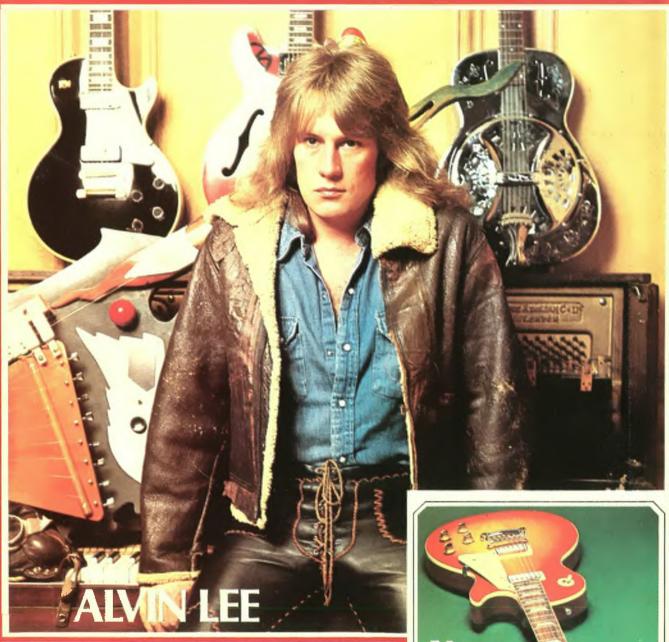
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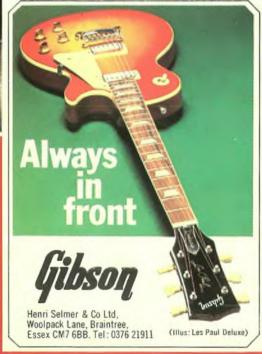


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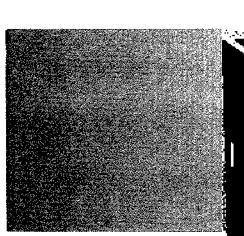
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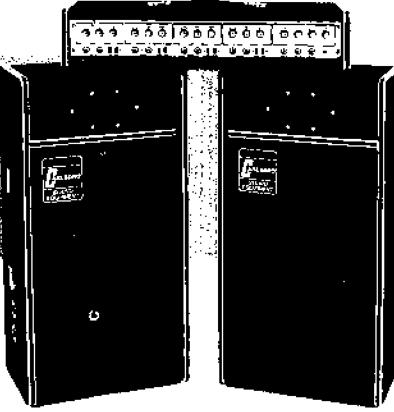
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Sir: I've been following your articles on how to improve a copy guitar. Can you tell me how much this will cost me to do?

Could you also tell me which are the best strings to use with acoustic, bass and electric guitars.

Jim Markin Lee-on-Solent, Hants.

A rough guess would be around £20 for tools and £2 for materials which is still far less than having the job done professionally. Choosing the right strings is a very personal matter but try Guild light bronze for acoustic, Gherson tape wound for bass and Ernie Ball's Super Slinky strings for electric quitar.

Sir: I have an old Hofner Verithin but the pick-ups have just about had it, I've got another guitar but I would like to keep the Hofner because it has got a really beautiful neck. Unfortunately the sound is fast disappearing. Could you recommend a replacement pick-up?

B. Trudeau Newquay, Cornwail

The Gladys pick-up mentioned elsewhere on this page is a direct replacement for your pick-ups. Don't forget to change your strings at least every two weeks in the summer.

Sir: For many years I've been wanting to get an electric guitar but finances have stopped me. It now seems that I may be able to afford one in the not too distant future. The dealers I go to seem to be more interested in selling me guitars they have in stock than on discussing the type of guitar I want. I also want to buy a suitable amp for the guitar. I've no objection to a second-hand model.

Lyndon Roberts Bath

As you don't say what sort of music you want to play It's hard to know what the best instrument is. At a guess try a Guild \$ 50 or a Gherson SG shape solid. It might be worth putting U,S, pick-ups on the Gherson. Watch the bargain Japanese copies. For an amp it's worthwhile getting an old Fender top or AC 30 if you're willing to nurse them. If not, try a Peavev Pacer.

Sir: I recently purchased a Gibson Biue Ridge Custom from Hamiltons of Teesside. I'm pleased with it but I get a string rattle above the 12th fret. As I don't want to touch the truss rod in case that may not be the problem, can you tell me if this qualifies under the Gibson guarantee and who I should contact.

Ian Hodgson Billingham, Cleveland

This problem should certainly be fixed under the terms of the guarantee. The law firmly puts the initial responsibility upon the retailer, in this case Hamiltons. Take it back to them. If they have any great problems they will pass it back to the importers who are Henri Selmer and Co., Woolpack Lane, Braintree, Essex.

Sir: I play acoustic guitar with a Guyatone pick-up fed into a Selmer T & B 50. It sounds O.K. until I turn the volume up past the half-way mark then the pick-up becomes "live" and this makes playing very delicate indeed.

I would also like to know if there are any manuals available giving details of construction of electronic effects boxes.

Les Cockburn Edinburgh

Unfortunately the only answer for you is to buy a better pick-up. Your Guyatone is becoming "microphonic" in volume and a not uncommon fault on simple pick-ups, it needn't cost you a fortune, however, For somewhere around £5 you can buy a Gladys (described as the best pick-up in town — get it?) which is marketed by Rosetti & Co., Old Street, London EC4.

A few electronics journals like Practical Electronics and Electronics Today have published construction articles for effects units, but international Musician is planning to publish this sort of article on some of the more exotic effects units in the near future.

Sir: I play a Fender Telecaster through a Miles Platting V50 amplifier. This set-up worked well while I was playing rhythm, but I'm now playing lead and I need more sustain.

I've tried mixers and treble boost units but all I get is fuzz or feedback. Are there any accessories that may do the job or have I got to think about a Stratocaster or Gibson?

P.L. Anthony Plymouth

MXR sustain boxes are available and are probably your best bet for pure sustain. Several other companies make pure sustain units but we haven't got first-hand experience of them. You could try a Strat or even an old Ash-bodied Telecaster and of course a good Gibson will give you what you want.

Sir: I've heard about a gadget called a Lifeguard that protects against overload. I think it's made by Marshall. I'm surprised you haven't mentioned this unit, so could you give me more details about the unit?

Philip Hayes, Ashford, Middx.

The Lifeguard has been temporarily discontinued by Marshall. It's a unit that fits alongside the plugs on the mains board and does as you suggest provide protection for circuit irregularities. We're planning to give constructional details on this sort of life preserver in the next couple of months.

Sir: I'm planning to make myself an electric guitar but the truss rod is my major problem. Where can i get some advice of fitting them and can you also advice me on how I can buy Fender Strat type pick-ups but obviously not at Fender orices?

Colin Fretwell Lichfield, Staffs.

Truss rods are certainly a problem and we're going to run a major feature on truss rods in the near future. Unfortunately Fender pick-ups cost Fender prices but a Japanese copy may do very well. J.T. Coppock and many other suppliers carry a wide range of these spares. You'll find the addresses elsewhere in the magazine.

Sir: A Vox Wyman bass guitar has recently come into my possession. It's in an excellent condition except that the finish is badly chipped and scored. How can I remove this for revarnishing? I've tried various solvents without even dulling the gloss.

J. Toal High Valleyfield, Fife

Try a metholene chloride paint stripper that's made by Hill, Son and Wallace who have branches in London and Manchester. The stripper and its vapour are extremely caustic and if you get any in your eye you have to put cold water on it immediately and send for an ambulance. You may have to score the finish to let the stripper through but be careful not to scratch the wood. If all else fails use brown paper and blister the paint off with a hot iron. Placing a flat iron on the surface through brown paper encourages maisture in the wood to rise and that breaks the adhesion of the paint and It will blister off.

Sir: Could you please tell me where I can get a stereo switch for a Les Paul type guitar and give me some idea of the cost.

P. Wigglesworth Leeds.

Getting a Gibson stereo switch might be a little difficult because there's quite a delay on Gibson spares. Top Gear's retail shop in London's Denmark Street can supply a Guild stereo switch which is virtually identical except for the appearance of the knob. Price of both items is around £3. If you're sufficiently keen on Gibson, order it through Henri Selmer and Co., Woolpack Lane, Braintree, Essex.

Sir: I play in a folk duo with a Fender F65 and a Grant 12 string. Recently people have been saying that my finger-picking cannot be heard above my partner's guitar so I bought a Selmer 5 SS which I think will give me enough volume. Can you suggest a pick-up that will give me an acoustic sound? I don't want to use a microphone.

On the 12 string I've found that using a capo in (for example) C Sharp makes the guitar go out of tune. Is the bridge in the wrong place?

Alister Rice Peebles.

Your best solution is to have two Barcus Berry Hot Dots professionally fitted to your guitar. Otherwise try transducers made by Barcus Berry, Frapp or Ibanez. The Barcus Berry and Frapp transducers require a pre-amp. Barcus Berry units are available from Top Gear, Denmark Street, London WC2 and Ibanez from either Summerfield Brothers, Saltmeadow Road, Gateshead, NE8 3AJ or J.T. Coppock, 5/6 Bucklersbury, London EC4N 8BA. If the trouble with the capo chiefly occurs on the first fret it is likely that the slots in the nut aren't deep enough. If the tuning problem occurs everywhere, try using a heavy duty capo made by Terry Gould and bend it to the shape of the neck.

Sir: A friend of mine has hit upon a beautiful string called Mohawk and has discovered that if the strings are moved down and the top E replaced by a Rotosound ,008 E, the result is ideal for rock. These strings are hard to find however, and if you could tell me who distributes them it would be very helpful.

Rick Allerton, Malvern, Worcs.

Mohawk strings are made in East Germany principally for the American market. They may be available in Britain through Boosey & Hawkes, Deanstrook Road, Edgware, Middx. Higher quality strings of the same make are available under the Handcraft name in several gauges.

Sir: I get a hum on my six string and bass guitars if the volume is set at anywhere but 10 or if the tone controls are not set at the lowest treble position. The hum has occurred on all amps I've tried them through.

Jonathan Calder Crawley, Sussex

Suspect the earthing on the mains circuit — it's very important that this exists. Use a Martindale Mains Tester. Otherwise check guitars and leads for breaks in earth circuit.

Sir: I've got two problems. I've got an old Hofner Committee guitar and I can't find an adjustment for the truss rod. The second problem is that I get a buzz when I plug into the amp with my guitar but when I plug a mike into the amp and put my mouth or hand on the mike the buzz stops. I was playing at a friends house recently and the buzz was ruining what we were doing. He said that there wasn't any earth in the house circuit at the moment, Can I cure this?

Gerry Byrnes Thurles, Co. Tipperary Ireland

It certainly sounds like an earth problem. It's vital that you don't play anywhere where there's not a good earth. We mentioned the Martindale mains tester earlier, but if you've got to play without an earth get a mains isolation transformer. This will protect you should there be a fault in the equipment or circuit. They're available by post from Barrie Electronics, The Minories, Aldgate, London EC4. To find out which transformer you need give the consumption of amp in watts (not the output). If this isn't marked on the back panel multiply the value of the mains fuse by 250 in amps. Ask Barrie to supply the nearest transformer up the scale. Price will be somewhere in the region of £14.

Sir: I would like to refret my own Fender Strat with Gloson fretwire. Can I do it myself or should I leave it to the experts.

Douglas McGlure Stratholyde

It is very difficult unfortunately and should be left to a professional.

Sir: I always read the Letters page in IM, and now I'm up against a problem. I'm the leader of a heavy rock band and it's up to me to find venues for the band to play. At the moment, I'm having great difficulty.

I have had an idea which would help me and probably help other bands who share the same problem. If readers who know of any places to play could write to your magazine stating all the relevant details, I'm sure that it would be a good idea. Every time we try to get a gig in or around Leeds, we are told that they don't want heavy rock bands. Every good band deserves a gig.

Steve Parker Leeds

We couldn't agree more. This is not the only letter we've received complaining about the lack of venues which book heavy rock acts. We would like to help, and would be grateful to any readers who would send us details of venues which welcome rock bands. In his letter, Steve Parker mentioned three in the Leeds area.

