very favourably."

Alice (Eric Keen)

"Our stand has been well attended throughout the show and our portable six channel transmission mixer was the centre of attraction."

Allen & Heath (Steve Smith)

"We've had a very favourable reaction to our Automatic Double Tracking unit, our phaser and our Broadcast FFD limiter."



Amek (Mr. Franks)

"Our M and X series mixers both went down well, along with a fairly unique electronic crossover unit, unique in that it's a production line model."

Ampex (Tony Shields)

"The show went incredibly well. We introduced a new product - the ATR100 1/4" machine which went incredibly well. I think we were probably the busiest stand on our floor, so it was an extremely good exhibition."



Audio Developments (Mr. Taylor)

"There seems to have been more serious enquiries rather than large attendances this year, and our new PISO AD045 mixer has fared very well."

Audix (Roy Wharf)

"We had a very hot and busy exhibition this year, a lot of people liked the new MXT 1000 and MXT 100 mixers."

B & K (Henning Moller)

"A pretty good show this year, with our main item being the Internak System."



Beyer Dynamic (Wally Moulton)

"It was the best show we've had for a long time. A really excellent exhibition. The people who came were very interested in the new infra-red transmitter system."



Bose UK Ltd (Nick Pierce)

"It was very good for us. The professional equipment was very popular and we took some nice orders and made some nice contacts."

Brenell Engineering (Neil Hauser)

"We had a very good response from the whole range, but in particular, the new 1" tape deck."



Calrec

"Our main exhibit was the 44 channel eight group TV sound desk made for BBC Scotland, and this generated a lot of interest."

Cetec Audio UK (Brian Wills)

"The APRS show proved once again to be a very active and profitable exhibition, especially for Gauss loudspeakers."



C.E. Hammond (Dave Wiley)

"We've had a good reaction with lots of prospective business, especially in the new Stage P.A. Strongbox."



EMI Tape

EMI Tape Ltd were showing their recently launched range of professional recording tape - the 830 series. Initially on show were the 831 and 832 versions. The 831 is a low-noise high output tape developed for studio and broadcasting applications. The 832 offers the alternative of a matt-backed polyester base.



Feldon Audio (Roger Cameron)

"There's been a phenomenal response to the Eventide Harmonizer and the Digital Delay equipment, especially from abroad."

Future Film Developments

Among the many items on show on the Future Film Developments stand were their vast range of connectors, rack-mounted jackfields and cables. They also showed their portable noise reduction unit and audio transformers.

F.W.O. Bauch Ltd. (Michael Bauch)

"We thought the exhibition was good, as always. The quality of visitors was better than in previous years."

HH Electronic (Mike Harrison)

"There was an air of optimism at the show and we did very well; our S500D two channel power amp proved to be enormously popular."



Hayden Laboratories (Kenneth Owens)

"We were very satisfied. I think the exhibition suffered by virtue of the re-organisation in the Connaught Rooms. The number of exhibitors in each room was much reduced and I think a lot of people gave up trying to find various exhibitors in all the different rooms."

ALTEC

Altec Musical Instrument Loudspeakers

Maybe you're at the point now where the sound of your instrument amp just isn't quite cuttin' it either in loudness or in fullness. But you're also not ready to trade in that good old amp because it's brought you a long way with a lot of good times and dependability. If that's the case, then possibly it's time to phase out those old speakers and install some brand new Altec's. We think you'll be pretty surprised at the increase in loudness, and the extra fullness you never heard from your old amp and its standard factory speakers.

If you're into building your own P.A. system, Altec loudspeakers can give you all the bottom and mids you ever asked for. And they sound especially good when used with Altec horns, drivers, and crossover networks.

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To make your job of installation a little bit easier, our new 15-inch speakers have all new cast aluminum frames for hassle-free front mounting. (In fact, the frame is really 16" to be sure you've got a good, tight fit during travel). All Altec Musical Instrument Loudspeakers, with the exception of the 421 series, now use a brand new cast magnetic structure for even more uniform efficiency and frequency response.

The "H Series II" speakers are the high powered versions of the old reliables. They feature special heat dissipating aluminum coil supports and ultra rugged copper voice coils that allow you to play louder for longer periods of time, with much less worry of burnout.

At Altec we are extremely confident of the reliability of our loudspeakers. So much in fact they are covered under a full Five Year Warranty. This warranty is our assurance to you of Altec's reliability in the years to come.

Speaker Specifications

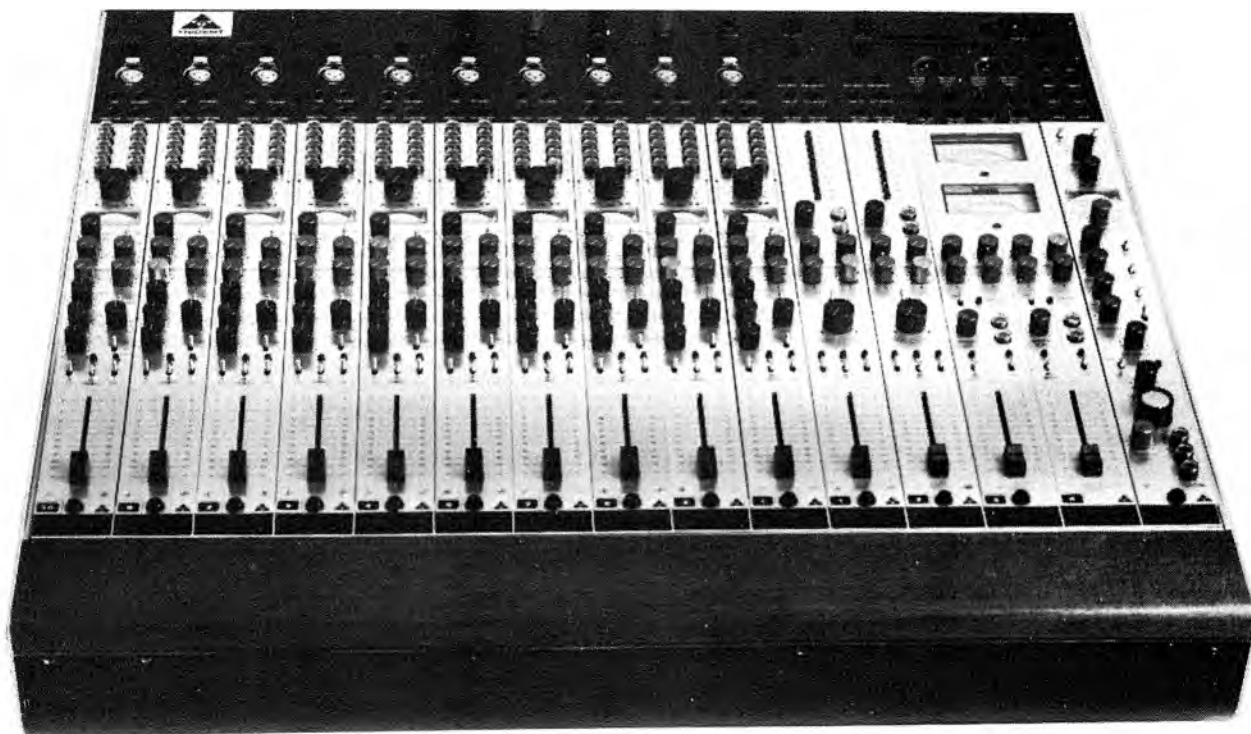
Model	417-8H II	418-8H II	421-8H II	425-8H II
Size:	12"	15"	15"	10"
Power Rating:	100 watts*	150 watts*	150 watts*	75 watts*
Pressure Sensitivity 1/watt at 3 ft.	100 dB SPL	103 dB SPL	102 dB SPL	98 dB SPL
Frequency Response:	60-8000 Hz	45-8000 Hz	35-3500 Hz	60-10,000 Hz
Application:	Full range	Full range	Bass	Full range
Impedance:	8 ohms	8 ohms	8 ohms	8 ohms
Magnet Structure Weight:	11½ lbs.	11½ lbs.	17½ lbs.	11½ lbs.
Weight:	17 lbs.	20 lbs.	22 lbs.	16 lbs.
Warranty:	Five Years	Five Years	Five Years	Five Years

*May be used with amplifiers having up to equal continuous RMS power rating

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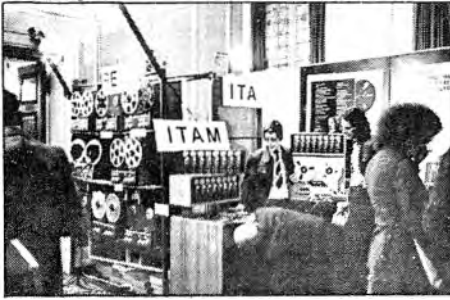
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ITA (Martin Parmiter)

"A lot of people showed interest in the ITA eight track. It seems a lot of four track studios are upgrading."

Klark-Teknik (Mr. Austin)

"This has been our best show so far and the DN15 graphic equaliser with pre-amp won a lot of friends."

Lee Engineering (Norman Broad)

"A good response, at a very hot show this year, to the ITC 0004 machine."

Lockwood (Stanley Timms)

"Very good for Lockwood. The whole show was well-organised and we were lucky enough to be in a good position. As far as our products go, the new Professional Disc Reproducers went well, as did the Academy monitors."



Macinnes Laboratories (Ian Marshall)

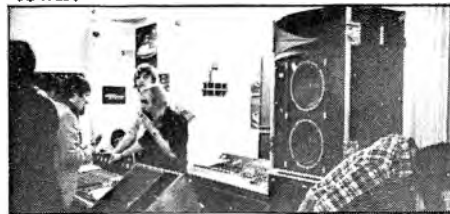
"The show went splendidly. We were very busy. I think we really need to get back to a three-day show, as we found there were many people who couldn't come. The new 16 into 2 mixer created a lot of interest, particularly from overseas."

MCI

MCI's stand was extremely busy throughout the show, with a lot of interest being shown in their JH-114 one and two inch master recorder, the JH-110 recorder, the JH-428 and 440 recording consoles and the JH-528-542 mixing console, currently in use at the Marquee studios.

Midas (John Farlowe)

"The new Dunlap Clarke equipment has gone down well. Maybe the show would be better attended if it was moved out of town?"



Philip Drake Electronics (David Bower)

"We distributed two main items - the talkback system and the digital delay line, both of which created considerable interest. We also made a lot of useful contacts from abroad with a view to distribution."

Quad (Ross Walker)

"It was perfectly satisfactory. We met lots of nice people at the exhibition. The Quad 405 probably attracted the most interest on our stand."

Raindirk (Ron Pender)

"A lot of overseas visitors have shown an interest in our products this year, especially the Mini Mixer Mk II."

Rupert Neve & Company (Les Lewis)

"The most fantastic exhibition we've ever had. We were absolutely inundated and had a tremendous response from our new range and a large number of enquiries."

Shure (Andy Munro)

"The best show for years, from our point of view, with plenty of interest in the new SM82 and broadcasting mikes and the new SR Sound Reinforcement equipment."



Soundcraft (Phil Dudderidge)

"The 16/2 and 12/2 perennials received their due attention this year, though the star of our show was the second generation Series II mixer."

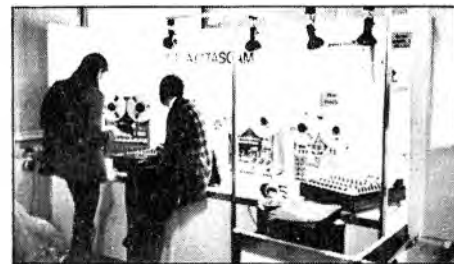


S.S.E. (Bruce Elliot)

"Incredible interest was shown in the new Harrison desk and also in the DBX K9-22 replacement for Dolby's A module."

Tannoy (Frank Hughes)

"A fair number of studios popped by to update their systems to include the new HPD315A, with altered crossover."



Teac (Peter Elliot)

"The main thing was to get Tascam exposed, which we've managed to do with great effect. The new 80-8 Recorder/Reproducer got an amazing response."

Theatre Projects

"A good show with overt interest in the 12" Altec bin and the University HF kits."

Trad

Trad are a company specialising in buying and selling all types of new and used studio equipment. They claim they can supply anything from a single plug to a 24-track studio. Naturally enough, they were extremely busy on their stand, with a selection of equipment on display.

Trident (Steve Gunn)

"We've done very well this year, the main interest was in the new Fleximix system."



Turner Electronic Industries (Mike Turner)

"Everything, from our point of view, was very successful. The main thing we introduced was our new range of power amplifiers. The A200, 300 and 500 went particularly well, and they are already being used in a lot of London studios like Air, Wessex and Landscape. At the APRS show, we were also lucky enough to spend time setting up import agencies on the continent. The other main point was the new 25 in 7 out monitor mixer, which Queen have been using all over the U.S., Japan and Australia."

Tweed Audio (Gordon Fletcher)

"The new 24 into 16 and 24 into 8 desks were very well received by all our visitors."



3M United Kingdom (Frank O'Neill)

"It was a very busy exhibition for us. We noticed a lot of interest in our new XT-14 Autolocator, which was quite pleasing. Although its usually just a 'shop window,' we actually sold a couple of machines as well."