They are: PAUSE, Bishopsgate Street, Leeds 1; Tel Leeds 45778.

TAVERN IN THE TOWN, West Gate, Bradford; Tel. Bradford 25008. FFORDE GREEN, Harehilis, Roundhay

Road, Leeds 8; Tel. Leeds 623470. International Musician welcomes further additions to this first brief list.

Sir:, I have written some songs and put them down on tape, but I don't know where to send them. Could you please offer any advice on this subject?

John Thirkell Bolton, Lancs.

The Songwriters Guild of Great Britain Ltd. should be able to answer any question you have regarding songwriting. Their address is 52 Dean St., London W.1; Tel. 01-437 1554.

Sir: I would like to offer an idea for the consideration of prospective guitar buyers.

When you buy a copy guitar, as well as the normal manufacturing costs and profit margin, you also pay for freight charges, import duty, distributors, importers and retailers profits. For all of this, you get a guitar that looks just like the axe used by every other budding guitarist in the country.

guitarist in the country.
How about a word for our custom makers, people like Tony Zemathis, Dick Knight, Chris Eccleshall, John Birch, Dan Armstrong, Sam Li, as well as your own Stephen Delft? Nearly all of the charges mentioned above are cut, and you end up with an original instrument, hand made by a craftsman, with your own choice of shape, colour, size, tone and output level.

The hassles? Perhaps resale is a bit more difficult, but if more people used them, the situation might be more like the classical guitar scene, where luthiers are more esteemed than factories.

Stu Lambert Chesham, Bucks.

Well said. We are planning a series on the Custom guitar makers in the near future.



ALVIN LEE

Alvin Lee is a guitar super hero, He owes his Tudor manor house, £100,000 recording studio and Porsche to the guitar — usually a Gibson 335 with an added Fender pick-up.

When did you first add a Fender pick-up to a 335?

I did the first one about three years ago and 1 repeated it two or three times since then. I've got three Gibsons, two for spares and my best.

Did you actually lose anything by putting a Fender pick-up between the humbuckers?

No, in fact you gain. I now have a Gibson which sounds like a Tele just when I want it to. I left the original Gibson pick-ups on and just added a Strat backed pick-up between the humbuckers which I use without the covers on. I've also got an extra knob so I can have the pick-up out — so it's a straight Gibson — or in, so it gets Fenderish. The centre part of the body is solid and the main contact comes from the bridge area, the nut and the joint between the body and the neck, so putting a pick-up in didn't affect the sound at all.

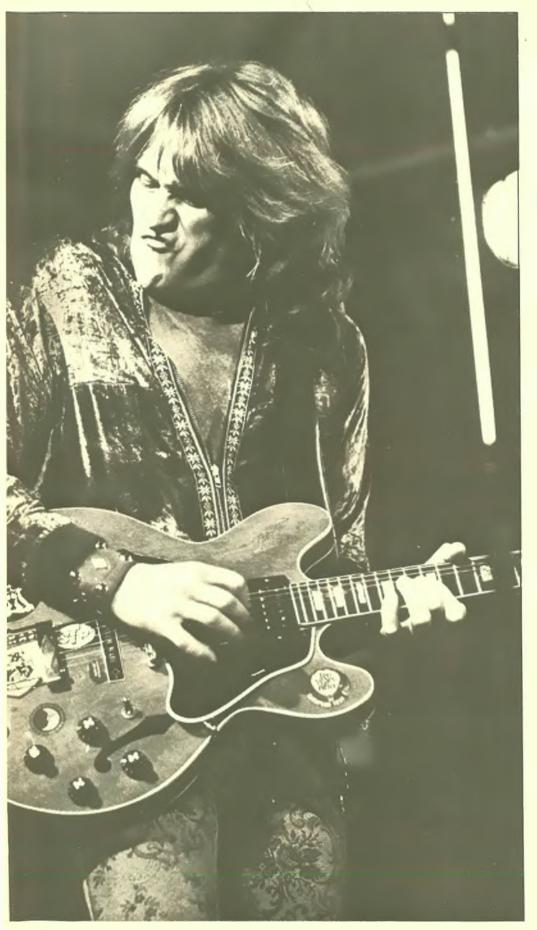
Why did you do the job yourself instead of having someone do it for you?

I did it myself as an experiment really. The first one I did was out of phase and it was great. Then someone came along and put it in phase for me and it wasn't as good. I put it out again and when I go over to the Fender pick-up the guitar's out of phase. It brings the top end up, the treble.

Did you always experiment with guitars? Yeah. When I was in New York I met Les Paul and I went over to his studios and that was really incredible. He had prototypes of every Les Paul he's ever made hanging around the walls and there's a workshop there where he carves them out, old pick-ups lying around and everything. He said 'Oh, I know you. You're one of those types ... I work for three years to get the right sound out of a guitar and you take the capacitors out and turn the pick-ups round, it happens all the time!' He said 'I don't know why you bother.'

What did you think of his playing? Oh, he's great. He says now that his playing's not so good, arthritis is setting in, but he's still a major force so far as being inventive is concerned. He's into studios and creating new sounds. The big thing with him is timbre, he'll say 'That's a nice tone but I don't like the timbre,' so he's got all these gadgets for changing the timbre.

He built the first eight-track recorder, of course. He did it disc to disc first, he had his own disc cutters. He recorded a rhythm track on a disc, transferred it from a disc onto another disc and added the next bit on and so on. The quality was great.



He's been responsible for so many breakthroughs, like echo — he's really incredible. He made the first eight-track out of bits like a Cadillac flywheel and motor. Have you always been interested in the gadgets that go with guitars?

Not so much the gadgets ... in fact, I don't use gadgets, I prefer to have the guitar as the sound generator and the amplifier just for amplification. I don't like pedals ... and fuzz especially: I prefer to get fuzz or overload valves rather than fuzz pedals. My own set up is a 15 watt WEMDominator.

The one with the pointed front?

No, not that one, it's one Charlie Watkins made up for me. I have an output from the power amp - low level, so I get my sound off that. I can mike that on stage, I take a lead out of the power and I can just put it through a slave amp and get the sound right. I get the tone I want and I can get the level from another amp. The sound I want is valve overload and in fact when WEM were trying to make me a big amplifier and I was very happy with my ancient 50 watt Marshall, they had a white coated boffin analysing the signal and he said 'The sound you like is the harmonic distortion of the third octave.' So I said 'O.K.' He made about five patents of valve distortion simulators but none of them worked. The thing with a valve ... when it distorts when you overload a power amp, not a pre-amp, and valves sing - they acquire their own individual harmonic. You play a chord and it's a solid sound, play it through a fuzz and it just disintegrates into a nasty great grating sound. It's O.K. on single strings where you get all that dirty noise in between the notes.

When did you finally get rid of the Marshall?

I was working a lot in the studio and when I started the new band, I didn't want it to be a 1,000 watt band like Ten Years After, so I used the WEM on stage. You're into many other things now, like management and your studio, but are you still obsessed by the quitar?

Oh yeah, right. Doing all the other things is giving me new inspiration.

Hearing other musicians play, mixing with other musicians, my whole scene is one of musical involvement. I went through a period when my music did stagnate, because I was playing the same stuff over and over again and I got over that by getting my studio together, going in and blowing with different people and experimenting - not making albums, not recording tracks. Some of the most enjoyable things I've got down on tape are just jam sessions. They're not commercial prospects, I don't think anyone would buy it, paying £3.50 for 20 minutes of self-indulgence on one chord. But it gets me off,

During your period with TYA when you were doing the marathon tours of the States, did you ever get to a point where you never wanted to pick up a guitar again?

Not really. I have acoustic guitar spells where I can get into country picking and if I was getting fed up with what I was playing I'd be doing other kinds of music in the hotel room. Guitar playing should be a hobby. When one type of guitar playing became a job for me I'd develop another style of playing as a hobby. I got into jazz, a bit of classical... I was actually a student of the guitar, I wanted to explore as many avenues as possible.

ALVIN LEE

Have you lost that feeling now?

No, but equalling that feeling now is my concern with my studio, because that is an extension of my earlier days of fiddling with gear - even in the very early days I used to have a 10 watt amp and use it as a pre-amplifier and power the Vox with that, doubling the tones and so on. I'm a great believer that it doesn't have to be technically right, provided the sound is right. Sometimes you can feed the whole output of a 10 watt amplifier into a pre-amp stage and risk blowing it up - and get an amazing sound, providing it lasts for the take. It gets a little expensive in fuses though. Do you still play every day?

Yes. It's not like practice, I just fiddle about.

What do you usually play when you first pick up a guitar?

It all depends what instrument it is. If it's an acoustic I'll do a bit of picking. I usually start by having a whizz around in E, that's my all-time favourite key, it gives you perfect coverage of two octaves. G gets a bit tight, especially on a 335, you get up to G and it's difficult to use the top A, through E. You see, you've got to whip down to a bass E and then up to a 12th.

I play different guitars differently. With a Telecaster, which gives a tight, nippy sound, I play that style, while with a Gibson, I tend to wail more on it. I've got a Martin which I pick, and a 'Sitar-guitar' which has its own thing altogether. I've got a Melody Maker which I play bottle neck. Every guitar has its own inclination, and it makes me play slightly different.

Have you played with anyone recently, a guitar player I mean, who has really astonished you?

Oly Halsail is a very good guitar player. At one time, I got tagged with the 'Fastest Guitar in the West' title. It was a bit silly really, it was never my intention, but Ollie can play twice as fast as I can, twice as clean, and he's a far better guitarist, he's just unrecognised. He's just over the heads of most people.

We spoke at length to Ritchie Blackmore in our March issue and he was talking at length about your playing. He said that he was astonished that you play at the speed you do, and yet you only stroke one way. Do you stroke up and down continually, or are you basically a downstroke player?

Not completely, no, but in fact I do finger a lot of notes, the passing notes. I pick the E and I can apply the G flat and the G without another pick, and that's how the notes come in. I do back pick as well, I tend to back pick on off-beats. It's more of a left-handed style, especially the fast stuff.

Do you feel that your right hand is weak, that it's your weakest hand?

Oh no. No, not really. To tell you the truth, picking every note on the scale to me sounds like the type of style that you learn reading music, and not from listening.

I mean to go for an effect of three, I don't have a planned technique for how to execute it — I just throw it around until it sounds good.

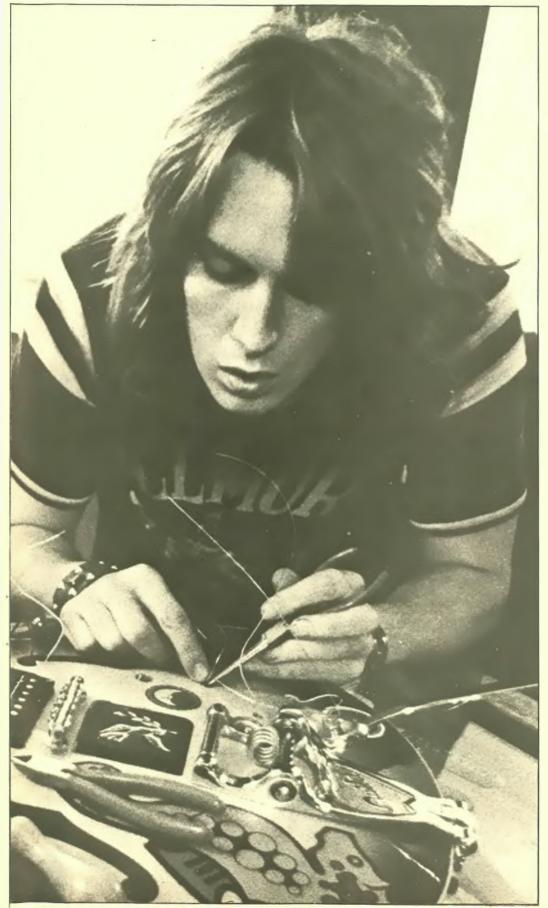
Were you always like that or did you go through periods of trying to improve your clinical technique?

Oh, I used to play along with Hank Marvin and I got a couple of Buddy Holly solos off note for note. What started to develop when I found Chuck Berry was that, rather than copy what he was playing, I would play along and imitate the style but not actually take his licks, applying my own licks to that feel. Is that why you originally chose a Gibson?

Not really, the reason I played it was that I got it originally for £45 - I was stuck with it!

Now, if I may, I'd like to talk to you about the studio. Apart from actually just having it, what has it done to you as a musician, now that you have the facilities to record instantly?

It has spurred me on, I mean, it's sitting there, ready to go and all I have to do is have the material, so it's spurring me on to get the material together.



The great advantage of it is, for example, if I'm doing a mix down — like when I mixed the Rainbow it took me two months, on and off, to do that. The main advantage to that is that if I want tea or if I don't know where I'm going, I can turn it off. I can go out and have a walk, or anything, and come back — it's all there, ready to go, you play it again and get back in fresh.

That's the great advantage, if you rent a studio and you come back, everything's changed, you have to start out all over again.

You talked about your material, how much do you have at the moment? Well, reasonable. I work in spurts. About August last year, I had a real burst. I write one verse songs, maybe four or five a week and put them down on tape, and I'm still about seven cassettes behind, which is about 14 hours of songs which all need second and third verses and break bridges and choruses and that's the work, that's when I really sit down and lock myself away and get down to it.

Do you manage to slot songwriting into your everyday life?

Yeah, I think I do, I've tried sitting down and saying 'I'm going to write some songs today' but I can't do it to order. Another day I'll be watching TV and I'll have to get up and write something. Of those verse songs, how many do you throw out when you come back to them? I tend to pick the best. It depends what mood I'm in. Sometimes I'll listen to a tape and say it's all rubbish, other times I'll think it's good. So when I start a song I really try to finish it, whether it's good or bad, because I've found that I'm the worst judge. I have a problem satisfying myself, I'm always wanting to do something better than before. When I come back to songs I try to finish them no matter what and if you still don't like it when it's finished, you learn something by working on it.

ALBUMSO

Over The Rainbow: Various Artists. Chrysalis CHR 1079.

This is a live recording of the last concert at the Rainbow Theatre in London. Chrysalis have released it and there is a very interesting collection of people playing on it. The standard of production is very high for any live recording (courtesy of Virgin Mobile). The first track is "Wheelin" Dealin" by Sassafras. Lovely lead in on guitar, perfectly timed pause then funky, gravelly vocals, with the quality of the introduction maintained till the end of the track. Next track is "Grand Hotel" by Procol Harum (from their album of the same name), At least that's what it starts as, it soon goes off into "Somewhere Over The Rainbow" - (very relevant really). Any The way Procol Harum do a classy and dramatic rendition of Judy's Song which is greeted with a suitable response from the audience. For the next track they're joined by Frankie Miller and together they do "Brickyard Blues", which is a classic of its kind, and the kind of thing which Procoi Harum can always carry off successfully: just listen to Gary Brooker's superb plano playing. It's always difficult for anyone else to do a Beatles number with any degree of success but Sassafras try with "I Am The Walrus". It's suitably in tune with the nostalgic atmosphere of the evening but it doesn't do either the song or Sassafras justice. On to side two, with Richard and Linda Thompson singing Pokey", Main vocals from Li "Hokey Main vocals from Linda and harmonising from Richard, held together by Richard's fast and expert quitar playing. Linda's voice is ideally suited to this kind of country folk song. The next track is Hatfield and the North "Playing Halfway Between Heaven and Earth" an original and quite complicated track compared to the simplicity of the rest of the album, a little bit weird but with very tight backing and it makes a nice contrast to the other tracks. Then it's John Martyn who hasn't as yet achieved the kind of popularity that his talent deserves. He's singing "Discover The Lover". His songs always have an earthy quality to them, he does have a very earthy voice and it contrasts effectively with some complicated guitar riffs on this track.

The last track is Kevin Coyne singing "Saviour". It's my least favourite track, but it keeps up the kind of pace and high that should end a concert, speedy with some beautiful bass playing.

Records at the Rainbow by Virgin Mobile, re-mixed at Wessex Studios, London. Produced by Leo Lyons.
Elaine Copper

Armageddon: Armageddon, A & M AMLH 64513

Ex-Yardbird Keith Relf has got a new band together and he must be yearning for reviewers to stop calling him ex-Yardbird. That hangs in his hands and if he wants to be known as Relf of Armageddon he's got to make the band amazingly good. That he's managed to do. The problem is that it leaves him with a further problem - his vocals aren't really good enough, It must be something of a major hangup to have been spawned by one of the most important R'n'B groups of the London sixtles and it's understandable that the experience he gained with the likes of Clapton, Page, Dreja etc. gives him the knowledge and power to put together a really first class band - as he's done here. Unfortunately it can never give him a voice. He really is an excellent harp player and if he were prepared to accept that role and get in a singer of Plant's capabilities (or anyone else who's really good), the band are good enough to fly straight to the top. The guitar work of Martin Pugh is absolutely breathtaking and if the band becomes a decent platform he'll step off into international guitar fame. Bass player Louis Cennamo is equally good and all in all the band are extremely promising. The material on this album is fair, the band make it excellent and you really do just end up wishing for a vocalist who's powers match those of the rest of the band.

Produced by Armageddon, engineered by Doug Bennett at Olympic Studios, London.

Ray Hammond

Aerosmith: Toys In The Attic. CBS 80773

This is pretty low grade ore from a selfconscious, lock-up-your-daughters-whenwe-come-to-town kind of band, but there are some unexpectedly good moments. The title track gets off to a pretty shakey start, vaguely Cooperish with an overall impression of commercial post-adolescent nihilism, "Uncle Salty" is more in the right direction, good light rock which is Aerosmith's forte. Adam's Apple" unfortunately is a step back into Alice's shoes, with some predictable guitar breaks made bearable by pleasant jamming, "Walk This Way" is the high point of the album - humourous, with some novel quitar breaks and a nice exchange between lead and rhythm. but unfortunately they let the side down with the final number, "Big Ten Inch. Record". This contemptible little track might be used as a yardstick to distinguish the crude from the ribald, as it clearly comes down on that side lacking wit and novelty. For further information about the band, you can write to the Aerosmith Fan Club, P.A. Box 4050 Woodside N.Y. 11377, U.S.A.

Produced by Jack Douglas, engineered by Jay Messina, recorded and mixed at The Record Plant, New York. Carroll Moore

Harvey Andrews and Graham Cooper: Fantasies From a Corner Seat. (Transatlantic TRA 298)

Harvey Andrews is concerned with the circumstances of life as it affects the common man. It is his "common touch" that distinguishes him from lesser writers currently seeking to emerge from minority acclaim to national fame. If the stars had been a little kinder he would have made it two years ago. He was in the ascendant then with really excellent. albums (completely solo) like Writer Of Songs and Friends of Mine and despite the fact that he was hardly an adolescent performer then, those albums have a youthful anger that is missing from this album. His comparatively recent partnership with guitarist/writer Graham Cooper has proved to be a softening influence on Andrews' work. The anger is still there, deep down, but it is more professional now. For contrast try the track on this album called "Autumn Song". Harvey Andrews also recorded the song on Friends Of Mine two years ago, and the difference is very noticeable. I'm uncertain quite why he re-recorded the song. If he wanted to improve his vocal performance he failed. At the end of the first chorus he has allowed a line through with breathing faults that almost forced him to miss a note. But essentially the rawness that was an integral part of the Andrews charm has disappeared. In general, now that he's not playing and singing, his voice is considerably better, but that almost gets in the way of his subject matter. Despite an interesting turn of phrase and a real ability to capture imagery in his lyrics, his subject matter is prosaic (like most of our lives), and to hear professional recordings and ultrasmooth renditions is something of a contradiction. Andrews is an exceptionally fine songwriter whose rising curve on the chart of acclaim should have crossed that point of luck they call a break two years ago. Now his recording attitude has matured and I hope his polish won't become too deep for "fans" to believe they discovered him and applied their own polish.

Produced by Ritchie Gold, engineered by Barry Hammond at Chipping Norton Studios, Oxfordshire, and Essex Studios, London

Ray Hammond

Kursaal Flyers: Chocs Away! U.K. | Records Super 2330 101

The Kursaals have been gaining momenturn in London and the South East over the past eight months, and this album goes a long way towards explaining why. That's not to say that it is an especially good album, because it isn't. But what makes it a fairly good album, and one expects, also makes the Kursaals a nice band to watch, is unpretentious, lighthearted, respectable music. Typical of this facet of the band's music is "Hit Records", a refreshing repackaging of some of the more nostalgic musical cliches of the sixties, which goes a long way towards acknowledging this decade's debt to the chart certs of the last. As in many of the tracks on Chocs Away!, there is more in this than meets the ear. Tonques are firmly planted in cheeks (which is no reflection on the vocals of Paul Shuttleworth), and "Kung Fu", the following track, is a respectable second division attempt at the sort of things 10 CC did on their recent album. The Original Soundtrack, The Nashville mystique is parodied in "Tennessee", which also incidentally features some quite respectable banjo from Ritchie Bull, "Brakeman" is reminiscent of the Dead about the time of Workingmen's Dead, but altogether too predictable for my tastes. There is on the whole quite a lot of pedal steel guitar on this album so much, in fact, that it makes me wonder if it doesn't dominate the imagination of the band. That need not be such a bad thing - great albums have certainly been produced by willful virtuosos on every instrument, but there is something a bit overpowering about pedal steel which types its music as more or less C&W. But all in all, Chocs Away! is a very competent, mildly refreshing album by a band you can bet are, at least for the moment, streaks better live than on vinvì.

Produced by Hugh Murphy, engineered by Tony Taverner, recorded at Escape Studios, mixed at Olympic.

Carroll Moore



Freddie King: The Best of Freddie | King. A & M AMLS 68313

By no means the best of Freddie King. this is a selection of the guitar hero's more recent tracks. They are all recorded after the guitarist formed his artistically and financially profitable association with Leon Russell, Russell produced several of the tracks on this album as well as appearing on the tracks, It's very much a ROCK/blues alburn, with the choice of note flourishes and the nerve shattering steely quitar tone existing to trace the artist's background to the blues scene of Chicago in the late fifties and early sixties. Freddie King is an important player and it is the way he's developed his own identifiable style while remaining within the sound and tradition of artists like his namesake B.B. and others that assures him of continued attention. Naturally he's far hotter as a player than a singer and to hear him at his best, listen to the lazy interjections he makes in "Reconsider Baby" on side one. The alternate vocal line and quitar. repetition is pure electric blues and it's possible to describe Freddie King as being a more "Tuneful" player than Hubert Sumlin or Albert King, in as much as he pulls his notes into tune rather than leaving them hanging a microtone out. Two or three gems among the usual catalogue material found on a compilation album,

Recorded and produced by several.
Ray Hammond

The Isley Brothers: The Heat Is On. Enic EPC 69139

When The Heat Is On, can anybody be as cool as the Isley Brothers? I doubt it. The first side starts off with "Fight The Power", more an incitement to artistic rebellion than a call to the streets, it evokes a memory common to most musicians, roughly summed up in "Turn The Bloody Thing Down". But the next track, "The Heat Is On", really makes the album worth its purchase price. Such a beautiful track, with some superb synthesiser playing from Isley Brotherin-law Chris Jasper. The essence of this song is its perfect interpretation of what, in a nutshell, is the Black American man's chief aim: staying cool when all Hell is about to break loose. The terrors are real and many; and the controlled urgency of the vocals, the sinister and forbidding synthesiser, the unrelenting tension of the entire arrangement is a truly stunning tour de force. That it should be followed by such a smooth. silk, satin and velvet number as "Hope You Feel Better Love", underpinned by a fine wailing bluesy guitar line, would, in most cases, be unfortunate. In this case it's a master stroke; soothing, healing and very tender, an unusual display of mixed characteristics which might blow up in most people's faces, For them, it works.