Vitavox (Neil Young)

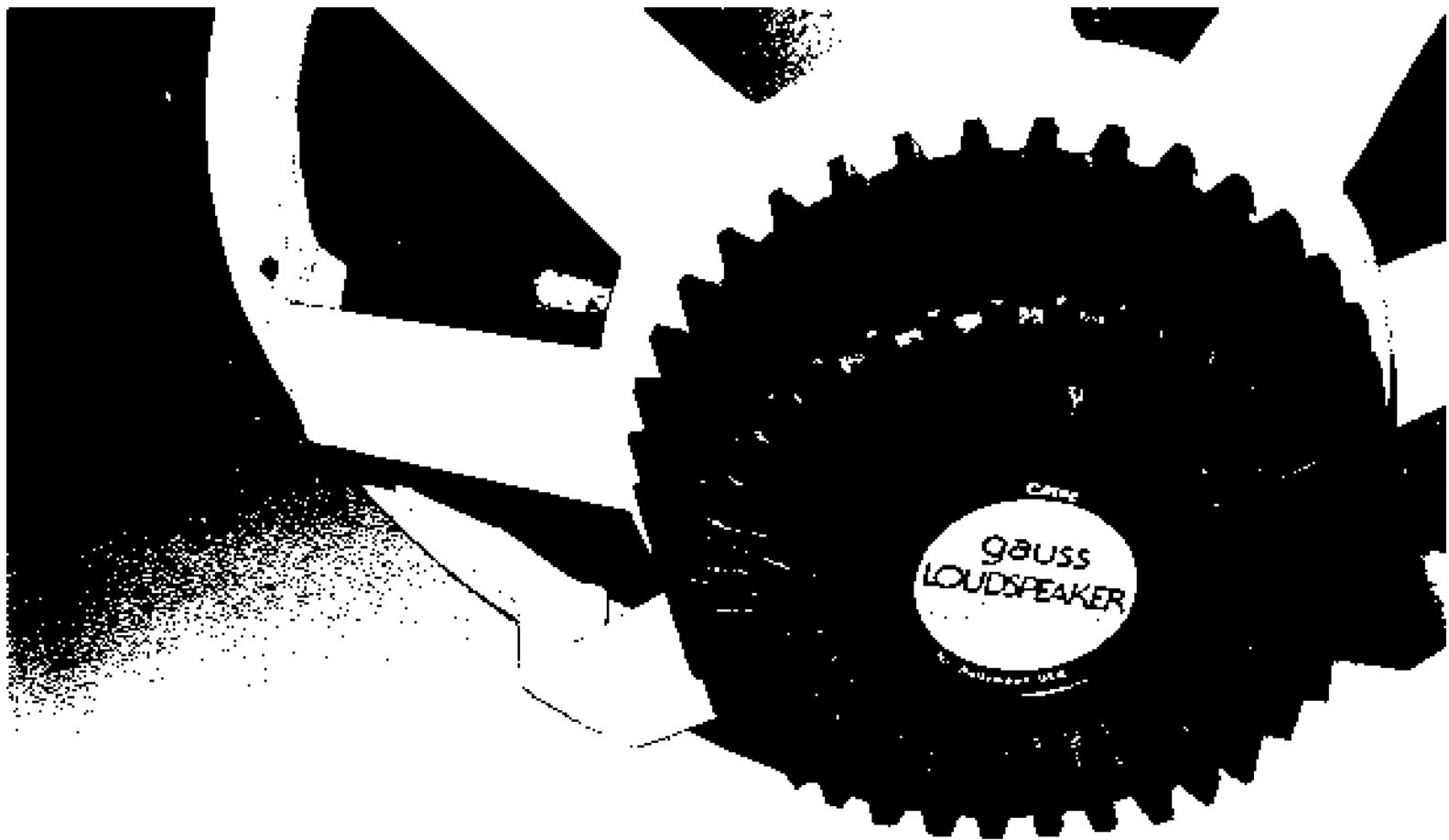
"It was a quieter show than usual, we found. However, we were still quite pleased. A lot of interest was attracted by the new 4 cell dispersive horn unit."

Webland Electronics (Philip Smith)

"We were very encouraged by the interest shown. There was an awful lot of interest in the BGW 500D and the 750A power amps - particularly the 750A, which seems to offer what people haven't been able to find in a power amp before."

Zoot Horn (Jeff Bevan)

"It was our first time at APRS, and it was very favourable for us. Most people, including other manufacturers, were very impressed by our range. It did give us the opportunity to negotiate with people for agencies like West Germany and Italy, although we already have agencies in West Germany and Holland on some products. The PMR Series seemed to attract a lot of people, because the specifications are so good for the price."



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DRUMS

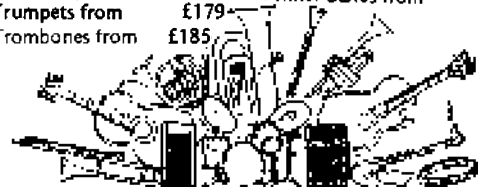
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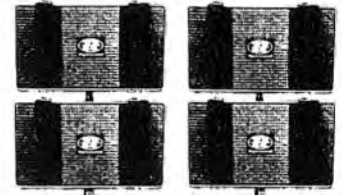
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REVIEW: NAMM

When the American musical instrument trade meets, it really MEETS! The NAMM fair, held at McCormick Place in Chicago this June attracted visitors and exhibitors from every country in the world and some of the most advanced instruments and electronic items in the world were shown.

On every corner was another marvel. Here a folding guitar, there a kit of guitar parts, here drums with exponential shells, here a guitar/synthesiser and over there – the star of the show – a fully polyphonic portable synthesiser.

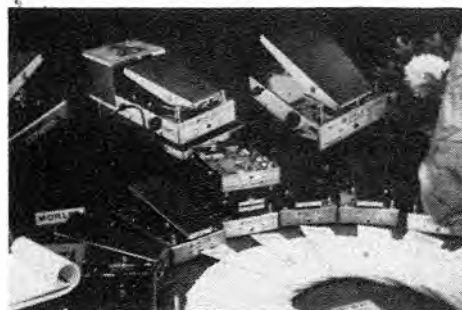
International Musician and Recording World had a booth at the show. We said hello to thousands of musicians and people in the musical instrument trade and we made many new friends. To those who visited us at the show – thanks; to those who couldn't make it – here's a photo review of some of the highlights.



Not surprisingly, the Leslie organisation gave over most of their stand to a demonstration booth in the firm belief that hearing is believing. Leslie are unrivalled in their very particular field and the famous combination of Hammond organ and Leslie tone cabinet continues unchallenged.



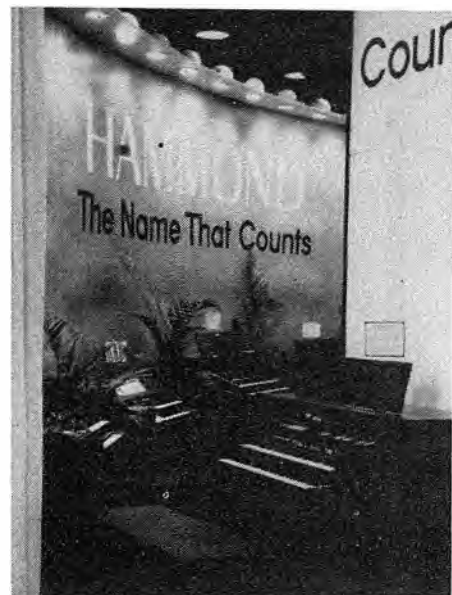
The CBS display was unusual this year. The company presented a series of "shop windows", perhaps an insight into how the company see the NAMM show, and in each was represented a different aspect of the mighty operation. Of particular interest in the Fender window was the new Starcaster semi-acoustic.



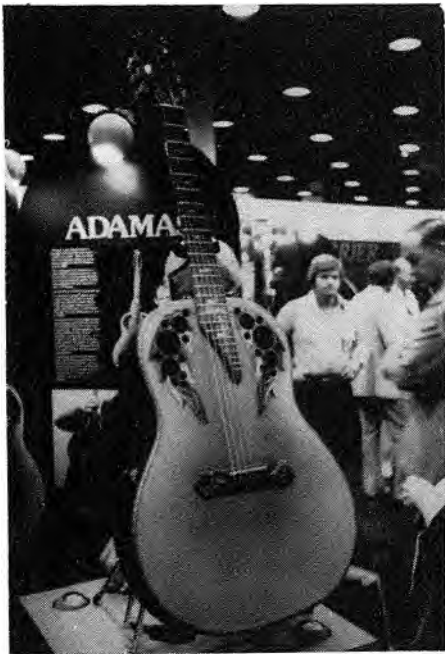
New products on the Morley stand this year included LED display pedals which give clear indication of the function the pedal is switched to. Morley pedals belong to the top of the pedal range and are unique in that they do not use a rotary potentiometer for control, they use a light sensitive device.



The ultra-high power amp systems marketed by BGW Systems attracted the attention of the road crews and rental companies which visited the show. The amps fall into the "minute distortion, rack-mounted power-amp" category so there was no chance for demonstration, but on the strength of their reputation alone, business was significant for BGW.



As the Hammond organ empire is based in Chicago, it's not surprising that almost every second visitor to the show seemed to be a Hammond employee. The representatives from the comparatively new Japanese offshoot, Nihon Hammond, were also in attendance. As well as having a major stand in the main exhibition hall, Hammond also had a suite of demonstration rooms elsewhere in McCormick Place.



Right out front on the Ovation stand was a new "graphite fronted" acoustic. The instrument looks superb and the soundhole work is beautiful, but there was no chance to try the instrument.



Unicord is always a popular stand at the show because they have the exclusive American distribution of Marshall amps and this year they were showing, in addition to Marshall, a new range of amps called Stage.



Bose has been spreading their message about "portability" and small speaker packages for quite a few years around America and it's beginning to sink in. The tiny but high-power speaker systems marketed by Bose were demonstrated during the show by this delightful duet. An excellent way of showing "the proof of the pudding".



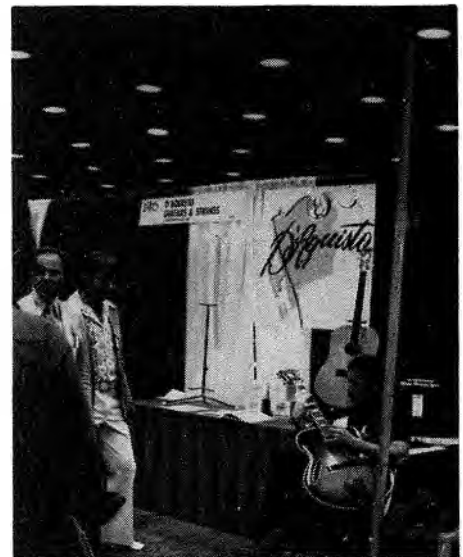
Ever keen to lead the field the Roland Corporation mounted a massive display of Roland keyboards, synthesisers amps and effects units. There was plenty of opportunity to try out the keyboards via headsets that were provided and the stand attracted considerable attention.



DiMarzio Musical Instrument Pick-ups were a point of particular interest. It's unusual to find a company specialising in producing only pick-ups and because of the claims about their outstanding output and sustain characteristics, the stand was usually crowded. At the show a deal was struck between Di Marzio and Larry Macari in London to distribute the pick-ups in Britain.



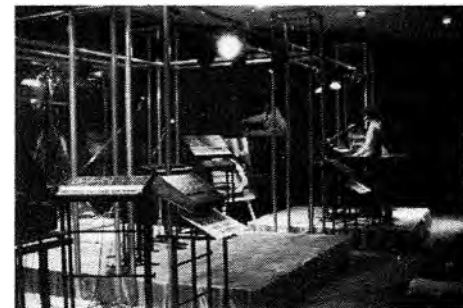
Perhaps the most famous drum head in the world, Remo, had a huge stand and did corresponding business. Many rock drummers now fit Remo heads to whatever kit they play.



The D'Aquisto range of strings and guitars has been well known in North America for quite some time and it represents the best in traditional craftsmanship. The guitars are built on entirely conventional lines and strings are available to suit most sorts of instruments.



On the left is Hartley Peavey, discussing the new 1200 stereo mixer on which he is leaning. Peavey is just about the most successful range of amplification in America at present and for that reason, Hartley was in heavy demand. Several new Peavey lines were on show including the mixers and rack mounted power amps.