Produced by the Isley Brothers, engineered by Malcolm Cecil and Robert Margouleff, recorded and mastered at Kendun Recorders, Burbank, California. Carroll Moore

Bee Gees: Main Course. RSO 2394 150

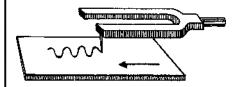
This is a very breathless, excited album and for some reason on the feet tapping tracks (most of them on side one) the harmonising and general atmosphere is like that of the Supremes or similar chart topping tuneful singers. Generally speaking, side one is disco-dancing music with the necessary strong repetitive funky rhythm. Side two has more melody and harmony, slower tracks about lost loves and found loves and the like. Most of the tracks have complicated instrumental backing (sometimes it sounds as though a whole orchestra is backing the Gibbs vocals) but the vocals do tend to dominate most tracks. On "Songbird" there is some very nice harmonical playing by Donny Brooks which complements the unusual qualities of the Gibbs' voices in a gentle way. It's sometimes difficult to remember that the Gibbs' are British, especially when an album like this has such an American soul sound. It was recorded and mixed in the States which explains some things but not the Americanism which the Gibbs use in some of the lyrics. My favourite track is "Songbird" which I mentioned earlier, not only for the production which is excellent but for the lyrics which are very simple and therefore very effective. There's one line which is addressed to the sonobird which is "you'll never really ever know how beautiful you are". All simple and a bit naive, but good to listen to. The Bee Gees have been around for a very long time but they're still managing to produce music which is popular and professional. The high standard of their albums can always be relied on and they seem to be able to maintain a nice balance between their lyrics and melody. I find their voices a bit nasal for my taste but their experience in timing and general sense of rhythm more than compensates for that. They use their voices very efficiently (which is again a result of their experience) and thinking about it, it's probably their pure professionalism which makes me draw a comparison between them and the Supremes.

Produced by Arif Mardin, engineered by Karl Richardson and George Piros at Criteria Studios, Miami and Atlantic Studios, New York.

Elaine Cooper



This can be most easily demonstrated by attaching a writing stylus to an ordinary tuning fork and exciting the fork whilst simultaneously moving a sheet of paper under the fork, as illustrated, at a FIXED speed,



The absolute symmetry of the pattern thus created on the paper sheet tells us a lot.

Firstly: Even though the tuning fork was excited by blows of very different velocities and directions, the number of patterns (or cycles) per inch of paper never varies.

Secondly: Even as the tuning fork settles back to zero movement, the number of patterns per inch of paper remain constant but at a reduced and regularly diminishing width or amplitude.

From this we can deduce that the note created with the tuning fork, (in this particular instance A=440) draws 440 complete sine-waveforms (pure tones) in every complete second of oscillation regardless of the strength of the blow used to excite it and continues to do so until almost the point where all its energy is dissipated and it comes back to rest.

TUNING FORK

Every player of a stringed instrument which requires tuning regularly will be aware that both pitch pipes and tuning forks are a less than ideal reference source.

The pitch pipe is not very stable because the breath moisture condenses on the reeds, increasing their mass, thus making the pitch drop a small, but important, amount. A tuning fork requires but one hand to use, thus leaving only one hand to play the string and adjust the machine head: This is not very easy.

The obvious answer is a self sustaining tuning fork, or a fully electronic equivalent, which can feed through a guitar amplifier.

The unit described here is an oscillator, known as a "Wein bridge". This has been chosen because it can have a frequency stability of approximately 0.1%, which is equivalent to a pitch stability of about 1/60th of a semitone. Although not as precise as a laboratory tuning fork, it is far better than pitch pipes, and can be 'tuned' far more accurately than a tuning fork – which keeps fading out.

Readers who are familiar with normal Wein bridge oscillators will notice that the unit described here has the traditional thermistor replaced with two diodes and some resistors. This is done purely to reduce costs, resulting in a unit which should not cost more than £1 to make.

All the components required are of very eaily obtainable types but special attention should be given to getting the best quality components for those parts which set the pitch. These are C₁, C₂, R₁, R₂ and VR₁.

'Metal oxide' or 'Metal film' resistors

'Metal oxide' or 'Metal film' resistors are best but carbon film resistors will do. Solid carbon types should not be used for either of these resistors. The capacitors should be of polyester or polycarbonate film types. VR1 should be of the cement type or of the small wirewound type. A carbon pot in this position is unlikely to be satisfactory.

VR₁ sets the pitch of the oscillation and is chosen to have enough range to set the

oscillator pitch to the 'E' of the open first string of a guitar with component tolerances given, providing all the components valves are not simultaneously at their limits. If you should find insufficient tuning range, a high valve resistor (100k) connected across R₁, if the pitch is too low, or changing to R₂ to 18K if the pitch is too high, should solve the problem.

VR₂ sets the level of oscillation; if it is set at the top end, the unit will not oscillate at all and if set at the lower end, the oscillation is too fierce, distorted and out of tune.

The correct setting is a little past the point where the oscillation first starts but does not advance, so the sound becomes harsh.

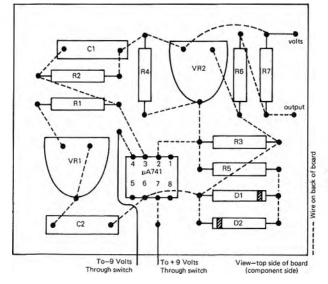
Construction can be by any standard technique but the layout given is for plain (not copper) Veroboard or Lectrokit board and pins. On this layout, none of the wires on the back of the board cross, so it can be connected up with uninsulated tinned copper wire. For the enterprising constructor, the layout could be connected directly to a printed circuit, using any one of the printed circuit kits which are on the market.

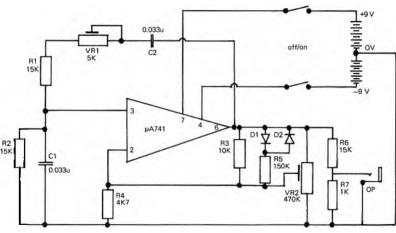
No box details are given because I am sure each constructor will have his own ideas about fixing it into an existing piece of equipment or into the headphone amplifier unit described last month.

Battery consumption is about 4 MA from each battery and, because one would not expect to spend all evening 'tuning up', the battery life can be expected to be not much less than its normal shelf life.

Setting up is best done using a normal tuning fork; if an E tuning fork is available. Setting up by tuning for a 'nice round sound' with an A or C tuning fork is not perfect because one cannot take into account the errors of tempering the scale. For normal musical pitch A = 440 Hz and E = 329.63 Hz. Using this figure, the unit can be adjusted by employing a frequency counter if you have access to one.

Compo	nents List				R ₇	1K	14 W	10%	
Ref. R ₁	<i>Value</i> 15K	Rating ¼ W	<i>Tol.</i> 5%	Notes	C ₁	0.033 uf		10K	Polyester or polycarbonate film type
71	101	/4 VV	5%	Metal oxide film are best for R ₁ & R ₂	c_2	0.033 uf		10%	
R_2	15K	14 W	5%		D_1	IN 914			Any general
R ₃	10K	¼ W	5%		D_2	IN 914			purpose silicone diodes
R ₄	4K7	14 W	5%		IC ₁	uA741			
R ₅	150K	¼ W	10%		VR ₁	5K preset			Cermet
8 ₆	15K	¼ W	10%		VR ₂	470K			Carbon or cermet





TUNING FORK

Without going into long and laborious proofs, which have been done many times by various physicists, we are going to ask you to believe the following ideas.

- Any object, when excited, will vibrate at a frequency (speed) relative to its SIZE, WEIGHT and Density. This we will call its RESONANT FREQUENCY.
- B) If an object vibrates at a given frequency, it will give off, by vibrating the air around it, a sound at a given pitch.
- C) The words FREQUENCY and PITCH have different meanings. Anything vibrating at a given frequency can be measured whereas a note of a given pitch is only 'sensed' by our hearing apparatus and can be inaccurate or fool our ears with the presence of confusing noises or even by a difference in the amplitude (amount) of sound being 'sensed' (heard).
- D) So far we have talked only of pure tones. (Sinewaves to the engineer, flute or Tibia tones to the musician).

How do I get my instrument in tune?

Like many problems, the answer is to understand the problem and you will have solved it.

The notes of the scale are not a random selection. One thing all the various 'Scales' used by different cultures around the world through the ages have in common is that the frequencies of the notes in the scale (we use a 12-note scale) are always related by simple whole number ratios. We know, from experience, that this gives the sounds people prefer.

If, for example, we play a 'C' and find it has a frequency of 261.6 cycles (waveforms) per second (now — confusingly — called Herz), we will find that the 'C' one octave higher has a frequency of exactly double the number, namely 523.2 Herz, A simple ratio of two to one (2:1).

If we count the frequency of the 'G' between these two 'C's, we will find it has a frequency of 391.9 a simple ratio of one and a half to one (3:2).

If we therefore divide the octave into twelve equal divisions, we will, in theory, end up with a perfect scale of semi-tones. In order to achieve this end, we divide the frequency from which

we decided to start (a tuning fork of A=440 Herz is a common one), by the 12th root of the simple octave ratio 2.

This constant figure comes out at 1:1,0594631 (correct to seven decimal places). To save time, the figures come out thus:—

Α	440 Herz.
A Sharp	466,164 Herz,
В	493,883 Herz,
С	523,251 Herz.
С	523,251 Herz,
C Sharp	554.365 Herz,
D	587.330 Herz.
D Sharp	622,253 Herz.
E	659,255 Herz,
F	698,456 Herz,
F Sharp	739.989 Herz.
Ģ	783.991 Herz.
G Sharp	830,609 Herz.
Α	880, Herz,

(Because we have fimited the number of decimal places to seven digits, a small error of insignificant proportions can become apparent in these figures.)

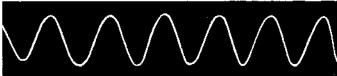
From these figures we can see that the following simple ratios of frequencies occur:

Octave Interval	2:1
Fifth Interval	3:2
Fourth Interval	4:3
Sixth Interval	5:3
Major Third Interval	5:4
Minor Third Interval	6:5
Major Second Interval	11,10

If we calculate the figures, starting from another note, we will find that, using the same method of calculation, the frequency we get for each note will be slightly different from those calculated, starting from A=440, Because the mathematical (perfect) method of arriving at our scale gives us numbers that are not EXACTLY whole number ratios, for example 1½ x 440 = 660 whereas, we calculate the note E as being 659,225 Herz, an 'error' of very great significance to the musician has occurred.

This is why a piano tuner, if asked, would tell us that perfect tuning is possible in only one key at a time.

To arrive at a workable solution to the tuning problem, a compromise has been reached whereby the tuner will 'temper' his tuning to be somewhere in the middle of the twelve possible frequencies which each note would need to be tuned to if every key was to be in 'perfect' tune.



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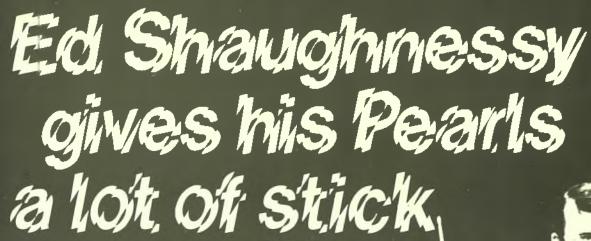
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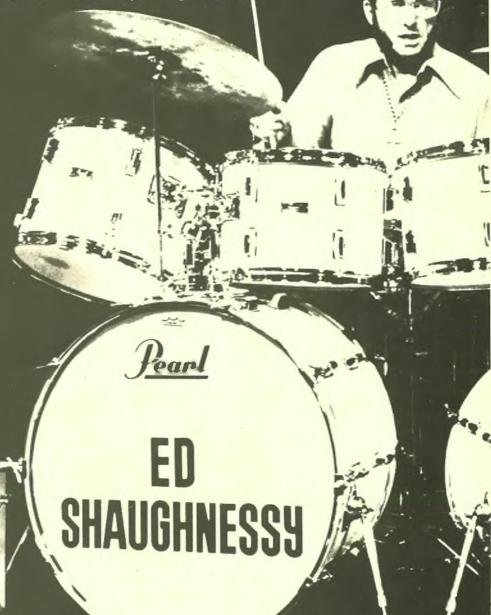


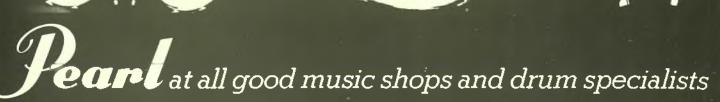
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MONITORING

Amplification is a problem. As it becomes more sophisticated, so do the problems, Finding the answers depends on good communication between artists, sound men and the manufacturers.

International Musician set up and chaired a discussion about the state of amplification between John Verity, guitarist in Argent, Pete Eustace, Thin Lizzy's sound man and road manager, and Ben Mullet of Yamaha amplification. Our aim was to identify some of the more common problems that occur in amplification used on stage and to see how the manufacturers are thinking of improving equipment,



L-R. Ben Mullett and John Verity

IM. John, do you have any particular amplification problems inside Argent? JV. We can never really get our monitoring system right. We're quite a loud group on stage and for that reason we get quite a lot of howl out of the monitors.

IM. What sort of source amplification do you use?

JV. Well we use power stuff because we like being a loud band and it all seems to get louder instead of quieter everytime we change equipment. I was using Sound City SMF stuff which I changed and I'm trying out some Yamaha stuff which puts out about 300 watts.

IM. But isn't that very, very heavy source amplification?

JV. Not compared with Rod's, which is 700 watts. He uses bins and horns, a system that most people would use for a P.A. It means that we get a really great keyboard sound out of it but it gives us a great problem with monitors.

IM. So what P.A. do you carry?

JV. We use Martin stuff with a Midas desk, Before that we had an RSD desk.

IM. Is it that you haven't got enough power in the monitors or is it that you can't hear it, no matter how loud it's turned up?

JV. We can't work it out. We gradually got louder and louder monitors but it doesn't seem to help. Our problem was that when I first joined the band I didn't think the instrument sounds were good enough. I started making suggestions for changing equipment because everybody was basically using 4 x 12s, including keyboards. And they weren't handling the sound at all. So we tried this bin system which turned out to be a bit of a disastrous suggestion on my part because we get a great sound now but it's so loud. What happened was that we got a great sound on Rod's stuff.

This system is so efficient he can have the meters hardly moving and still be blasting. He used Phase Linear power amps, the 700s, and he uses a Soundcraft mixer into Martin bins. It's not just the volume, the bins are so efficient they're all you can hear. As a result Jim wasn't loud enough on bass so he got two Acoustic bins and four 4 x 12s and It just goes from there, Bob's a ridiculously loud drummer anyway and it's just all escalated.

IM. So there's a problem for you Ben, as a sound man yourself, as well as selling Yamaha amps, how would you solve this problem?

BM. Well there's one of two routes you can go. One is to try and reduce the new quality. This would start to improve

monitoring. I'm well aware that there are psychological results of increased on-stage volume when you get this nice thrust in the rear that is very satisfying.

IM. So there's one answer John: turn down! How would you feel about that? JV. Well I already have, I've made my contribution by changing back to combos. I used to use Twin Reverbs years ago and before that Fender Showmans. IM. But you're still turning out hundreds of watts.

JV. Well you've got to get together with the whole band really because you get to the point where you can't hear them and where you can't hear yourself. A guitarist can only turn down so far because he loses sustain. You just get a clang which is O.K. for a lot of bands but not for us. IM. What would you say to that Ben?

BM. Well it looks as if we're going to have to go the other route then. We'll have to find a way of boosting up the monitors somehow. Do your monitors feed back badly, is this the reason you can't get enough volume out of them?

JV. Well, we've found that if you get a good sound on the monitors you get feedback. If you use a middlely sound that you can hear, about half way through the set your ears have gone because it's so loud. I don't know what the solution is.

IM. Pete, you've got a system which avoids these problems, haven't you? What is the P.A. that you carry with Thin Lizzy?

PE. The basic system we use is 600 watts up front and we use two RSE monitor bins on stage. We skimp a lot there but in a way it pays dividends because the band doesn't get too loud because it can't. So the monitors don't have a problem.

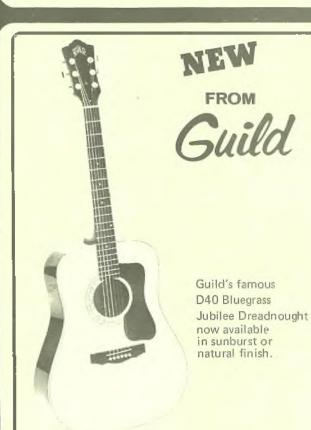
IM. So have you experienced this monitoring problem at all?

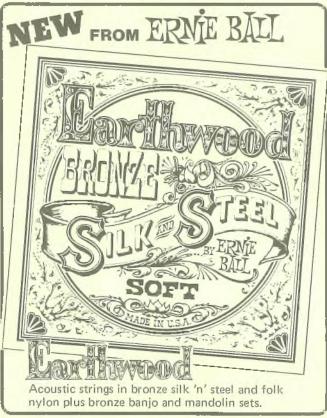
PE. Well, monitoring is a general problem. It's not as bad as the problem John has, but it's a volume problem. We can't really get enough out of the monitors for any member of the band. So it's down to the vocalist just hearing his voice coming through the monitors. That just carries the voice and bass drum. The other two vocals come through the monitors but at a very low level.

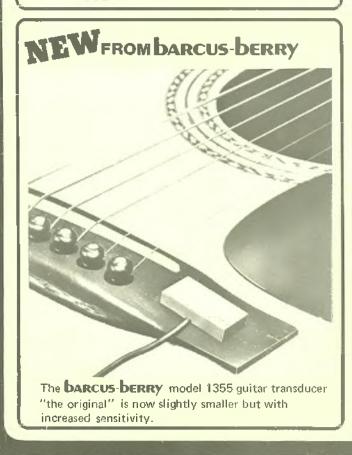
BM. John made a very good point. When we asked him what the problem was, he said that a middlely biting sound comes through and he can hear it but his ears are ringing. This is the message that his ears are trying to tell him, that there is too much on stage.

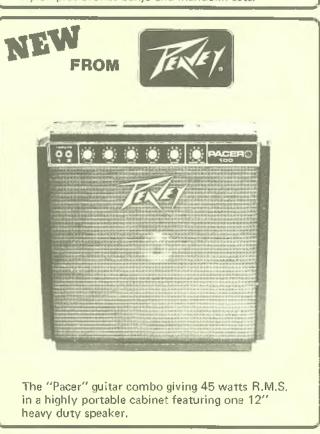
IM. Would it make any difference to after the mix in the monitoring system?

THE SHOW STOPPERS!









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MONITORING



IV. We've always had a problem and I've had one for years and years, ever since I've been in a band — hearing yourself is always a problem. We've got four separate monitor mixers now, we've taken it about as far as we can go, Our old RSD desk is now our monitor desk. It's very strange. I'll be getting a really good monitor sound and then near the end of the set I move my mike stand and I blow it completely because it starts feeding back. It's far too critical.

I've got two monitor cabinets facing up at me, Rod's got about five because he moves about a lot and we've had to hire a special sound mixer just to mix the monitors, plus the guy who mies our P.A. sound.

IM. Pete, do you ever get to the point of wishing the band would turn down to make your job of mixing easier?

PE. Only when we play small halfs, I don't mind when we play big halfs because I'm using a bigger P.A. system. I come out with my ears ringing in small places, I get a headache.

IM. To what extent can you turn the P.A. down without the band getting unhappy? PE. I can't, I just go for the mix. I get the sound levels as right as I can, We do a soundcheck before very gig and they blast and I say, 'Right, that's got to go down and that's got to go down,' and so on.

IM. So it's actually getting on stage and getting the source amps turned down?

PE. Oh yeah, They're using very efficient Gauss drivers and Marshalls and they're working pretty well flat out and it just cuts, throws right down into the hall.

JV. Yes, that is a problem. Equipment is so much more efficient now. But from right in front of it, from where the player is standing, it doesn't sound that much different, it just carries so much more now than it used to do.

PE. It is the fact that you're using large drivers with metal or aluminium cones, whereas the old 4 x 12 won't go further than the third row, But if you use a JBL then the treble goes for miles.

JV. The bins are more efficient as well, like Rod's Martin bin. It's difficult to go backwards as well. It's easy to say things weren't as difficult when I was using my old 4×12 , but I'm getting a great sound out of a bin now. But It's making monitoring more difficult.

IM. So you stand on stage today and the volume you're hearing now is much the same as it was 10 years ago, but the penetration is greater, you're slaughtering people who are midway down the hall. What's going to happen?

BM. We've had this problem for sometime now because our equipment has always thrown as much as anyone else's and this has been a problem. I've done some experiments and although it's early days yet, the most promising solution seems to be not to point the speakers at the audience, but to point them up at the instrument and get them a little closer to the instrument. If the instrument can hear the amplifier and get the near feedback loop that it needs to sustain, then you might get over the problem.

JV. We create our own problems in a way. For visuals the best way to set the thing up is to have everything quite a way back whereas in the old days you used to stand right in front of the gear.

IM. So you're talking about a theatrical set really?

PE. Yes it's a prime thing when you set up, you consider sound and looks, I'd like to have the gear right back, but the band likes to have it a reasonable distance away. Most stages kind of trap the sound and hold it to a certain extent and by the time the sound has reached the front of the stage the actual beam is very narrow. IM. Do you get into arguments with the band because you can hear one thing and they can hear another and you want to change something?

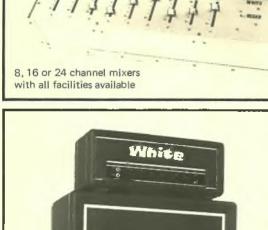
PE. We used to run up against that sort of thing very frequently. The bass player used to use a 371 Acoustic set-up and there is no way you can hear that on stage, you'll feel it more than you'll hear it, yet down the end of the hall it will be booming. Eventually we solved it by getting a 271 guitar amp and we're losing the bass amp because the bass amp just reproduced the bottom of the frequencies so much around 50 cycles you just can't hear it. He uses a Rickenbacker guitar, a 4001, and that's got a bass pick-up on it and he's got a stereo pick-up on it and he used an Acoustic for the bass pick-up and a Hi-Watt for the treble and I had to try and balance it on the graphic equaliser, We got hold of a 271 by accident and although it only goes as low as 80 cycles, it's got a beautiful mid-range control and you can really lift it and get a nice bass sound without it putting mud in your ear and you get good separation.

1M. Ben, do you get into arguments with the people you're mixing for?

BM. I take great pains not to get into arguments but in the talent contest sphere that I do it does get a little difficult. They're not usually arguments as much as differences of opinion and I always bow to the musician. He knows what he wants, I don't, and the problem

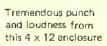






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MONITORING



Pere Eustace

is he can't hear it. For that reason he may fail in what he's trying to do but that's his problem. I'm really there to give him what he wants.

JV. I think anybody who's in a band would be lying if they said they didn't have words with their sound crew. Quite often the monitors will have been feeding back all night and you obviously get highly strung on stage so when you come off it's very easy to lose your temper. That's one of the things about being in a road crew, you've got to be able to take it and accept an apology for it later.

PE. That's very true!

JV. We don't mean it any way, it's just that state you get into on stage. You don't want to blame yourself and it's perhaps been your own fault — it's a whole subject in itself really.

1M. To return to the problem of monitoring — we haven't really found any solution, have we?

PE. Do you use a graphic equaliser on your monitors?

IV. Yes.

PE. How many bands is it?

JV. About five, that's all.

PE. I think you actually need 19 or 27 bands and really get into those frequencies that cause problems. We did a tour with Bachman Turner Overdrive and they were using Marshall Equipment Hire P.A. They had a Klark Teknik and a Uri equaliser and they were using wedges with 12" Gauss and JBL's and the sound from those was absolutely unbelievable. Led Zeppelin fly them wherever they go, Bad Company do the same, as do Deep Purple.

JV. I have had a satisfactory monitor system on stage. It was at the Electric Ballroom in Atlanta. We were using a Nick Cohn system and that was amazing. We had to use their P.A. there as it is a strange place and the first thing we said to the guy in the afternoon was 'Can you make sure the monitors are loud enough?' He said, 'Don't worry they'll be loud enough' and we didn't really believe him.