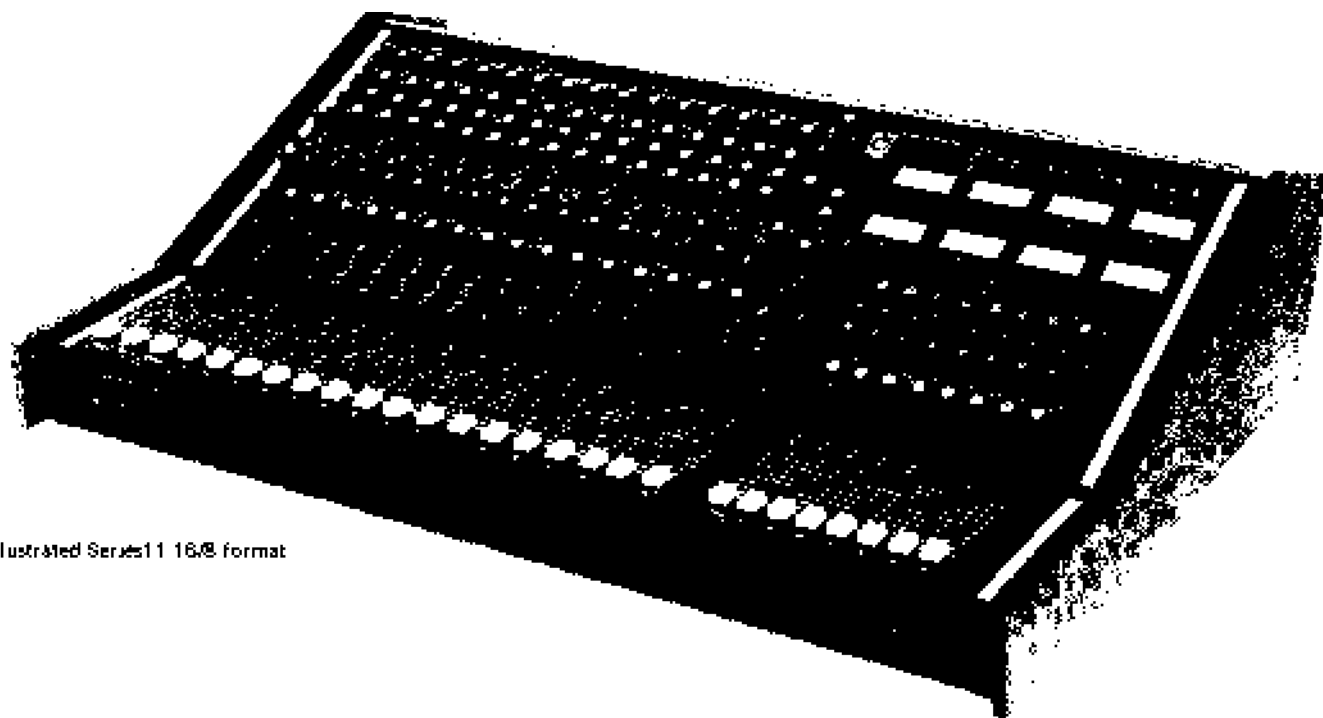
One of the biggest synthesiser manufacturers in the world, ARP mounted a separate exhibition, offering seated audiences a chance to hear the ARP range in concert conditions. The star of the ARP show was the new portable polyphonic ensemble and despite the fact that no personal trials were allowed on the instruments, the display was certainly one of the main hits of the show.



The Yamaha booth was given over almost entirely to a demonstration room. Here the range of amps, mixers and guitars was available for trial.

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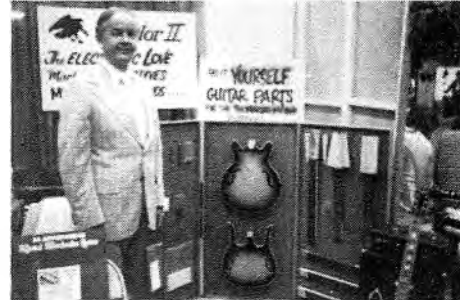
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Walter Kane & Co. are one of the largest distributors of sheet music and music books in the USA. Now that they are distributing *International Musician and Recording World* across the North American continent, they will, no doubt, reach even greater heights. This magazine can be seen nestling comfortably on the order table.



The highlight on the Teac stand was the new 16 track tape machine that is part of the Tascam series. Teac have rapidly grown into the professional and semi pro markets and although not all territories have received prices on the 16 track, it's likely to be as competitive as the other machines in the Tascam series.



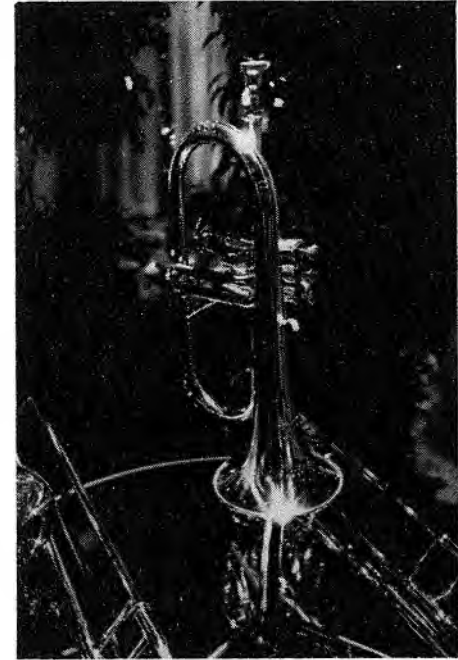
For those keen to save a buck or two, you can build your own guitar from a kit of parts available from Charles Borrell. Necks are available at different finish levels (with or without frets fitted etc.) and all of the bodies are complete except for the electrics.



Sonor drums (from Germany) find America a good market and their American distributor, Charles Alden Music Co., mounted a display which included see-through acrylics as well as the more conventional finishes.



Gretsch were showing several new products, including a specially designed amp for steel guitars called the Nashville Pro Steel Amp.



Undoubtedly the best designed stand at the show was that mounted by La Blanc. The range of brass instruments was set out against a gentle background with the instruments placed on mirrors and lit by carefully controlled spotlights. A spectacular display.



As might be expected, the Ludwig Drum Co. mounted an extremely impressive exhibit - helped, no doubt, by the fact that Chicago is their home town. A fabulous array of kits, percussion instruments and accessories was on display and the unusual and attractive "spiral acrylics" were out front.



Systech had a particularly attractive stand utilising a booth of smoked perspex for demonstrations. The pedals are "highly active" and offer considerable degrees of control for guitarists. The pedal effects available from Systech include "envelope computer" "overdrive" and "phase shifter"



MXR was one of the most crowded stands at the show and our photographer had great trouble getting a shot which showed the new products. Of particular importance to MXR this year is the new Digital Delay unit (foreground) which is built to sell at a far lower price than the competition. The full range of foot pedals, including the new foot flanger, was on constant demonstration.



Crumar announced the Mutec OMB at the show. This is the One Man Band, a pedal-board operated percussion unit that is designed to offer a guitarist (or any other musician) full accompaniment. The box of tricks that goes with the pedal board has percussion and automatic chord accompaniment. A foot pedal controls volume and the selection of three chords: root, tonic or seventh.



Travis Bean has jumped to the forefront of guitar makers in the last few years and at the show the man was on hand (he's in the white suit) to discuss all the details of the amazing instruments with the aluminium necks. On the right of the picture a new "arrow shaped" model can be seen.



American based Englishman John Lee was keen to show his Sound City amps and mixers to the American market. Here he's pictured with a new 12 channel stereo mixer.



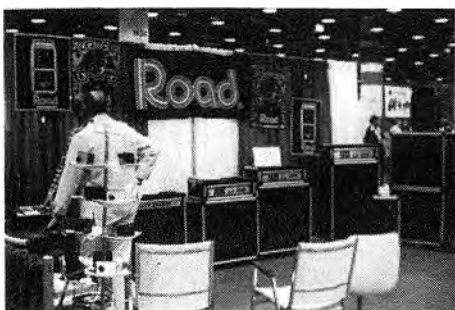
Discussing AKG here is Barry Denton, who looks after the mike company's international marketing. The AKG stand is always well designed whether it is in London, Paris or Chicago and as well as the complete range of mikes, the new echo "box" for studio use was also on display.



I.M.'s Rick Desmond (right) tries out some amazing looking new drums. Called North Drums, the shells are "exponential" tubes made from fibreglass and they certainly do project. Included in the list of users are Billy Cobham and Joe English. On the left is Sante Crucianelli.



Vinci Musical Strings are made for an incredibly wide range of fretted instruments and business was brisk on the stand. Vinci strings have been well known in America for some time and they're now generally distributed around the world.



Road amps and equipment have been available for some years in the U.S. but have only recently become available in the U.K. On the stand the full range of rugged equipment and the individualistic styling attracted many admiring glances.



Peter La Placa, former executive of Norlin, pictured here with products handled by his new distribution company BKL.



The Altec stand, as usual, attracted much attention from the sound reinforcement brigade.



The massive hardware supplied with the new Tama drum kits attracted considerable attention on the Ibanez stand and there are also several new finishes available now.



Rotosound are popular strings in the U.S.A. and seen here is Martin Howe (centre) and Jimmy Howe (right) of Rotosound U.K.



Neil Lilian, Guild's boss, was a happy man at the show. As well as having several new Guild guitars on show - including an acoustic bass - he was also able to announce that his company has the sole distribution rights for HH amplification in the USA.



The Rickenbacker display was surprisingly modest for a guitar of such importance. The company always insist they can sell far more than they can make and perhaps this is why their approach was very laid back. Several new models were shown.



Captured on film in the British aisles were three important members of the international musical trade. Stu Moskowitz of Manny's (New York) was talking with Larry Macari of London's Sola Sound and Julius Graifman, American Manager of *International Musician and Recording World*.



Tony Morris of Rose-Morris is seen here with a bagpipe expert piping a scurl that chilled the hearts of all listeners. Rose-Morris had a tremendous show with their Clansman range of pipes and drums and also did great business with the Natal range of percussion.



The genial George Osztreicher had a great show with his range of guitar string produced by the Cardiff Music Strings company. Here he's seen on the last day of the show, happily shaking hands with Jerome Hershman and Alan Porter.



Phil Dudderidge of Soundcraft Electronics described the show as "amazing" and was delighted at the business Soundcraft were able to do.



Gibson promotion manager Dave Roberts seen chatting with Mr. Page.



It was first time at the show for Larry Macari's Eurotec Black Box range of sound effects pedals and they became a great hit. Larry's well known range of Colorsound pedals was, as usual, extremely popular.



Dennis Gillard of Boosey & Hawkes made a flying visit to the show and here he's pictured striding the aisles, Page.



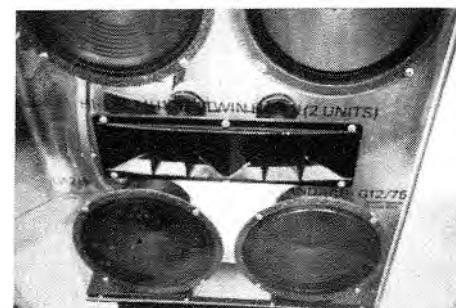
General Music Strings produce the important Picato range of strings and also distribute the P & N range of mike stands and accessories. At the show new M.D. Derek Morris and the company's founder and Chairman Alfred Stein were kept constantly busy with visitors to the booth.



Cheeky Dave Street managed to get his Soundout disco unit on display at the last minute. The Americans didn't really understand what it was. There aren't many mobile discos around.



It was the first year in Chicago for the HH Electronic boys and they were especially keen to show their goods to the American market as Guild have just taken over distribution in the U.S. In the centre of the picture is Sales Manager Clive Bradbury.



New on the Celestion stand was this Hi-Cell twin horn unit which is intended to be used in high power P.A. application. The horn has twin drivers, but emerges into a single mouthpiece.

Export organiser Colin Barret cracked the nut in Brazil and dealt for Carlisbro's Mantis echo unit Selmer's (USA) Ampeg amps were of great interest The Norton crowd decided to separate themselves from the main show and mount an exhibition at the Sheraton Blackstone in Michigan Ave. Pearl, Gibson and Moog were on show and personalities on hand included Masani Yanagisawa, Bill Andrews and Dave Roberts The Daddario stand was crowded most of the time Music Man amps and guitars were much discussed Some British strollers (and golfers) seen at the show included Mike Cooper (Kitchen's), John Lawson (J.T. Coppock), Bill Swan (Swan's) and Gene Ashworth (Chingford) Ivor Arbiter visited the show for the first couple of days and met many old friends The oil-filled drum heads that Evans produce are quite something The heavy names American amps like Kustom and Acoustic were under particular scrutiny from younger visitors to the show Having a separate room for Sunn equipment made them a little harder to find but more "impactive" once one made it Farfisa organs always have a good show and 1976 was no exception Other British visitors seen strolling in the aisles were Mike Cowan and Mike Hunka of Rosetti SAI's disco gear was prominently displayed by the US distributor and SAI boss Bob Dewhurst was also on hand The stand shared by Dynacord and Stramp was packed with buyers from the "professional" end of the market The new British Sleishman twin-bass drum pedal found its way to the Musical Instrument Corp. of America stand, can't think how Roger Horrobin was seen enjoying Buddy Rich's concert, but Buddy wasn't playing Premier Dave Vankoevring mounted an exhibition of electronic instruments at the show Alex Axe in fine form Hammer guitars seen on many stands, used for demo purposes Latin Percussion in strong demand Norman Gito Sibercond company kept busy.

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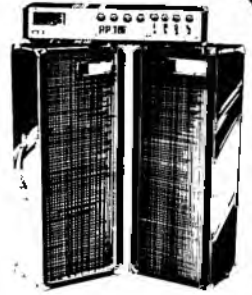
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S.G. 2/PUP WITH TREM.	£65	£47
TELECASTER BASS	£62	£42
STRATOCASTER (BLACK OR WHITE)	£74	£52
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L/H Strat with trem	£347	£295
Telecaster Blonde or Brunette	£270	£225
Telecaster Custom	£296	£245
Jazz Bass	£348	£285
Precision Bass	£283	£245

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VOX AC30	75
Carlbro Bass Bin (choice of 2)	69
100w Sound City P/A system	145
Vox 2 manual portable organ	150
Yamaha Jumbo	38
Kay Jumbo	14
Marshall 100w P/A	199
Korg synthesiser	195
H&H Top	110
Fender 12 string	39
Marshall 4x12 Cols.	pr 140
SAI disco deck and cabs	150
Selmer T&B 50	45
120w Carlbro Cols.	pr 50
40 assorted 40 to 100w Combo Amps.	fr 40
50 assorted P/A systems 100w	fr 125
Premier Drum Kits (choice of 2)	95
Electric pianos (choice of 5)	145
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Strat Copy	39
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V.S. Musician - Valve Sound 100 watts	141	Speakers 100 watts	107
V.S. Bassamp 100 watts	134	412 DC Dual Concentric-Slimline 4 x 12"	
V.S. Footswitch.	14	Speakers 160 watts	162
COMBINATION AMPLIFIERS		Mini-Horn - Fibre Glass Built in Crossover 50 watts	67
V.S. Musician Reverb Combo - 2 x 12" 100 watts	229	UNIT P.A. SYSTEM	
V.S. Musician Combo - 2 x 12" 100 watts	212	Radial Horn. Built in Crossover network 100 watts	119
INSTRUMENT LOUDSPEAKERS		115 Bass Compact 1 x 15" Reflex Enclosure 100w	116
412 BL Lead Bass & Organ 4 x 12" 200 watts	171	MONITOR SYSTEMS	
215 BL Lead Bass & Organ, 2 x 15" 200 watts	186	Monitor Combo 12" Dual Concentric/Integral	
P.A. AMPLIFIERS		75/100 watt Amplifier	148
MA 100 5 Channel P.A. with Reverb 100 watts	161	Monitor Extension	82
MA 100S 5 Channel P.A. 100 watts	149	ECHO UNITS	
S.. 130 Slave 100 watts	97	Echo Unit	145
		Multi Echo	157

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PRICE SCANNER

Compiled by Tony Bacon

ALL PRICES ARE WITHOUT VAT

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
20/2	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	
V140 60w v/v 4 x 10	357.40
V122 100w/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

NGGYBACKS

B15S 60w v/v 1 x 15	450.93
B15N 30w v/v 1 x 15	370.37

AMPS

HD5VT 300w valve	518.52
HDV4B 100w bs. v/v	323.15

HDB25B 55w valve	263.89
HDV4 100w valve	356.48
HDV2 60w valve	323.15
HDV6B 240w tran.	341.67

SPEAKERS

EXSVT 240w 8 x 10	325.93
EXBAB 240w 2 x 15	
Altec	483.33
EXB25B 120w 2 x 15	
Relfax	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.	266.67
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	460.00
V-4 100w + 2(4 x 12)	834.26
V-2 60w + 4 x 12	
reflex	559.26
V-6B 240w + 2	
x 15 d.p.	608.33

PA/EQUIPMENT

CSR6 Mixer	719.44
A120 Slave	390.74
S48 Columns	211.11

BOSE

Bose 1800 Amp	570.00
800 Spkr. pr. + eq.	440.00
800 Spkr. add on	375.00
Bose 880 eq.	65.00

BRØDR JØRGENSEN

ROLAND RHYTHM UNITS	
RYTHM BOXES	
TR33	129.64
TR330	106.76
TR55	154.01
TR66	144.85
TR77	246.37

ROLAND AMPS

PA60	206.57
PA120	312.82
PA120S	161.20
JC60	258.15
JC80	292.39
JC120	350.78
JC160	393.14
VX55	214.46
CA40	187.83

ROLAND REVO SOUND SYSTEMS

REV30	223.90
REV120	486.00
REV250	713.28

EFFECTS UNITS

RE201	262.23
AD50	41.71
AF30	25.22
AF100	25.50
AG5	34.10
AP2	36.07
AP5	77.08
AP7	60.17
AS1	24.80
AW10	31.85
DP1	5.07
FS1	3.80
FV1	21.42

CABINETS

C2030	120.33
C203B	126.68

C2S38B	138.51
RB120 (S & DS)	299.57
SR120 (S & DS)	283.09

CANARY MIXERS

'B'SERIES MIXERS	
12/1	496.00
12/2	573.00
15/2	697.00
18/2	856.05
10/4 mm studio	531.00

FREIGHT CASES

12 ch.	31.00
15 ch.	36.75
18ch.	44.00

A SERIES CUSTOM MIXERS

20/6/2	2860.00
16/8	2800.00
24/2	1700.00

CROSSOVERS

2 way stereo	88.19
3 way stereo	79.04

CARLSBRO

AMPS	
Marlin Mk. II	155.00
Slave Mk. II	95.00
Scorpion	105.00
Stingray Mk. II	120.00
Stingray Super Mk. II	148.00
Stingray Combo Mk. II	190.00
Mk. II	219.00
Bass Combo (Stingray Amp.)	257.00
Bass Combo (Stingray Super amp.)	285.00

SPEAKER UNITS

4 x 12 8"/L 120w	153.00
1 x 18 100w	117.00
Bass Bin 1 x 15 100w	144.00
Bass Bin 2 x 12 100w	158.00
Mini bin 100w	138.00
2 x 12 PA 80w Pr.	139.00
2 x 12 PA 120w Pr.	160.00
2 x 12 1 horn	
80w Pr.	175.00
2 x 12 1 horn	
120w Pr.	195.00
2 x 12 1 horn	
240w Pr.	220.00

CBS/ARBITER

GUUITAR AMPS	
Dual Showman Rvb..	719.00
2 x JBLD 130F	
Dual Showman Rvb.	747.10
2 x JBLD 140F	
Dual Showman Rvb.	424.70
Top only	
Dual Showman Rvb. cab	348.75
2 x JBLD 130F	
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
Vibrosonic, 1 x JBL 1310F	488.25
Super Twin, 180 watts	533.20
Twin Reverb, 2 x Fender 12"	457.25
JBL D120F	566.80
Bandmaster, 2 x Fender 12"	449.50
Bandmaster, 2 x JBL D120F	564.20

Bandmaster. Top only	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
Vibrolok, 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.	277.45
4 x Fender 12"	496.00
Bassman 100. Top	263.50
Bassman 100. cab.	263.50
Bassman 50.	413.95
2 x Fender 15"	
Bassman 50. 2 x JBL D140F	550.25
Bassman 50. Cab.	215.45
2 x Fender 15"	232.50
Bassman 10.	316.20
4 x Fender 10"	
Musicmaster.	
1 x Fender 12"	122.45

PA SYSTEM

PA100+8 Fender B"	492.90
PA100 Top	322.40
PA100 S4-B Col. 4x8	212.35
High freq. horn	65.10
PA160+4	
SC3-10 cots	906.20
PA160 Top	547.15
PA160 SC3-10 Col	108.50

VOCAL REINFORCEMENT SYSTEMS

V30 150w 18"	253.00
V32 300w 12"	345.00
V33 300w 18"	365.00
V34 300w	365.00
V35 300w 18"	495.00
VH36 400w 18"	540.00

CELESTION SPEAKER

G12 M25W	15.33
G12 H30W	18.28
G15 M50W	22.98
G12 G100W	41.23
S10 15W	5.49
G15 Twin Cone 50W	25.07

MAXIMIN CABS

210 60w	65.16
110 100w	85.39
112 100w	105.62
152 100w Bin	116.87
100w Combo Amp	196.91

SOUND REINFORCEMENT COMPONENTS

L48CF 500w 18"	425.00
folded horn	
L48SE 500w 18"	545.00
folded horn	
L48DO 200w 18"	1255.00
RMH-1 100w rad.horn + HF 100 watts	325.00

STAGE MONITORS

SM12-2 150w	225.00
SM15-2 200w	285.00
SM18-2 300w	325.00
BM4-4 100w	149.00

ELECTRONICS	
MM-3 8 channel	795.00
GE-2 13 band eq.	335.00
A-30001 Power amp	895.00
A-1800 Power amp	465.00

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Kansas, st.	
Statteline II	430.00
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Statteline II	524.00
Texas, st.	
Statteline II	230.00
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MODULES

SMP505 Ster. Mix	117.00
Pre/Amp	
MMP303 Mono Mix	
Pre/Amp	58.00
P50 65 w. amp	44.00
P100/100 Ster Amp	99.00

CLEAR TONE

CM1	
2x15 Ld. cab. 120w	122.21
2x18 Bs. cab. 120w	118.62
2x12 Ld. cab. 50w	97.50
1x18 Bs. cab. 100w	98.81
4x12 Ld. Cab. 100w	129.00
4x12 Bs. cab 100w	129.00

PA CABINETS

2x10 80w. Pr.	100.11
4x10 col. 120w. Pr.	142.26
Horn cab	81.57
2x12 col. 100w. Pr.	156.57
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 Srv.	111.36
250w Srv.	191.60
8 Ch. Mtr.	257.41
50w Combo Amp	173.05

CELESTION SPEAKER

G12 M25W	15.33
G12 H30W	18.28
G15 M50W	22.98
G12 G100W	41.23
S10 15W	5.49
G15 Twin Cone 50W	25.07

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ELGEN	
100w Id.	115.27
100w bs.	115.27
100w ster.	105.62
100w ster. slv.	104.62
100w St.	119.90
50w G/P.	80.09
50w Combo w/reverb	158.25
50w bs. combo	137.07
lkd. hn. cab. FH10A	194.44

50w bs. combo	
lkd. hn. cab. FH10A	165.74
1x15 cab 150w	168.05
1x15 cab 100w	146.29
4x12 cab	114.81
4x12 cots. pr.	177.31
2x12 cots. pr.	

SOUND EQUIPMENT

Table containing various audio equipment categories such as COMBOS, AMPLIFIERS, F.A.L., FARFISA, FELDON AUDIO, and F.M. ACOUSTICS, with item descriptions and prices.

Table containing GUITAR AMPS, SPEAKERS, JENNINGS, KEMBLE-YAMAHA, and HOHNER, with item descriptions and prices.

Table containing C420, LEM, NOVANEX, LESLIE SPEAKERS, and L.S.E., with item descriptions and prices.

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Table containing SPKR SYSTEMS, ROCK-ON, MAINS-LEADS, R.S.D., SOUND CRAFT ELECTRONICS, W.E.M., SOUNDOUT, SPERRIN, and THEATRE PROJECTS, with item descriptions and prices.

Table containing POWER GENERATORS & MIXERS, ROOST, SELMER, VALVE AMPS, and WITH COLUMN, with item descriptions and prices.

Table containing SESSION MASTERS, ORANGE, SELF-CONT. MIXERS, P.A. AMPS, COMBINATION AMPS, and ROSE-MORRIS, with item descriptions and prices.

Table containing MARSHALL AMPLIFICATION, CUSTOM-MADE CONSOLES, and TOP GEAR, with item descriptions and prices.

Table containing PAENCLOSURES, CONCERT RANGE PA ENCLOSURES, and MINOR ENCLOSURES, with item descriptions and prices.

HORNS	
1212FX100w FM	230.69
1212GX200w Guass	190.74
1315F100w FM Bs.	114.81
1315C200w Guass Bs	156.46
1317X200w Radial	131.48
1323X200w6 cell	173.15
1336X400w 15 cell	303.70
1345X200w H.F.	104.63

GOODMANS

POWER RANGE	
Audiom 8P 8"	7.05
Audiom 8P 8"	3.14
Audiom 10P 10"	7.35
Audiom 12P 12"	16.26
Audiom 12P-G 12"	19.79
Audiom 12P-D 12"	20.86
Audiom 16P 15"	28.83
Audiom 16P 18"	45.69
Audiomax 12AX 12"	47.07
Audiomax AX 15"	52.30
DB50	74.11

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MODULAR DESKS:	
16/2 A series	P.O.A.
16/4 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 E series	P.O.A.
24/16 F series	P.O.A.

NON-MODULAR DESKS:	
M102 10/2	P.O.A.
M102 B 10/2	P.O.A.
M162 16/2	P.O.A.
M162 FC 16/2	P.O.A.
M162 B 16/2	P.O.A.

POWER AMPS:	
IC108 S	P.O.A.
100 W/8 ohms	P.O.A.
IC116 S	P.O.A.
100 W/16 ohms	P.O.A.
IC204 S	P.O.A.
200 W/4 ohms	P.O.A.
IC206 S	P.O.A.
200 W/8 ohms	P.O.A.
IC404 S	P.O.A.
400 W/4 ohms	P.O.A.
IC402 S	P.O.A.
400 W/2 ohms	P.O.A.
K802 S	P.O.A.
800 W/2 ohms	P.O.A.