When we tested it through speech during the day we tested it to point of feedback and then turned down a bit as we usually do. We were a little late so we couldn't do as thorough a check as we would have liked. When we got on stage the monitors were so loud it was incredible! I went to the mike and I just couldn't believe it. The guy was placed in a great position just about eight feet away where he could see everybody and I had to get him to turn them down.

I don't know why they were so good, we didn't have a chance to get into it but I think he had a graphic on it and he'd got the feedback situation so well under control that at the point of feedback everything was almost flat out.

IM. So how's that for an answer Ben — Eq on the monitors?

BM. Yes, I think that's an obvious step. Another solution might be to use a frequency shifter. This can get another six to 12 decibels extra and that's a helf of a lot. It's the difference between running your 1,000 watt monitor system at 250 watts before it feeds and getting somewhere near full power. The problem is that you get sudden death feedback when it does feed. One can learn to live with that. I have experimented with frequency shifters on the road and I've found the main problem is that it's far too loud on stage.

IM. So what units would you suggest?

BM. Well, to be honest I used a Wireless World circuit. I'm sure that there are commercial units around but I haven't cased the market yet.

PE. There's one made by Surrey Electronics. It was developed by some scientists up in Cambridge,

IM. What's the theory of the thing?

PE. It shifts the sound spectrum by five Hz so the signal coming — the original source — is a different signal to the signal going out through the speakers.

BM. I would recommend that you used compressors and limiters in a system like this because when feedback does occur, it doesn't sort of ring and give you a warning of the onset. It just happens and you get a tremendous surge that could blow all the drivers. Or you could limit hard with a couple of clipping diodes back to back and hope for the best.

IM. Do you get any feedback problems on the main P.A.?

JV. We did but we've cured it now. We had a Fender-Rhodes and the only place we could put it was next to the P.A., we solved it by putting it somewhere else. The P.A. doesn't present the same problem as monitors because you can usually find out what it is that's causing the feedback.

IM. Do you get any problems with feed-back on the main rig, Pete?

PE. No, it's only 600 watts and it's a very flat response P.A. We use Quad amps driving JBLs; inside the actual power packs there are limiters and compressors. There's not much you can do wrong with that.

IN BRIEF

Guitarists will happily spend considerable time souping up their instruments with fancy pickups and the like, but having achieved the sound they wanted they will promptly forget to change their strings regularly. One of the problems is that a string loses its sound almost imperceptibly and it's only when old strings are changed for new that the astonishing difference becomes available.

The only answer is to change strings with monotonous regularity, at least once every two weeks during humid weather, regardless of what type of instrument you

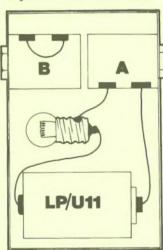
Cardiff Music Strings produce several ranges of quality strings at moderate prices, intended to fill highly specific roles for guitarists. Under the Londoner title, several sets are marketed at a price which allows the exacting guitarist to change his strings every week if necessary. Sets are made for electric, acoustic and classic guitars. The 601 Super Sensitive Londoner Slimmy Rock'n'Roll strings are available in standard and superlight gauges. The standard gauges are (in inches) .009, .011, .015, .023, .031 and .041. The Super light gauges are .007, .009, .012, .018, .027, and .038. CMS strings are made from Swedish steel, The Folk range show a bias towards a heavier string for carrying power at the bass end - gauges are .011, .016, .023, .031, .041 and .051. The standard Slimmy Rock'n'Roll set sells for around 65p, the Super light version around 80p and the folk set around 60p, CMS strings are now distributed in this country by Hohner.

Guitar Lead The BLOB

This is the sort of half-hour project which anyone can make (except of course that one never gets round to it), and which should be part of the standard tool kit of any serviceman, road crew, or retail shop. It will tell you whether a guitar lead is shorted, and whether both leads connect through to the plugs at each end. What is more important is that it will do these tests without the need to hold test leads onto the plugs, so you are free to bend or stretch the guitar lead in case it has an intermittent fault. It is common for a coiled lead to test O.K. when relaxed. and to crackle or cut out, only when stretched to a particular length. The diagram is self explanatory. The battery life should be the "shelf life", and if you use (say) a leakproof L.P.U.11 cell or similar, you can solder it in and forget it.

(It is also generally much easier to solder to the ends of a leakproof cell.) The bulb may also be soldered in, and held behind a hole in the box, with a dab of epoxy. Any old box will do, but if it's metal, be sure that the box does not short out any of the wiring, and pack any loose parts with foam.

Diagram of Guitar Lead Tester:

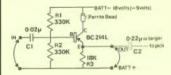


Plug either end of lead into A and bend/stretch it, particularly near both plugs. If light goes on or flashes, lead is faulty (shortcircuit)

Now also plug other end into B and bend/stretch cable. If light is not on, or flashes, lead is faulty (broken conductor),

A brief description and explanation of "The Blob" as fitted to the International Musician improved copy-quitar: There are many fascinating things one can do with electronics fitted in guitars, however, this simple device is intended to solve only one problem. You may have noticed that many quitars have a less gutsy tone when the volume control(s) are turned down from "Full". I believe there are two possible explanations of this, both of which concern the interaction of pick-up source resistance. volume control resistance, amp input resistance and guitar lead self-capacitance: - in other words, an inconvenient combination of side-effects. The Blob is the simplest way of dealing with the problem from both ends at once. (I don't consider it a priority, to find out which end is most significant.)

If you are interested in more technical details, try reading 'Basic Audio Systems' by N.J. Crowhurst (Publ. Foulsham-Tab) pages 162, 163, et. seq. Also "Wireless World" December 1973 pages 585 et. seq.). The Blob is so called, because the prototype was encapsulated in a shapeless lump of Plastic Padding, and this still seems one of the most efficient methods.



The device is built on a tiny scrap of the smaller size of Veroboard, 6 holes and margin, by 4 holes and margin. If you are a "One hole-one wire" purist, you will need a bigger piece of board, or you could design a printed circuit, to fit the exact size of the components you have. The input capacitor is mounted on the copper side of the board, and requires a thick, heatproof case and easily bent leads. I find the 400 volt R.S. components type, with a rectangular green nylon case, very suitable, but if you have difficulty with this, try distributors, DORAM Ltd., or any retail outlet of the manufacturers, Advance Filmcap Ltd. It will be necessary to dress the leads of most components very carefully to fit them into the space without touching each other, You can avoid this difficulty by keeping exactly the same layout, and using the wider-spaced veroboard, but you will have more difficulty fitting the finished device and batteries into your guitar.

This device requires a supply of about 18 volts from two small batteries, as shown in the June issue. This is quite uncritical, and it will work happily off one



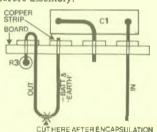
battery (9 volts) with a reduced overload margin. Current drain at 18 volts is about 1/2 milliamp. and batteries must be changed about once a month, as the blob will work fairly well off virtually flat batteries, and so give no warning of the chance of leakage. Alternatively, use Duracell batteries; these last much longer, and then rapidly become totally dead.

Diagrams 1 and 2, show the front and end of the hoard respectively. The "Emitter end" of R 3 is taken through the board and back over the edge, and then bent like a hairpin, and back through the same hole as the Collector, because the transistor leads are too fragile to be used as terminal pins. The wire loop is cut open, after the board is encapsulated in Plastic Padding or similar Polyester Body-filler paste. Other terminals are formed from the leads of R 2 and C 1. These and the other terminal wires are not cut short after being soldered to the board, but allowed to project through the encapsulating paste.

This form of circuit is known as an "Emitter Follower"

With the components given above it is intended to work into a load of 33 K ohms or more. (Normal Guitar amp).

Contrary to popular opinion, this configuration is not infallibly stable and if it is likely to be used into a low impedance input, you should put a Ferrite Bead (from T.V. repair shops) onto the actual collector lead of the transistor, before assembly,



Components required:

l off Transistor B C 214 L

2 off Resistors 330 K low noise

1/8 watt

1 off Resistor 18 K low noise

178 watt

1 off Capacitor 0.02 microfarad 400 volt or less.

(See text)

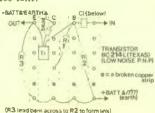
1 off Capacitor (between Blob

& Jack socket) 0.2 microfarad.

or larger if loss of bass is noticed into low impedance input.

Veroboard - for size - see text. Batteries, sleeving, solder, battery clips, etc.

1 SMALL FERRITE BEAD see text.

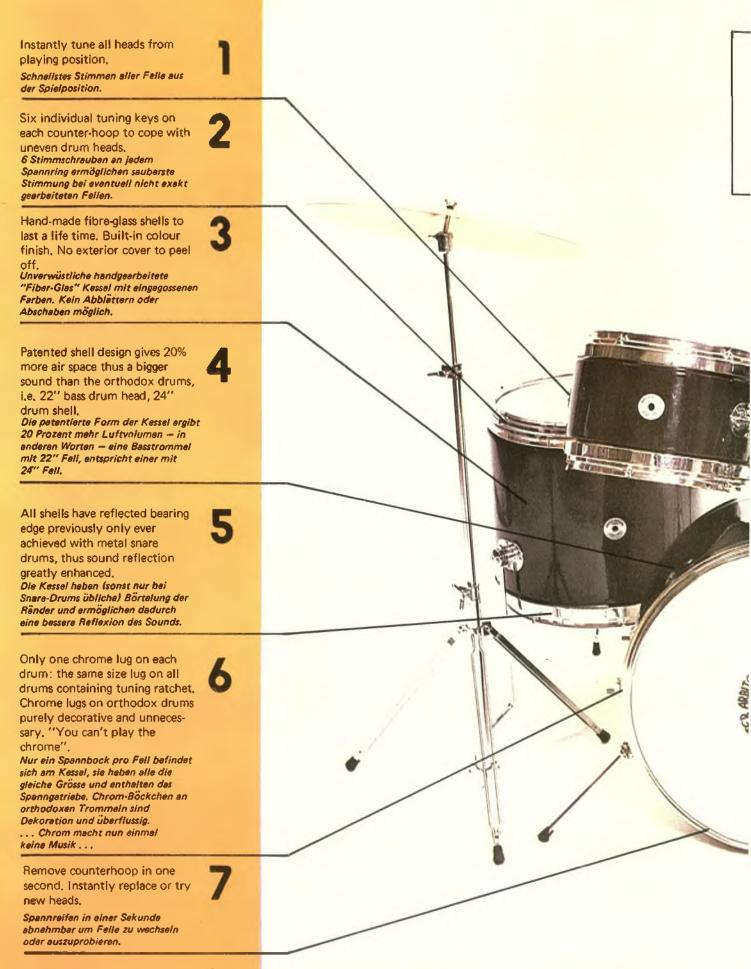




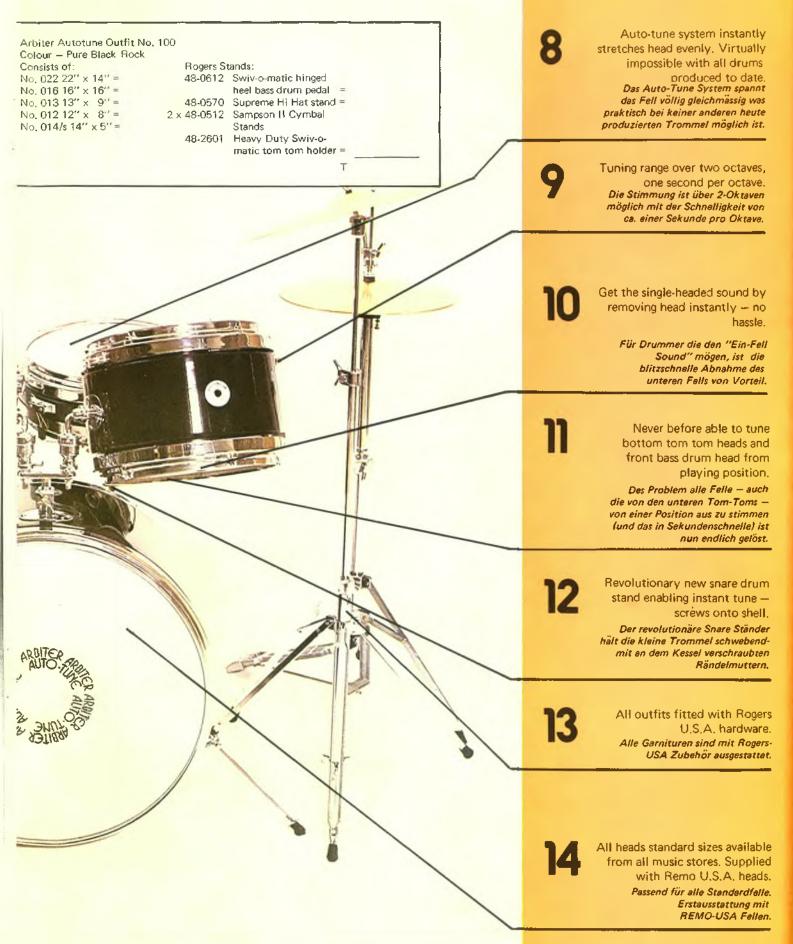
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MADE IT POSSIBLE FOR DRUMMERS A BIGGER SOUND THAN EVER BEFORE



INSTANTLY TUNE ALL HEADS FROM PLAYING POSITION



This Photo shows the removable ratchet spanner in its tensioning position

How did you come to invent Arbiter Auto-Tune drums? Having been around drummers for a very long while and having been associated with drum makes like Trixon, Ludwig, Gretsch and Rogers - I also designed Hayman drums from scratch - I felt that percussion was going forward in the area of stands, hi-hats and the metalwork generally, but I felt that in shell construction, there was very little to choose between the various makes.

I was very interested in fibre-glass shell construction because so many of the great Latin players all believe in fibre-glass. I also have a boat that is constructed of fibre-glass and that's survived a force 7 gale so I was convinced that fibre-glass is a strong material.

One evening I went home and I was having a meal and I was just thinking generally about what is new that could be done with percussion and there was a jar of pickles on the table. It occurred to me when I was closing the jar that surely the screw top idea was the way to tension the head. I though why are we pulling down on the head when we should be screwing it down?

So we set about trying to get somebody interested in making up some prototypes.

To what extent have you worked with drummers during the development period?

Well, during the Hayman period I worked very closely with drummers and I think I know the drummer's mentality, I think I know how they function. Over the years I've discovered they're not gimmick prone, it's pure function. The bigger the screws, the bigger the bolts, the bigger the nuts, the better. So really what I've done is tried to condense working with 20 drummers and I picked out Carl as a typical modern drummer. The fact that he's interested in the art of percussion as a whole is of extra help. He has a lot of pre-conceived ideas about how a drum should be and he's probably been the severest critic we've had,

Carl Palmer says that the drum is the most musical he's seen, was that in your head when you were designing the thing? First of all we were thinking about sound. That is the first thing you learn in drums, they've got to sound as good as other drums. What happened is that we found that we could get two octaves of tuning out of a drum instantly. The fact is that one could tune the bottom head easily as you sit behind the drums.

Wie kamen Sie auf die Idee Arbiter Auto Tune Trommeln zu

Ich war für lange Zeit mit Schlagzeugern verbunden und hatte mit Weltnamen wie Trixon, Ludwig, Gretsch und Rogers zu tun. Ausserdem war ich der Erfinder der Hayman Trommeln. Nach meiner Ansicht ist in der Entwicklung im Schlagzeugfeld in Bezug auf Maschinen, Ständer und Hit-Hats sehr viel Neues getan worden, während in der Kessel Konstruktion sich nichts änderte. Ich war besonders in Fiber Glass Konstruktion Interessiert, denn so viele der Latein-Amerikanischen Schlagzeuger sind Fiber Glass Anhänger.

Ich habe auch ein Boot dass aus Fiber Glass gemacht ist und das jedem Sturm widerstehen kann, daher war ich überzeugt dass es ein sehr starkes Material ist.

Ich war zu Hause beim Abendessen und dachte darüber nach was man Neues im Perkussionsfeld unternehmen könnte und da stand ein Glas Gurken am Tisch. Als ich diesen Deckel wieder aufschraubte, kam mir die Idee dass dies die beste Methode wäre das Trommelfell anzuspannen, Ich dachte, warum ziehen wir am Fell, wenn man es gleichmässig andrehen kann?

Da haben wir dann versucht jemand zu finden der uns Prototypen herstellen würde.

In welchem Ausmass haben Sie mit Schlagzeugern während der Entwicklungsperiode garbeitet?

Ja, während der Hayman Periode haben wir sehr viel mit Schlagzeugern gearbeitet und ich glaube dass ich deren geistliche Auffassung kenne und weiss wie sie denken. Durch die Jahre habe ich bemerkt, dass sie nur durch zweckmässiges Zubehör überredet werden. Sie sind der Ansicht dass grössere Schrauben und Muttern ein besseres Schlagzeug ergeben. So habe ich dann versucht mit 20 Schlagzeugern zu arbeiten und habe Carl als den typischen "modern drummer" gewählt. Die Tatsache, dass er ausserdem in der Perkussionskunst als solcher interessiert ist, war natürlich extra Hilfe. Er hat eine Anzahl von vorbedachten Ideen wie und was ein Schlagzeug sein soll und er war wahrscheinlich der strengste Kritiker den wir hatten.

Carl Palmer sagt "dieses Schlagzeug ist das musikalischste das Ich jemals sah." War das Ihr Grundgedanke als Sie das Ding entwickelt

Als Erstes dachten wir natürlich an den "Sound", weil das das Wichtigste zu beachten ist, wenn man ein gutes Schlagzeug herstellen will. Plötzlich, bei unserer Entwicklung stellten wir fest, dass wir zwei Oktaven einstimmen konnten und zwar in Sekundenschnelle. Der Faktor dass man z.B. das untere Tom-Tom einstimmen kann ohne seinen Platz zu verlassen, spricht für diese Konstruktion,

Reported from a feature between Ivor Arbiter and International Musician July 1975 issue,





Construction Bright/Normal Construction Test Report on: Fender Dual Showman Reverb The Fender Valve Amplifier has been part of the group scene since the very early days of 'Electric Bands'.

The Dual Showman Reverb Amplifier keeps this, now well established, tradition alive.

Using a large wooden cabinet, covered in viny) and fitted with large 'mounting screws' to hold it onto its loudspeaker box, it has a very solid and reliable appearance. The bottom corners of the box are protected by metal corner caps and the handle on top is strong and well made - but could have been placed befter for carrying convenience.

The well marked front panel is both convenient and pretty, being of satin-silver finish, placed along the top edge of the front of the cabinet.

One peculiarity is that the amplifier chassis is mounted upside-down, with the valves hanging from their valve-bases. The amp, comes with a loudspeaker lead and a very nice mains cable wired directly into the unit.

RESULT Parameter 4 8 1

TEST CONDITIONS

COMMENTS

Power Output

200w RMS @ 10% total harmonic distortion

Rated power is 100w Therefore remarkably high output

Distortion

1.8% @ 100w. RMS 0.6% 10w. RMS 1w. RMS 0.3%

Very good for this type of valve amplifier

Input via normal channel, tested at 1 KHz

Sensitivity

31mV (-28dBm) Normal Input 1 60mV (-22dBm) 26mV (-29.5dBm)

Satisfactory for

aultar

Vibrato input 1 54mV (-23dBm)

Input to give 100w out, master set to max & tone controls set for best square wave response

Tone Control Range

Normal Vibrato 14.5dB 13.5dB 9.5dB 14.0dB 40.5dB 44.5dB

Bass @ 50Hz Middle @ 1 KHz Treble @ 10KHz

O.K.

Fuli drive @ 1KHz

Open Circuit Test

Full drive @ 1 KHz, 2 mins.

One valve anode got red hot

Short Circuit O.K.

of short circuit

but it worked after the test

Test Capacitive Load

Reverb

Good Test

1uF and 4ohm load

Works well

Very pleasant sound

Vibrato

O.K.

Has staccato sound due to vibrato waveform used

A Fender sound

Fuzz

Conclusion

Satisfactory - and reasonably easily controlled

This switch works well when the channel is low but when the volume is turned up it becomes less effective.

Switch Electrical An all valve design using 10 valves altogether.

Silicon rectifiers and components of top quality, together with choke smoothing and transformers of adequate size should give this amplifier a good working lifespan but we found one small electrolytic and several resistors loosely mounted.

The soldered joints were all good and the thick, correctly coloured mains cable, mains fuse and output sockets (2) give no qualms.

We thought it a little unusual that the mains voltage selector switch had no knob on, but this was probably an oversight. It also has an Off/On switch and a Standby switch for convenience.

The wiring was O.K. but not particularly tidy and the wire ended electrolytics of an unusual type were mounted under a large metal cover.

This amplifier was obviously intended to maintain the Fender Valve Amplifier tradition and is not very different to the amplifiers which made the Fender name famous 15 years ago. The unit is very large for a 100 watt system but It will give a great deal more power-out than this.

The actions of the volume and tone controls are all dependent on one another.

The mid-range control has such a wide pass-band that it behaves more like a volume control, a little confusing, but the amplifier does give the recognised FENDER sound.

Many imported amplifiers which we have tested in the past have had incorrectly colour coded mains leads. Fender have fitted a correctly coded lead for use in this country even though the unit was made in the U.S.A.

The quality of construction is very fair and the appearance is good.



Test Report on: Custom 700B Twin Revert Amp. Date: Ully 1975 £133.50 Ex VAT

Custom Sound is a relative newcomer to the group equipment market place but the name has become surprisingly well established in a very short time. This is mainly due to the competitive nature of their products. The 700 series of amplifiers comprises four models; a 5 channel P.A., a slave, a combination amp, and the amp, top which is the subject of this report.

The amplifier offers 150 watts rms into a 4 ohms load. There are two separate input channels each with volume, bass, treble, presence and reverb controls. Channel one is also fitted with a sustain control which we measured electrically and also sound tested, (see conclusion).

Sensitivity switches are fitted on each channel for Hi/Low switching (see specification figures in table). Footswitches are available for the remote on/off control for reverb and sustain and the footswitch sockets are located on the front panel.

Three output sockets are provided on the back panel for driving studio equipment, headphones, and other power amplifiers (slave output). The speaker output sockets and fuse holders are also on the back panel.

amplifiers (slave output). The speaker output sockets and fuse holders are also on the back panel.

The unit is constructed on a rigid black anodised metal chassis which slides into a black vynide covered wooden case. The corners of the case are protected with mouldings and feet are fitted to both the bottom and one end. A handle is mounted on the other end which is a far more convenient arrangement than the usual handle mounted in

The control panel is fully recessed which protects it from transportation knocks and the mains lead is detachable. Mains voltage, permissible speaker combinations, and fuse ratings are all clearly marked on the panel but there is no provision for mains voltage selection.

The last point is not likely to cause much difficulty in the U.K. as the amplifier is wired for 240V, operation. There could be problems for the band that does continental work, however, unless they change a wire over on the double wound mains transformer which is a small soldering operation.

Amplifiers supplied directly from the factory to overseas countries are prewired for 115 volt mains operation.

Access to the works for servicing is very easy and involves removing two screws and sliding the chassis out of the case.

Once inside one finds most of the components mounted on three glassfibre printed circuit boards; one for each input channel and one for the power stages. Components are of good quality and some components, such as the input and output jack sockets, which have gold plated contacts, and the knobs which are of the collet type, are of a quality not usually found in group equipment. The standard of soldered joints is good and the small amount of internal wiring is tidy.

The power stage can easily be removed as a single unit for servicing which enables the service dealer to effect a very quick repair should a fault develop in the output stage. Spare output stages are supplied to dealers free of charge during the two year warranty period. The power transistors are in sockets and many of the associated components are mounted on turret tags so they can be replaced without removing the boards if necessary — all good servicing points.

The mains transformer is of good size and the output stage heat sink adequate. The heat sink is mounted inside the box with ventilators above and below it and does not form the back panel as with most amplifiers.