EDGE MONITORS:	
W12 50 W	P.O.A.
W12JBL 100 W	P.O.A.
W15CH 100 W	P.O.A.
JBL	P.O.A.
W15 RH 200 W	P.O.A.
JBL	P.O.A.

HORNS:	
JBL2420	P.O.A.
H.F. radial	P.O.A.
JBL2482	P.O.A.
M.F. radial	P.O.A.

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

SM600 7ch. mixer	128.47
SC4 10H 4 x 10" ch	122.17
10" ch	122.17
OSB1 Quadrasound	58.93

SPEAKERS	
M80 8"	5.23
M10L 10"	24.86
M10N 10"	11.57
M12L 12"	39.21
M12N 12"	27.04
M12D 12"	13.99
M15D 15"	66.90
M15L 15"	50.14
M15N 15"	40.05
M15Q 15"	21.34
M600 horn + driver	12.67
M1200 horn-driver	44.77

HORNERS AMPS	
Schaller Solo Uni	
Amp.	83.76
Orgaphon 82	540.23
Orgaphon 130	385.86
OTS 230 speaker	293.24
Orgaphon Box 80	
spkr	171.80
OTS 100 speaker	282.96

SCHALLER EFFECT UNITS:	
Reverb/and	102.68
Reverb unit	92.13
121 Volume pedal	13.84
Wah-Wah/volume pedal	31.43
Wah-Wah/luzz pedal	41.62
Truble/bass boost	29.82
Fuzz/Distortion Unit	21.75
Fuzz sustainer	29.07
FF1 rem. cont.	7.96
FF2 rem. cont.	9.54

MILES PLATTING	
V50	89.71
V50-S Spkr	71.30
V100	109.80
C60	148.47
PA100	103.90
PA100S PA Spkr	120.37
PA100	123.15
PA 100S PA Spkr.	199.07

ZENITH CD60SD	26.40
Z3	17.60

ACOUSTIC AMPS:	
150 125w	
2 channel	225.00
270 375 wats	339.50
450 170w standard	312.50
470 170w twin channel	387.50

ACOUSTIC BASS COMBOS	
136 125w 1 x 18	274.50
148 125w 2 x 15	402.50
371 275w 1 x 18 t/hn	724.90
456 170w 2 x 15	562.00
476 170w	637.00
2 x 15 deluxe	

ACOUSTIC BASS AMPS:	
140 125w	
twin channel	197.50
370 375watts	344.50

ACOUSTIC CABINETS:	
104 6 x 10	187.00
105 4 x 12	187.00
201 2 x 15 Altec +fn.	360.00
404 6 x 12	249.50
406 4 x 12 + hns.	274.50

ACOUSTIC BASS CABS:	
106 2 x 15	205.00
301 2 x 18	380.00
406 2 x 15	249.50

ACOUSTIC P.A.	
Prices on application	

KEYNOTE MUSICAL INSTRUMENTS	
Consort	637.96
Vortex 601	P.O.A.
Vortex 600	T.B.A.
Vortex 696	T.B.A.
Vortex ATC special	T.B.A.
Vortex BC 125	T.B.A.

KNELLER	
WASHBURN AMPS	
PA475 P.A. amp	124.00
GT275 Gr. amp	102.00
GT275R Gr. amp	117.00
CB275 Gr. combo	199.00
CB275B bass combo	190.00
Banjax 6 channel mixer	118.00
Pam10 10 channel mtr	198.00
SL15 Slave	88.00
PK175 Monitors (Pair)	165.00

WASHBURN SPEAKERS	
F12P Front	135.00
ported (pair)	
F212P Iron.	99.00
ported	
F15 Front	98.00
15" Bin	
FB15 rear. 15" bin	145.00
FB18 Rear. 18" Bin	165.00

MACINNES	
AMPS	
IC150 Console	209.00
D60 60w	180.00
D150 140w	285.00
D1C 300A 500w	465.00
M600 1350w	950.00
M2006 2700w	1900.00
VFX-2	180.00
OC150	240.00

SPEAKERS	
ES2 12 75w	440.00
12ch. Mini. Desk	1050.00
18ch. Mix. Desk	2260.00
Bass Bins	120.00
Radial + Sectional	
Horns	165.00
Twin Rev.Unit	120.00
Phase Unit	70.00
Sign.Mono.	
Phase Unit,Stan.	120.00
Ster.	
Phase Unit, Ston.	180.00
Ster. D/b.	
Electronic X/overs.	30.00

MAC LAB HIGH POWER LOUDESPEAKERS	
MMS15 100w	29.15
MMS15 100w	29.15
MMS18 200w	88.00
MMS18 200w	17.60
MMS24 12" 50w	17.60
MMS24 12" 50w	12.00

MM ELECTRONICS	
Sound Blender 150w	187.50
Slave Amp. 150w	87.50

N.B. AMPLIFICATION	
Nolan 100w amp	105.00
Nolan 50w amp.	75.00
RELAN SESSION MSTR	
Rev. Comb.	164.25
Nolan 4x12 P.A.cabs	175.00
(pr.)	
Nolan 2x12 P.A.cabs	117.00
(pr.)	
Nolan 4x12 Ld./Bs.	123.75

NOLAN/DUAL C.HORN	
2x12 (pr.) Cabs	162.00
Flame 50w amp.	67.50
Flame 50w 2x12	115.25

NEXUS	
101A	111.48
1200	229.28
PDA Mixer	253.30
TC10	46.25
BAS300 30w combo	124.43
BAS600 60w combo	180.03
PMA300 Prof Mixer	1179.60
PMA1600 Prof Mixer	1689.63
Vorg 102	291.46
Vorg 052	227.44
PB 7100 AS	
100w Bass Amp	341.75

LANEY	
AMPLIFIERS	
A300	114.86
A51DR	135.47
A540PA PA amp.	122.76
A560PA	
A570slave	97.85

COMBOS	
K20	48.04
K40L	120.13
K40B	120.13
K70	167.40
K120	253.12

CABINETS	
C400	125.55

FOOTSWITCHES	
For Artist Amp x	
Lead & stereo jack	8.52
For Musician amps +	
Lead & Mono jack	6.20

MATAMP (RADIOCRAFT)	
Mark I trans.	172.50
P.A. amp	202.50
100w tran slave	135.00
Disco console	232.50
120w guitar valve amp	129.60
Dual concentric speaker	97.50

REVERB	75.0
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PA : CE	
6ch. Mix Amp / Graph. Equal.	200.00
F.P.R. Slave 200w	118.00
F.P.R. Slave 350w.	132.00
Stereo 5-way G/Equal	80.00
10-way Parametric	250.00
12ch. Mix. Desk	1050.00
18ch. Mix. Desk	2260.00
Bass Bins	120.00
Radial + Sectional	
Horns	165.00
Twin Rev.Unit	120.00
Phase Unit	70.00
Sign.Mono.	
Phase Unit,Stan.	120.00
Ster.	
Phase Unit, Ston.	180.00
Ster. D/b.	
Electronic X/overs.	30.00

DYNACORD	
Echochord Spr.	333.25
Echochord Mini	249.00
Magic HS	84.00
D380 80w cab.	243.00
D310H 80w cab.	343.00
AK100	333.00
Gigant II	549.00
Gigant	516.00
Eminent II	269.44
Eminent 100	594.00
G2002	396.00
HiFi Favorite II	264.00
B1001 8" o amp	360.00

SUNN	
CONT.AUD-CNTR OPT	
Model 87	1719.44
Model 81	1580.56
Model 80	1441.67
Model 62	1580.56
Model 61	1441.67
Model 60	1302.78
Model 40	1441.67
Model 41	1302.78
Model 40	1163.89

SPKRENCIS.	
410M	322.22
410S	144.44
212S	138.69
118MH	323.33
118M	294.44
410S	305.56
215SH	248.15
215M	518.63
215S	194.44
115M	172.22
115S	156.56
610M	466.67
610S	200.00
412S	238.89
312S	200.00

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

113/200 2x15 200w	265.44
108 4x12 mini 120w	145.04
109/200 4x12 200w	180.19
109 4x12 mini 120w	144.95
109/200 4x12 mini 200w	180.00
107 2x12 mtr 60w	89.25
107/2H 2x12	148.25
107/2H 1x15	140.75
126 6x12 180w	195.23
128 8x10 120w	164.25
114/4H 1x15	254.55

P.A.SYSTEMS	
107/2H 2x12 60w	89.25
107/2H 2x12	148.44
127/2H 2x12	140.94
128 8x10 120w	164.25
114/4H 1x15	254.55
124 1x12	64.50

2064-2064B 1 x 12 Reflex Horn Loaded	134.82
Powercell	132.06
2066-2066B 1 x 15 Powercell	154.07
2046 2 x 12 G12H All purpose	80.45
1993 4 x 10 lead	134.82
2042 2 x 12 Artist	113.94
2062 2 x 12 Artist	138.73
2052 1 x 15 Powercell Reflex	184.34
2058 2 x 15 Powercell Reflex	316.40

COMBINATION AMPS	
2200 Trans 100w 2 x 12	217.00
2201 Trans 30w 2 x 12 Bs.	108.50
2202 Trans Bass 2 x 12	108.50
2040 50w 2 x 12 Artist	206.62
2077 Trans 100w 4 x 12 Bass	236.38
2078 Trans 100w 4 x 12 Ld.	236.38
2041 50w Artist stack	253.08
2058 100w Artist stack	319.63

P.A. AMPS	
1885 50w PA top	133.48
2003 100w PA top	188.79
2071 Trans-Mini-mixer	66.40
6 ch.	
1994 Slave 100w	99.80
2051 30w Combo	92.89
2050 Trans Mixer 9 ch	322.56
2051 Trans 250w slave	187.04
2205 Slave 100w 4,8,16 ohms	113.80

P.A. CABS	
1995 pr. 1 x 12 PA	125.86
2097 Fr. 8 x 8 Enc.	166.66
2043 Pr. 2 x 12 + 2 x 10 coils	235.45
2047 Pr. 1 x 12 + 1 x 10 coils	155.05
2056 Powercell 250w bin	316.40
2057 HF horn unit	197.52
2120 Spr bins (horns)	277.76
2121 100w slave monitor	173.60
2122 30w Slave monitor	119.35
2123 50w monitor	65.10

MRX DEVICES	
2890 Phase 100	94.21
2891 Phase 90	75.88
2892 Phase 45	44.31
2893 Distortion +	38.13
2893 Blue Box	69.77
2894 Dyna Comp	50.47
2895 Noise Gate Line Driver	50.42

KEYBOARD/PERCUSSION

KEYBOARDS

BOOSEY & HAWKES

APP SYNTHESIZERS	
2100 String Ensemble	539.89
2200 Little Brother	237.96
2400 AXKE	446.30
2701 Pro-Soloist	682.67
2300 Explorer	450.00
2800 Odyssey	850.93
2600	1830.74
2601 Sequencer	488.89

DIAMOND KEYBOARD	
9924 Diamond 70	171.56
9925 70 rhythm unit	203.56
9929 Diamond 701	516.67
9921 Diamond 702	850.93
9916 Diamond 709	
string	354.63
9917 Diamond 70B el pi.	343.52
9931 Diamond 742	
combo	688.89

BRØDR JØRGENSEN

ROLAND SYNTHESIZERS	
SH1000	443.47
SH3A	456.97
SH2000	509.25
SH5	760.49
101	383.41
102	331.28
103	196.02
104	221.69
109	86.02
700 K. board	316.48
700 Console	2548.48
VCO Bank	1719.94
VCF/VCA Bank	1206.48
Phaser delay	680.45
Mixer conv.	629.49
Seq. controller	799.94
System 700 comp.	7963.20

ROLAND ELECTRIC PIANOS	
EP20	354.53
EP30	449.65
RS101	453.18

CBS/ARBITER

Rhodes Sutinca piano,	
78 note	1419.80
Rhodes Sutinca piano,	
73 notes	1255.50
Rhodes Stage piano	
78 note	891.15
Rhodes Stage Piano	
73 note	818.40
Spr. Steelhie sprks.	895.00
Rhodes Piano Bass	457.25

CRUMAR LTD.

HAVEN ORGANS	
200	548.00
201	654.00
202	896.00
203	1196.00
61 Portable	1106.49
CRUMAR	
KEYBOARDS	482.00
Multiman	
Multiman	
P-board	45.00
Stringman	369.00
Organizer	396.00
Jazzman	305.56
Bressman	320.00
Compassing	230.00
Compabrass	212.00

J.T. COPPOCK

ELGAM ELECTRONIC ORGANS	
244	445.37
244C	504.62
237	300.00
237C	361.11
2049C	152.77

ELKA ELECTRONIC KEYBOARDS	
Elka piano 68	209.90
Elka rhapsody 490	265.57
Elka rhapsody 610	463.16
ELKA AMPLIFIED ELECTRONIC KEYS	
Elka piano 96/A	377.55
Elka rhapsody 610/A	596.84

ELKA ELECTRONIC ACCORDIONS	
Elkavox 77 (juno vers) J1219.58	
Elkavox 77 (chromatic vers.) J1304.90	
ELKA RHYTHM BOX	
Rhythm Machine	112.96
Rhythm Machine 4 (+100W)	321.38

ORLA PORTABLE ORGANS	
Student 37/12	106.11
Student 49	109.22
Chicago 37/12	109.22
Chicago 49	113.20
Tiffany 3	124.66
Tiffany 4	129.52
Companion P37/12	145.60
Companion P37/12A	166.63
Companion P21	145.60
Companion P21A	166.63

ORLA CONSOLE ORGANS	
Companion L5	155.79
Companion L5A	176.41
Fantasy 37/12	176.41
Fantasy 37/12A	199.03
Fantasy 20	178.02
Fantasy 20A	199.03
Fantasy 27	228.13
Fantasy 27A	250.84

ORLA 2-MANUAL MODELS	
Companion P2A	283.11
Fantasy 2A	315.43

FARFISA

Planorgan	324.61
Bellour	387.69
Beaumont	540.00
Belgrave	700.00
Balmoral	780.00
Berkley	1007.69
Beresford	1260.00
Buckingham	1518.46
Super Piano	743.07
VIP200 Amp	44.61
VIP200	395.36
Symphosiesra	389.20
RSC350	603.07
RSC190	318.32
RT20	220.00
QR200	467.69
Pro. Suo	973.84
VIP600	758.46
VIP600	564.61
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	960.00
Transvox TX10M	972.30
137	318.92
XIV	396.92
S.I.V	407.69
S.V.I	543.07
Polyphonia XIV	406.15
A251 Cordovox	3098.45

GALANTI

X300 D/L	305.24
X300 R6	342.23
FRANGE	
F.1	351.40
F.2	425.74
F.2 D/L	518.23
F.3	639.67
F.5	740.46
Insta-str. x	
legs/cr.	276.86
Insta-piano x lgs/cs	
sustain pedal	184.47

3040 Emerald	1022.22
LOGAN CONSOLE ELECTRONIC ORGANS	
10.060 Holiday 300	688.89
10.061 Holiday 400	890.00
ADD-ONE ELECTRONIC KEYBOARDS	
10.023W	416.87
10.500W	509.26

ELECTRONIC PIANOS	
CEP2 Crumar Piano	203.70
CEP35 Crumar Piano	194.44
CEP35H Crumar Rapide	315.56
CEP72B Crumar Piano	226.85
CEP77 Piano + w.b	203.70

JENNINGS ORGANS

J.70 2 Man. Port.	536.00
J.71 3 Man. Port.	648.00

KEMBLE

YAMAHA K'BOARDS	
422.22	
BK2	464.44
B4C	569.60
BK4B	604.44
B5C	711.11
BK5B	777.77
B208H	933.33
B20CR	1000.00
B3C	1155.56
K.O. (knock-out)	348.80
CSY1	1155.56
CSY2	1333.33
BK208	1311.11
D3R	1400.00
D3R (white)	1444.44
DK40A	1778.00
DK40B	1868.89
E10AR	2555.55
E5AR	2555.56
EX42	8888.88

PORTABLE SYNTHESIZERS	
SV1	533.33
SV2	555.56
COMBO ORGANS	
YC25D	763.88
YC45D	1435.18
BP1	100.00

LIVINGSTON

Chorister 61 MB	380.00
Minstrel	T.B.A.
Abbey Chapel	590.00
Abbey Chapel/13	
Ni pdlbrd	648.00
Abbey Chapel/13	648.00
Melodic 230 S	672.00
Melodic 230 LK	720.00
Melodic 150 S	784.00
Melodic 150 LK	848.00
Melodic 230 S	672.00
Melodic 230 LK	720.00
Melodic 250 S	816.00
Melodic 250 LK	864.00
Melodic 250 S	816.00
Melodic 250 LK	864.00
Chorale 30/30 nt. pdlbrd.	960.00
+ sprk. cab.	1080.00
Chorister 2-68 B/32	1350.00
nt. pdlbrd.	1350.00
Chorister 2-68 B/32	1470.00
nt. pdlbrd+sprk. cab.	1470.00

M.C.H.

A201 Solina	502.22
A201 Solina + rhythm	582.22
A204 Solina + rith-	
O-Matic	702.22
A21 Solina + Orbitone	586.67
A211R Solina + Orb.	
& Rhythm	671.11
B303 Solina +	
Multi-voice	710.22
B303R Solina + M.v.	795.55
& Rhythm	
B313 Solina + M.v.	799.11
& Orb	
B313R Solina + M.v.	
Orb & Rhy.	875.55
B316R Solina + M.v.	
Orb & R.O-M	942.22
C112 Solina +	
M.v & orb	920.00

160 Le Granite Royale	679.60
183 Troubadour	786.76
184 Troubadour	879.20
1263 Cameo Royale	930.56
1265 Cameo	
Supreme	1199.20
266 Californian	
Quad	1299.00
267 Californian	
371 Manticello/ moog.	1895.50
372 Manticello Theatre	
606 Trianon	2517.71
917 Celebrity Royale	3193.97
1050 Moog Satellite Synthesizer	350.48

VOX

Piano	209.92
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WELSON

PORTABLE ORGANS	
Condor T	288.00
Personal Duo	438.19
President/Std.	608.00
President De-Luxe	728.01

MANUAL KEYBOARDS	
Syntax	432.00
Vedette	212.80
K.O. (knock-out)	348.80

RHYTHM UNIT

S 12	115.20
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HOME AND CONCERT CONSOLE ORGANS

M.G. 40T	320.00
Festival VBS	336.00
Festival VBS	384.00
Festival B	384.00
Winner 45S	544.00
SM 3300 BS	720.00
MG 300 TS	784.00
Romantic 130	608.00
Romantic 130 S	656.00
Romantic 130 LK	688.00
Romantic 130 LK	752.00
Romantic 150	704.00
Romantic 150 S	784.00
Romantic 150 LK	848.00
Melodic 230 S	672.00
Melodic 230 LK	720.00
Melodic 230 LK	816.00
Melodic 250 S	816.00
Melodic 250 LK	864.00
Melodic 250 LK	912.00
Melodic 250 LK	912.00
Prestige 330 L	1040.00
Prestige 350 L	1272.00
Prestige 350 LK	1136.00
Privilege 400S	1216.00
Privilege 400 L	1248.00
Privilege 400 LK	1312.00

WINNER 45S	544.00
SM 3300 BS	720.00
MG 300 TS	784.00
Romantic 130	608.00
Romantic 130 S	656.00
Romantic 130 LK	688.00
Romantic 150	704.00
Romantic 150 S	784.00
Romantic 150 LK	848.00
Melodic 230 S	672.00
Melodic 230 LK	720.00
Melodic 230 LK	816.00
Melodic 250 S	816.00
Melodic 250 LK	864.00
Melodic 250 LK	912.00
Melodic 250 LK	912.00
Prestige 330 L	1040.00
Prestige 350 L	1272.00
Prestige 350 LK	1136.00
Privilege 400S	1216.00
Privilege 400 L	1248.00
Privilege 400 LK	1312.00

WURLITZER

305 Sprite	359.00
320 Sprite, Fwd	554.00
360 Sprite, Fwd	595.00
375 Sprite, Fwd	887.00
400 Sprite, Fwd	909.00
415 Sprite, Fwd	1099.00
542 Chapel Spinnet	
Wal	1284.00
545 Chapel Spinnet	
Malh/Fwd	1900.00
55 Chapel Spinnet, Malh/Wal	1548.00
605 Centura, Wal.	2025.00
900 Centura, Wal.	2221.00
802 Chancel, Wal.	2221.00
905 Centura, Wal.	2623.00
4700 Concert, Wal	3674.00

ALL PRICES ARE WITHOUT VAT

73936 16"	41.08
73948 17"	43.79
73958 18"	48.67
73958S 18" swish	56.96
73968 20"	56.96
73968S 20" swish	64.33
73978 20" pang	64.33
73978 22"	65.86
73978S 22" swish	77.50

AVEDIS ZILDJIAN HI-HAT CYMBALS	
738DHH 13" pair	52.55
7391HH 14" pair	63.55
7392HH 15" pair	68.95
7393HH 16" pair	73.32

BEVERLY OUTFITS

Hi-Hat stand (all less cymbals and cases)	
Panorama 21	271.25
Panorama 22	358.90
Panorama 24	317.74
Galaxy 16	224.74
Galaxy 22	237.14
Galaxy 24	240.24

CBS/ARBITER

ROGERS DRUM OUTFITS (MEMPHLOC STANDS)	
Headliner IV	590.55
Studio X	1333.00
Londoner V	804.95
Londoner V Superlten	764.00
Londoner VI	694.35
Londoner VII	1057.10
Ultrapower VII	1184.20
Ultrapower VIII	1267.90
Starlighter IV	725.40
Starlighter IV Superlten	678.90

ROGERS DRUMS

Dynasonic Snare 5 x 12	131.75
Dynasonic Snare 8 1/2 x 14	134.07
Superten Snare 5 x 14	93.00
Superten Snare 6 1/2 x 14	97.65
Poweritone 14 x 20 Bass	158.10
Poweritone 14 x 22	217.00
Poweritone 14 x 24 Bass	217.00
Poweritone B x 12 Tom	71.30
Poweritone 9 x 13 Tom	75.95
Poweritone 10 x 14 Tom	83.70
Poweritone 12 x 15 Tom	93.00
Poweritone 16 x 16 Tom	114.70
Poweritone 16 x 18 Tom	130.20
Poweritone 18 x 20 Tom	179.80
Poweritone Bongos	75.95
Poweritone Timbales, Brass	195.30
Poweritone Timbales, Chrom.	195.30
Acousonic Tompani, 20"	469.65
Acousonic Tompani, 23"	496.00
Acousonic Tompani, 26"	598.30
Acousonic Tompani, 29"	620.00

CONCERT TOM-TOMS

6" x 8"	43.40
7" x 10"	49.05
8" x 12"	51.15

249 281.48
249R 326.00
610 249.00
610R 298.14
304S DL 169.81
304R DL 239.88
204S 145.37
104S 112.96
1037 87.96

HAMMOND
SOUNDER
Model 1 313.78
Model 3 617.78

SPINET
Super Dolphin 9722K 680.00
Super Dolphin deluxe 9822K 850.68
Super Dolphin Premier deluxe 9922K 1206.89
Phoenix 1222 1450.67
Aurora 8222 2586.67

CONSOLE
Monarch 16122 3450.67
Grandeur 11122 4316.44
Regent 4172 4316.44
Concorde 2107 6180.44

DALLAS
ORGANS/ELECTRIC REED AND ELECTRONIC
Chord 30.00
Gypsy 44.00
Little Duchy Electronic 47.00
Electronic Chord 123.00
Electronic Chord 148.00
Electronic Rhythm box 229.00
New Chord (Pet) 26.00
Orgatron I 24.00
New Chord (Pet) 22.50

PORTABLE
K-2 475.55
K-5 1068.99

ACCESSORY PRODUCTS
Auto-vari 64 193.78
Rhythm unit 193.78
Hammond Synthesizer 57-100 400.00

HOHNER
KORG RANGE
Mini 700S
Synthesizer 412.04
8000V synthesiser 691.80
Bass synthesiser 276.18
Preset synthesiser 430.65
Polyphonic I Ensemble 707.08
Polyphonic II Ensemble 707.08
Traveller VCF Unit 79.30
MR multi effect 49.40
Tuning trainer 70.42
Rhythm trainer 68.64
Volume pedal 36.76

ELECTRIC PIANOS
Group 750.00
Baby Grand 850.00

ELKA ORLA
ELKA POSTABLE ORGANS
Capri 101 319.20
K-55 731.76
X-55 De-Luxe 792.03
Concorde 400 739.57
Concorde 402 1094.52
Concorde 600 723.96
Concorde 602 1078.99

ELKA CONSOLE ORGANS
Capri 101C 319.20
Minuette 99 390.68
Minuette 99/MT 458.24
Capriccio 11 477.68
Capriccio 11/MT 544.93
Capriccio 11/O 834.85
Capriccio 33 721.84
Capriccio 33/MT 788.96
Capriccio 33/O 879.02
Capriccio 33/OL 982.76
Nocturno 44/L 842.36
Nocturno 44/MT 909.51
Nocturno 44/OL 989.56
Nocturno 66/L 1061.46
Nocturno 66/MT 1118.62
Nocturno 66/OL 1208.82

C112R Solina + M-v & Orb & Rhy 1022.22
C112ARP Solina + ARP synth 1502.22
C112ARFR Solina + ARP + rhy. 1595.55

C116R Solina Semi-Horseshoe 1222.22
C116R Solina Straight Model 1200.00
C116R Solina Straight with roll-top S110 Solina + Bench 936.00
SL110 Solina Bench 1213.33
310 Eminent 1421.33
310ARP Eminent + ARP synth. 2013.33

510 Eminent + bench 1472.00
560/30 Eminent + bench 1712.00
650/32 Eminent + bench 1776.00
2000/13/R Eminent 3515.55
2000/27/R Eminent 3999.11
SE4 Solent string ensemble 620.37
V70 Solina Tone Cabinet 365.74
V150 Eminent Tone Cabinet 601.85

ROSE-MORRIS
GEM KEYBOARDS
250 Intersound 832.00
295 Dakota Synthi 550.95
296 Jumbo 61/86 291.33
293 Jumbo 61 195.56
291 Caravan 142.22

K. ZILDJIAN
10" crash 17.55
12" crash 22.69
12" Hi-hat 26.88
14" Hi-hat 29.63
15" crash/ride 33.79
16" Hi-hat 35.65
17" crash/ride 37.73
18" crash/ride 43.98
19" crash/ride 48.84
20" crash/ride 54.63
22" crash/ride 64.77

SELMER
LOWREY
TG-1 630.22
TG-1 44-1 982.22
TG98-1 1288.69
TG98-1 1534.22
TGO-1 1882.67
TGS-1 2306.67
TLOKS-25 2544.00
GAK-4-1 2780.44
GAK-25-1 3687.11
H25-3 6758.22

MOOG SYNTHESIZERS
Mini-Moog 875.00
Sonic Six 875.00
Taurus Pedal synth. 522.22
Micro-Moog 522.22

PIANO ACCORDIONS
Bellini Multi-Grande 224.07
Bellini '80' 141.67
Bellini '48' 97.22
Bellini '24' 67.59

THOMAS ORGANS
1129 Cavalier 319.20
1129 Cavalier D/L 340.00
1130 European 30.89
Rovale 423.80
1157 Majestic Rovale 479.80

PIANOS
203 Elect. Black 467.00
2109 Fwd. 549.00
2126 II Prov/Fwd 62.19
2850 Walnut 610.00

PERCUSSION
ASBA
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 9 tom 107.41

ASBA ALTOGLASS
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

SNARES
14 x 5 wood 148.10
14 x 5 metal 148.10
14 x 5 glass 148.10

STANDS
Hi-Hat 53.70
Snare 34.21

CONGA-BONGO
Tumbador 156.48
Femin congas 138.84
Bongos 53.70
Metal bongos 40.28

IZMAR
12MAR 11.06
13 12.92
14 18.47
15 19.40
16 22.17
18 28.66
20 35.14
22 50.88

BOOSEY & HAWKES
AVEDIS ZILDJIAN CYMBALS
7386 B 15.90
7387 10 18.60
7388 12 23.55
7390 13 26.28
7381 14 31.78
7392 15 34.50
7393 16 36.66
7394 17 39.45
7395 18 44.77
7396 18 swish 52.00
7399 19 42.67
7396 20 62.00
7396S 20 swish 56.48
7396P 20 pang 60.22
7400 21 57.97
7397 22 65.67
7397S 22 swish 73.55

AVEDIS ZILDJIAN 'BRILLIANT' CYMBALS
7387B 10 23.02
7387B 13 30.89
7388B 12 36.12
7392B 15 38.29

15" Sound edge 94.48
13" Hi-hat pr. 56.46
14" Hi-hat pr. 56.06
15" Hi-hat pr. 64.96
16" Crash, Medium or Ride 37.21
18" Crash, Medium or Ride 44.70
20" Crash, Medium or Ride 55.33
22" Crash, Medium or Ride 70.89
24" Crash, Medium or Ride 85.34
18" China type 58.02
20" China type 74.86
8" Bell Cymbal 29.07
11" Splash Cymbal 34.53

FORMULA 602
13" Sound edge 81.54
13" Hi-hat pr. 107.28
Hi-hat pr. 88.97
15" Sound edge 88.97
Hi-hat pr. 94.48
13" Hi-hat pr. 63.78
15" Hi-hat pr. 68.01
15" Thin, Thin Crash Medium or Medium Ride 43.46
17" Thin, Thin Crash, Medium or Medium Ride 48.96
18" Thin, Thin Crash, Medium or Medium Ride 52.34
19" Thin, Thin Crash, Medium or Medium Ride 59.83
20" Thin, Thin Crash, Medium or Medium Ride 65.23
22" Thin, Thin Crash, Medium or Medium Ride 83.51
24" Thin, Thin Crash, Medium or Medium Ride 100.45

18" Flat Ride 59.08
20" Flat Ride 69.08
16" China Type 59.08
20" China Type 61.81
No. 1 Seven Sound 25.60
No. 2 Seven Sound 30.38
No. 3 Seven Sound 51.90
No. 4 Seven Sound 59.08
No. 5 Seven Sound 59.08
No. 6 Seven Sound 59.08
No. 7 Seven Sound 75.02

HAYMAN DRUMS
Vibrasonic snare 64.90
12" x 9" T 50.05
3" x 9" T 51.70
18" x 16" T (lgs) 71.50
22" Bass 101.20

HAYMAN CYMBALS (SWISS)
14" High Hat 10.00
18" Cymbal 19.00
20" Cymbal 25.00

DAVOLI
UFIF CYMBALS
10" 10.18
11" 11.35
12" 12.49
13" 16.19
14" 19.90
15" 21.76
16" 23.14
18" 31.48
20" 40.73
22" 55.55
24" 74.07

REDSOUND
12" 7.87
13" 9.25
14" 10.18
15" 11.57
16" 12.96
18" 17.12
20" 20.37

TAM-TAM GONGS
20" 78.71
24" 99.08
28" 138.89
32" 342.59
36" 393.51

CHINESE TYPE
15" 25.92
16" 31.48
17" 38.90

1413 13 x 9 81.96
1410 14 x 10 86.10
1415 14 x 15 96.67

FLOOR TOM-TOMS
1414 14 x 14 102.55
1416 16 x 16 114.36
1418 16 x 18 121.41
1420 16 x 20 134.93

TOM-TOMS (SINGLE HEADED)
1412S 8 x 12 61.33
1413S 9 x 13 66.05
1410S 10 x 14 68.42
1415S 12 x 15 75.47
1414S 14 x 14 86.10
1416S 16 x 16 95.51
1418S 16 x 18 101.37
1420S 18 x 20 103.69

BASS DRUMS
1118 14 x 18 95.94
118S 14 x 18 107.28
1120 14 x 20 132.99
1120S 14 x 20 113.66
1122 14 x 22 140.24
1122S 14 x 22 128.22
1124 14 x 24 155.54
1124S 14 x 24 129.07
1126S 16 x 26 169.66
1126S 14 x 26 140.83

HAYMAN OUTFIT
Shownam 22" Outfit 367.40

HAYMAN DRUMS
Vibrasonic snare 64.90
12" x 9" T 50.05
3" x 9" T 51.70
18" x 16" T (lgs) 71.50
22" Bass 101.20

HAYMAN CYMBALS (SWISS)
14" High Hat 10.00
18" Cymbal 19.00
20" Cymbal 25.00

RED SOUND
12" 7.87
13" 9.25
14" 10.18
15" 11.57
16" 12.96
18" 17.12
20" 20.37

TAM-TAM GONGS
20" 78.71
24" 99.08
28" 138.89
32" 342.59
36" 393.51

Z2005 14" 15.65
Z2006 15" 17.95
Z2007 16" 20.83
Z2009 18" 27.27
Z2011 20" 35.65
Z2013 22" 45.32

ZYN CYMBALS
272 12" 2.98
355P 14" 6.06
275 15" 7.22
276 16" 8.52
278 18" 12.17
268S 18" sizzle 12.60
280 20" 13.89
285S 20" sizzle 14.21
282 22" 16.57

JOHN HORNBY-SKEWES
HOSHINO DRUM
OUTFITS
HSD500 240.74
HSD500T 314.81
HM1000 148.15
HCT1 212.86
HM300 101.65
HK600M 33.33

PREMIER
DRUM OUTFITS
B201 20" 282.96
B201 22" 283.39
C201 18" 275.71
C201 20" 294.13
B202 22" 295.15
D202 24" 304.02
D203 22" 361.47
D202 24" 358.64
D204 22" 422.59
D204 24" 429.75
304 20" 360.30
8304 22" 361.38
D304 24" 370.25
305 20" 390.88
B305 22" 391.90
D305 24" 400.77
308 20" 418.94
B308 22" 419.86
D308 24" 428.73
604 20" 346.55
B604 22" 347.57
D604 24" 358.44
605 20" 411.85
605 22" 412.87
D605 24" 421.74
606 20" 522.18
B606 22" 524.22
B606 24" 541.95
717 20" 471.35
B717 22" 472.38
D717 24" 481.24
808 20" 646.90
B808 22" 648.84
D808 24" 666.57
1031 20" 119.06
B1031 22" 202.63
D1031 24" 237.49
B1033 22" 241.07

DRUM OUTFITS
B201 20" 282.96
B201 22" 283.39
C201 18" 275.71
C201 20" 294.13
B202 22" 295.15
D202 24" 304.02
D203 22" 361.47
D202 24" 358.64
D204 22" 422.59
D204 24" 429.75
304 20" 360.30
8304 22" 361.38
D304 24" 370.25
305 20" 390.88
B305 22" 391.90
D305 24" 400.77
308 20" 418.94
B308 22" 419.86
D308 24" 428.73
604 20" 346.55
B604 22" 347.57
D604 24" 358.44
605 20" 411.85
605 22" 412.87
D605 24" 421.74
606 20" 522.18
B606 22" 524.22
B606 24" 541.95
717 20" 471.35
B717 22" 472.38
D717 24" 481.24
808 20" 646.90
B808 22" 648.84
D808 24" 666.57
1031 20" 119.06
B1031 22" 202.63
D1031 24" 237.49
B1033 22" 241.07

HAYMAN CYMBALS (SWISS)
14" High Hat 10.00
18" Cymbal 19.00
20" Cymbal 25.00

RED SOUND
12" 7.87
13" 9.25
14" 10.18
15" 11.57
16" 12.96
18" 17.12
20" 20.37

TAM-TAM GONGS
20" 78.71
24" 99.08
28" 138.89
32" 342.59
36" 393.51

CHINESE TYPE
15" 25.92
16" 31.48
17" 38.90

278 18" 12.17
280 20" 15.87
282 22" 16.58

CYMBALS - SUPER ZYN.
354 14" 20.31
364P 14" pair 40.61
355 15" 22.17
355P 15" pair 44.33
356 16" 24.33
356 18" 28.21
358S 18" sizzle 28.98
360 20" 32.40
360S 20" sizzle 33.17
362 22" 40.45
374P 14" pair 44.63
375P 15" pair 48.82
376P 16" pair 53.47

ROSE-MORRIS
LUDWIG
Gcta-Plus OF 1259.26
Quadra-Plus OF 837.95
Pro-Beat OF 824.07
Deluxe Classic OF 583.37
Big Beat OF 680.56

PREMIER
DRUM OUTFITS
B201 20" 282.96
B201 22" 283.39
C201 18" 275.71
C201 20" 294.13
B202 22" 295.15
D202 24" 304.02
D203 22" 361.47
D202 24" 358.64
D204 22" 422.59
D204 24" 429.75
304 20" 360.30
8304 22" 361.38
D304 24" 370.25
305 20" 390.88
B305 22" 391.90
D305 24" 400.77
308 20" 418.94
B308 22" 419.86
D308 24" 428.73
604 20" 346.55
B604 22" 347.57
D604 24" 358.44
605 20" 411.85
605 22" 412.87
D605 24" 421.74
606 20" 522.18
B606 22" 524.22
B606 24" 541.95
717 20" 471.35
B717 22" 472.38
D717 24" 481.24
808 20" 646.90
B808 22" 648.84
D808 24" 666.57
1031 20" 119.06
B1031 22" 202.63
D1031 24" 237.49
B1033 22" 241.07

HAYMAN CYMBALS (SWISS)
14" High Hat 10.00
18" Cymbal 19.00
20" Cymbal 25.00

RED SOUND
12" 7.87
13" 9.25
14" 10.18
15" 11.57
16" 12.96
18" 17.12
20" 20.37

TAM-TAM GONGS
20" 78.71
24" 99.08
28" 138.89
32" 342.59
36" 393.51

CHINESE TYPE
15" 25.92
16" 31.48
17" 38.90

ALTUGLASS
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
12x6 Tom 82.40
14x14 Tom 96.25
16x16 Tom 130.00

SNARES
14x5 Wood 116.25
14x5 Metal 116.25
14x5 Glass 116.25

STANDS
Hi-Hat 35.64
Snare 24.07

CONGA / BONGO
Tumbador 101.85
Latin Congas 162.04
Quinto 91.67
Pedal 12.73
Bongos 53.61
K. ZILDJIAN CYMB.
10" Crash 14.35
12" Crash 19.21
13" Hi-Hat 21.75
14" Hi-Hat 25.69
15" 28.24
16" Hi-Hat 30.73
17" 31.23
18" 36.94
19" 41.66
20" 46.25
22" 55.46

IZMIR CYMB.
13" 46.25
14" 15.27
15" 17.59
18" 22.68
20" 28.28

YAMA
IMPERIAL STAR DRUM
OUTFITS
8993 Saturn 12 + 1 850.46
8967 Saturn 7 534.72
8909 Mars 9 774.07
8908 Mars 8 651.85
8906 Mars 6 575.46
8905 Mars 5 466.48
8805 Mars 05 427.78
8804 Mars 04 361.94
8705 Mercury 5 409.44
8704 Mercury 4 341.20

YAMA
IMPERIAL STAR
DRUMS
8520 Bass, spurs 81.46
8522 Bass, spurs 93.70
8524 Bass, spurs 100.83
8536 Bass, spurs 109.49
8534 FITT 60.09
8536 FITT 65.18
8538 FITT 71.30
8588 Snare 92.59
868B Snare 111.11
868S Snare 79.17
855S Snare 60.86
8512 TT 38.19
8513 TT 39.72
8514 TT 45.83
8515 TT 49.91

TAMARoyal Star
OUTFITS
7917 402.31
7925 325.92
7924 287.22
7955 312.66
7954 299.44
7854 422.68
7804 365.65
7804 239.35
7570 Bass dr. 65.28

PERCUSSION/GUITARS

Table listing various musical instruments including basses, guitars, and percussion. Items include Fender Custom Telecaster, Tama Swing Star Outfits, and various acoustic and electric guitars. Prices range from approximately \$39 to \$294.50.

ALL PRICES ARE WITHOUT VAT

Table listing musical instruments such as mandolins, tenor banjos, ukuleles, and acoustic guitars. Items include Neutroschmann Classic, Kasaqua Acoustics, and Framus acoustic guitars. Prices range from approximately \$36.07 to \$170.50.

Table listing acoustic guitars and electric guitars. Items include Terada Acoustics, Kasaqua Electrics, and Zenita Electrics. Prices range from approximately \$50.46 to \$236.00.

Table listing electric guitars and semi-acoustic guitars. Items include KEMBLE Classics, G.M.S. Picato, and various electric guitar models. Prices range from approximately \$33.33 to \$456.88.

Table listing acoustic guitars, electric guitars, and semi-acoustic guitars. Items include Avonics, Student Guitars, and various acoustic guitar models. Prices range from approximately \$36.57 to \$444.44.

Table listing acoustic guitars, electric guitars, and semi-acoustic guitars. Items include Solid Body Series, Avonics, and various acoustic guitar models. Prices range from approximately \$328.89 to \$444.44.

Table listing acoustic guitars, electric guitars, and semi-acoustic guitars. Items include Guild Jumbo/Folk, Fender Semi-Solid Electric, and various acoustic guitar models. Prices range from approximately \$112.04 to \$310.01.

GUITARS

GUITARS

ARC

Table listing ARC guitars, including an Elect. Sld. Boy Swede. Price: 166.80.

W.M.I.

Table listing W.M.I. acoustic steel string guitars. Items include K. 230, K. 410, K. 440, K. 450, K. 520, K. 530, and KDG 70. Prices range from 15.69 to 31.94.

Swede bs. F.200N	176.36	FT2	29.83	E245 I. P. Jun	124.00
F.400.Nbs	101.83	FT1 8s.	32.69	E265 Stereo Bass	149.50
F.100.B.	65.78	XLIRA	64.79	E270 Deluxe	167.00
SEMI-ACOUSTIC		Westbury	59.93	E275 dble Neck 6 String	170.50
V.R.N.	122.20	310 Elec.	68.19	+ Bass	82.50
Jimmy D'Aquisto	P.O.A.	360 Bs.	58.78	4445 Jsdson Jet Bass	
COUNTRY & WESTERN		Blue Hill 6	62.17	GIANNINI GUITARS	
H.45-Fstr. jbo.	72.06	Blue Hill 12	80.13	Classical - Nylon	25.85
H.33-12str.jbo.	77.67	SM8 Solid	90.57	Classical - Nylon	29.70
CLASSIC		SM9 Solid	90.57	Classical - Nylon	42.35
H.C.4	43.10	365 Bs	75.86	Classical - Nylon	51.70
H.C.5	32.64	149 Classic	27.81	Classical - Nylon	64.35
DYNELECTRON		GUYATONE STEEL		6 String Jumbo	49.50
273	151.67	HG91	20.66	6 String Jumbo	53.35
274 bs./t.	151.67	HG306	55.52	6 String Jumbo	44.00
285 bs./t.	151.67	HG188 C	85.71	6 String Jumbo	55.00
PEARL		EMI		MORIDAIR'S CONCERT	
PF.200 ilk.	41.31	Custom 6	109.95	CLASSICS	
PF.250/6 jbo.	49.20	Custom 4	122.76	G201/842	49.77
PF.250/12 jbo.	51.86	Salisbury	109.95	G202/843	61.30
FT.155 jbo.	54.13	SG2 S	42.05	G205/845 Rosewood	60.83
DANA		SG10 B	41.06	G206/845 Natural	60.83
R.30 T/pc.	8.23	ST300	64.42	G207/846	71.16
R.105	10.67	HASHIMOTO CLASSIC		G212	98.69
F.33 ilk.	19.56	G100	38.72	G214	112.45
SCDR		G130	44.18	MORIDAIR'S CONCERT	
SCDBR	200.06	G180	51.41	FOLK MODELS	
L./scf.bs.	250.00	G200	57.79	F301M/855	62.31
S./scf.bs.	225.00	G250	68.68	F303M/856	70.46
JOHN BIRCH		J.T. COPPOCK		MORIDAIR'S JUMBOS	
6 string electrics from	280.00	DOBRO		W501M/847	66.20
12 string electrics from	300.00	Hnd. Dg.sq.nk.	163.89	W504M/848	84.63
Short-scale basses from	280.00	B/grsnd.nk	163.89	W51030/852 tp/u	86.40
8-string basses from	300.00	NATIONAL DOBRO		W510205/650	
Cases	22.00 or 40.00	36 Hnd/Gr	263.86	s.burst	103.84
Any personal extras—quotations	on request	33 D Dia.atch.	231.48	W51021M/850 natural	123.72
		30 Gd.enam.	175.00	W513/951	124.49
		HAWAIIAN		W620	153.47
		2390 Gir.	21.75	W610	173.99
		N.710 O/fit	42.61	W611	267.59
		ANTORIA CLASSICAL		W621 S 1/2 cut.	210.88
		361	30.09	W621M 1/2 cut	164.63
		RA2	31.02	nal	61.90
BI GIORGIO		ANTORIA CLASSICAL		B702 Cycamore Back	81.90
No. 16 Signorina		2890	39.36	B704 Rosewood Back	109.25
Classic	43.89	2840	45.37	CONCERTEER	
No. 28 Classic	52.68	2841	47.22	SK612N 1/2 size	14.40
No. 35 Bel Som		2860	39.81	SK614N 1/2 size	18.12
Classic	80.55	2855	53.70	CK100N Classic	20.63
No. 30 Amazon		2858 slo.grd.	94.44	GK200 Classic	26.43
Classic	61.57	F2871 Flmco.	94.44	FK289 Folk	25.05
TAKEHARU		TAMA		FK299 Folk	34.17
GT30A small cl.	59.35	3561 S	120.83	WKS98 Jumbo	25.51
GT30B small cl.	59.35	3560 S	133.33	WKS99 Jumbo	35.88
GT85 full cl.	39.21	3558 S Jbo.	119.91	WKS99 ch Jumbo	38.52
GT120 full cl.	44.63	3550 P Grd.		WRO030 Jumbo Deluxe	40.92
GT180 full cl.	59.21	concert	86.11	MORIDAIR BANJIOS	
WT100 Jumbo	44.03	3550 S Grd.	88.89	FB-1R 4-string	52.22
WT200 Jumbo	61.53	concert		FB-2R 5-string	52.22
WT100-12 jumbo 12str.	45.74	YAMAKI		GB-1 6-string	53.84
225 12 str.jbo.	93.51	225 12 str.jbo.	93.51	ELECTRIC GUITARS	
570 small cl.	12.96	220 12 str.jbo.	83.80	JAT-21 solid	36.27
575 full cl.	20.14	216 12 str.jbo.	75.46	FB-1V solid	60.75
		125 6 str.jbo.	81.02	FB-1W bass	60.75
		115 6 str.jbo.	62.96	FT-2T Solid	30.09
		112 6 str. lk.	43.51	JB-2 solid/bass	54.62
ANGELICA		ANTORIA		ILEA00 solid	80.53
2851 full cl.	17.82	756 Herald	74.54	LP200G solid	72.40
CBS/ARBITER		757 Gl.Westr.Stid.	58.39	LS200C solid	64.80
FENDER SOLID ELECTRICS		759 S Grd.	133.33	LS200YS solid	54.80
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D, Drums	W, Woodwind
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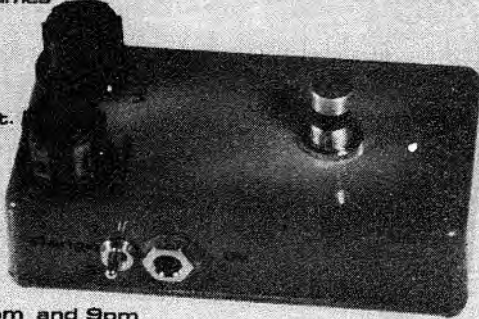
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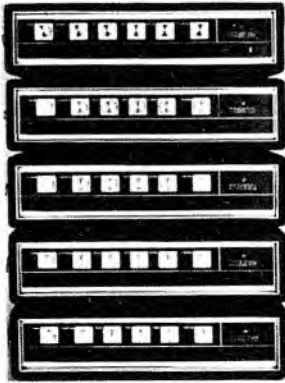
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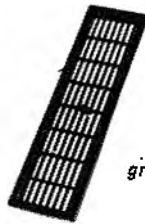
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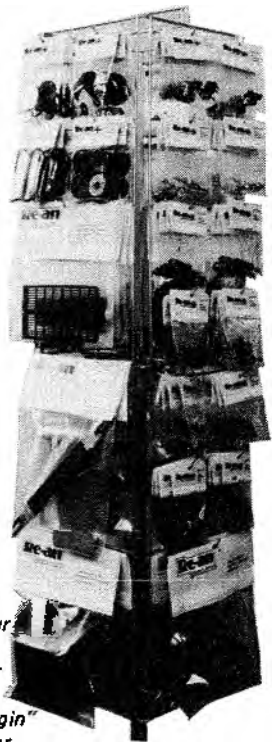
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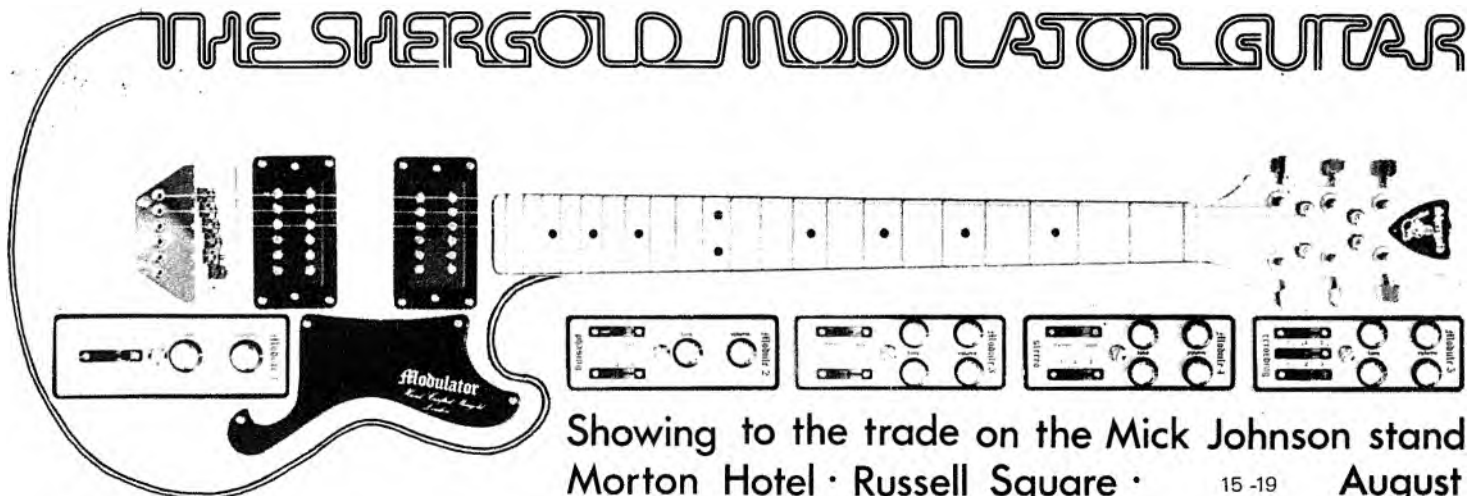
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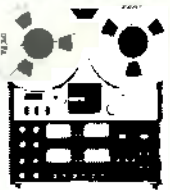
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