Parameter	neter RESULT		TEST CO	NDITIONS	REMARKS	
Output Power	ower 219WRMS 175WRMS		@ 10% tot @ 1% ''	al harmonic distortion	Manufacturers Spec. 150WRMS into 4 ohms	
Distortion	0.2% 0.4% 0.8%		@ 100W @ 10W @ 1W	Measured @ 1 KHz Into 4 ohms. Total harmonic distortion	Mainly cross over distortion	
Sensitivity	32m V 44m V 37m V 50m V		Hi 1 Lo 1 Hi 2 Lo 2	@ 1KHz; tone-controls central, output at 100W	The difference between HI and Lo is mainly brightness; not sensitivity	
	Chan1	Chan 2				
Treble range Bass range Presence range	29.6dB 36dB 14.4dB	34.6dB 33dB 14.7dB	@ 10KHz @ 50Hz @ 10KHz		Good tone control range	
Noise	61.7dB		below 150) watts RMS	Good – the noise is mainly hum	
Square wave test	O,K.					
Capacitive load test	O, K.					
Line OP	-21.5dBm		with ampi 150W into	lifier delivering o 4 ohms	Reasonable	
Slave Output	0dBm				Normal	
Output Protection			Open Circ ShortCirc		O.K. Blows output fuse — test O.K. as specification	

Conclusion

Construction

the middle of the top.



The amplifier is well made and performs well. The mechanical aspects of design are well considered and should put this equipment in the rugged class. The only component which may not survive rough treatment is the reverberation spring, but it is difficult to know how to make that rugged and all manufacturers are faced with the same problem.

The amplifier sounds distorted when the sustain control is operating and does not give clean sustain. This dirty sound will probably be extremely popular with lead guitarists for whom it was designed. The reverb spring is a Hammond unit and we found the sound to be very acceptable. To protect the amplifier from damage in the event of a short circuit load condition an output fuse blows. This system is open to question: as a fully protected electronic method may be preferred. However, this system is absolutely foolproof and ensures that no damage can result from a short condition. The manufacturers do in fact supply two spare 5 amp. 20mm fuses and their instruction booklet does point out that speaker leads should be checked if an output fuse blows. The output fuse holder fitted cannot take fuse sizes above 20mm and 5 amp. is the highest rating in the 20mm size, thus there is no danger of higher fuse ratings being fitted which is a good safety point.

Test Report on: HWIC208S Power Amp Date: UUIY 1975 £119 ExVAT

Introduction

Construction

Hill Public Address Systems produce a range of power amplifiers of different power ratings to suit most requirements. The IC 208S is a slave amplifier which is designed to drive 200 watts R.M.S. continuously into a load of 8 ohms or 120 watts continuously into a 15 ohm load. It will also drive 320 watts into a 4 ohm load but a cooling fan is then reaulred.

Because it is a slave amplifier, the only controls provided are a volume control and an on of f switch together with a mains fuse. Several versions are available with different combinations of input and output sockets and mains connector types. One can choose standard jacks or Cannon XLR connectors for the Inputs and outputs and the mains can be a wired in lead, a cannon plug, a Bulgin plug or a Euro connector.

A version with a Vu meter is also available. Two amplifiers were submitted for test. One was a pre-production model fitted with cannon plugs throughout and a Vu meter. The second was a production model which differed in having a retained mains lead and no Vu meter. It is the production model to which the following test results apply. Standard 19 inch rack format is used and only 2 units of height (approx. 3% inch) and 10 inches of depth gre

required. The main construction is of thick, black anodised aluminium extrusions which are screwed together in such a way that they are in good thermal contact with each other so that the whole case acts as the heat sink. Most of the small electronic components are mounted on a single alass-fibre printed circuit board in the centre of the case. The components are of good quality and, apart from two resistors, are well mounted. A small transformer, which would have been a little heavy for the board to support, has been bolted directly through to the chassis for support. Some small electrolytics have been tied down to ensure they do not vibrate loose and the very 'man sized' main electrolytics have each been fixed with two separate support brackets.

Three separate fuses are fitted; two power supply fuses on the printed circuit board and a standard 20mm mains fuse in a very nice holder on the front panel.

The power supply uses two separate transformers which is less efficient than a single transformer but permits a shallow profile case to be used and also allows the same transformer to be used in the 100 watt amplifier of the

Output protection is by a thermally activated cut-out in the speaker circuit. The rating of the cut-out is chosen so that 200 watts of music does not activate it but it was found that 200 watts R.M.S. sine wave activated it in 9 minutes. The manufacturers are going to change the cut-out rating so that continuous sine wave at rated output does not operate it.

The thermal cut-out is more to protect speakers than to protect the amplifier and to permit high power sine wave tests to be conducted, the cut-out had to be shorted out. (Approval for this was given by the manufacturer.) The high frequency response of the amplifier has been tailored to fall by 1dB at 15KHz and 3dB at 24KHz. This prevents high power signals outside the audio band being fed to the speaker and possibly damaging them.

Measured
Performance

Measured			
Performance	RESULT	TEST CONDITION	COMMENTS
		@ 10% total harmonic distortion	
Power Output	441 watts	4 ohm load	exceeds
_	328 watts	8 ohm load	manufacturers
	220 watts	16 ohm load	spec.
	}	at onset of clipping	
Power OP	324 watts	4 ohm	
	247 watts	8 ohm	
	144 watts	16 ohm	
Distortion	0.05%	@ 200 watts into 8 ohm	mainly 3rd harmonic
(total harmonic)	0.035%	@ 10 watts at 1 KHz	mainly noise
,	0,04%	@ 1 watt	mainly noise
Sensitivity	1.1 volts RMS	onset of clipping into 8 ohm	100K ohm input impedanc
٠,	0,95 volts RMS	for 200 watts into 8 ohm	, , , , , , , , , , , , , , , , , , , ,
Capacitive	Very good	checked at 1KHz and 10KHz	exceptional stability
load test	1		
DC offset			2 "
	50mV off load		O.K.
Noise	1mVRMS Into	this is 92dB below	this noise was mainly H.F.
	8 ohm load	200w into 8 ohm	outside the audio band
Frequency		-1dB @ 15KHz	

~3dB @ 24KHz -1dR @ 16Hz

Conclusion

response

Short circuit operates the thermal cut-out in a fraction of a second and the amplifier works correctly immediately

The amplifier is well constructed and of rugged design. The compact size should make it attractive to groups but care should be taken to ensure that it is not sandwiched between so many other pieces of equipment that it fails to get proper ventilation.

The option to have Cannon connectors is a good one because they should give better reliability than one can expect with jack plugs.

There is no direct form of fast acting protection which means the amplifier will give very high powers for short times before the thermal cut-out or fuses act. This could be very useful for music signals, where the peaks are very much greater than the mean. The amplifier did survive direct short circuits without damage.

The high power into 4 ohms is not specified as a continuous rating and 8 or 16 ohms should be considered as the normal load.





A common criticism of most modern guitars is the standard of fretting and the consequence that actions must sometimes be higher than one would like. Also "Lowaction freaks" obviously need to know which instruments are capable of being adjusted to please them. I am going to attempt to be as objective as possible about this. In future, when reviewing electric guitars, I shall give the lowest action possible on the review sample, without buzzing being audible through the amp, while using those playing styles and string-bending methods which seem appropriate to the instrument and the strings fitted to it AFTER ADJUSTMENT TO BRIDGE AND TRUSS ROD ONLY, Where appropriate, I shall also give lowest actions, after such minor adjustments to nuts, frets, etc, as one could reasonably expect from a non-specialist repairman, These action measurements will appear in standard form, as string spacing above the 12 th fret, in millimetres, for the top and bottom strings. This is not a quarantee of what the guitar you buy will do, but hopefully will be typical of most samples, If a review guitar seems from my experience to be well below average, or if it seems to have been specially adjusted for review, I shall try to examine a second one, picked at random in a retail

Gibson Switch~ master

Retail Price £450

We have decided from time to time to include in the Guitar Check pages a review of the sort of instrument which is probably someone's dream guitar, irrespective of price, condition, or availability. This month I revew the "Switchmaster", courtesy of Messrs. Rod, Craig and Ken of Top Gear, Denmark Street, London W.C.2.

I must admit that the legendary Switchmaster is not what I expected, While it is perfectly true that "They don't make 'em like they used to", and this is no exception. I expected to see something a little more 'handmade' and ornate. I think it is probably fair to say that Gibson have produced finer workmanship. On the other hand, practically every guitarist who sees my photographs of it passes, stops, drools, and asks "where is it and how much?" None of them has been able to explain his enthusiasm completely, but some reasons given are:-

1. Eric Clapton has one.

 Steve Howe has one; he often plays "classical style" with right-hand fingers, and this sort of deep-bodied instrument hangs in a way more suitable for playing with fingers. In addition, very few deepbodied Semi s have more than 2 pick-ups.

4. This is apparently the only Gibson fitted with a (approximately) Fender-type selector switch. The switch has 4 positions: 1, 2, 3 and All. It is possible that with the switch in good condition, one could just obtain 1+2 and 2+3 also.

5. I noticed that while it certainly has the tone of a hollow-bodied guitar, it can be played near to speakers at high volume, without the tendency to feedback at one or two particular notes, which is uncomfortably common in hollow-bodied electric guitars.

6. It is a rare instrument and a good investment.

It would appear that the Switchmaster is prized, not so much for itself, but for what can be accomplished with it. Perhaps, as with many dreams, analysis could prove uncomfortable and unfruitful.

Most of the tone and volume controls on the guitar were worn and noisy, when turned, and the switch was so worn and/or damaged as to make it difficult to move from 3 to 2, or from "All" to 3. (It is apparently Top Gear's policy to leave "Original Condition" guitars untouched if possible, to preserve their rarity value. Small repair and replacement jobs are subsequently done free if the purchaser so wishes. I hope I've got that right.

The frets and action were remarkably good for a guitar of this age and the lacquer had hardly any serious blemishes. Usually I like to try guitars through various amps, but as it was necessary to examine the Switchmaster at Top Gear's shop, and as. (while they were most helpful) I obviously could not stay there all day, I settled for a Twin Reverb. Two things were





immediately noticeable: first, the neck is dead straight, and second, apart from the crackles of old age, the tone controls work properly. Both these make a pleasant change. Otherwise the tone is that of a deep-bodied semi with Humbuckers and the addition of a third pick-up midway between sharp and mellow. All pick-ups appear to be connected in phase. I am sure there must be something unusually comfortable about the way this guitar balances - when you are used to it - but as I find it too large, perhaps someone should ask Steve Howe.

I did like the way the fingerboard edges were bound, and the decorative end to the fingerboard; also the shape of the neck at the back.

Conclusion: I find it a pleasant but not terribly exciting guitar, however, that is partly the reaction of a guitar maker; and most of my visitors today consider that I undervalue it. It costs a lot of money, but if the rare guitar market continues its present direction, you should be able to re-sell it privately at a profit after a few years.

Gibson Les Paul De~Luxe

Retail Price £337-60

The present de-luxe model is fitted with individual enclosed Kluson machines, with Pearloid "Tulip" buttons, and well finished metal parts plated with nickel, rather than the more common chrome. (I have always felt that nickel looks better with 'woodey' colours: unfortunately, it is rarely used on electric guitar fittings outside the U.S.)

The nut is not ivory or plastic, but appears to be the fibreglass reinforced composition which I mentioned in a previous article. It is very resistant to wear and should last as long as good ivory. The grooves in the nut are so shallow that the second and third strings tend to slip out of place if "bent" near the nut. However as the strings were also a little too high above the frets at the nut end, deepening the slots would solve both problems. I am not certain, but I believe that the "DE-LUXE" legend on the trussrod cover is not engraved, but hot printed onto the surface. I hope it does not tend to wear off easilv.

While the cream binding on the edges of the fingerboard is well finished where it covers the ends of the frets (the important bit), there is a distinct ridge where it meets the lacquer on the sides of the neck, One can still see file marks where it was cut down level with the fingerboard, and the fingerboard edge position-markers project noticeably from the binding in which they are set.

All prices exclusive of V.A.T.

The guitar is fitted with the wider Gibson fretwire, and some effort has obviously been made to level and smooth the frets, Unfortunately, some are rounded on top and some flattish, and the fine satin finish on the tops of the frets partly conceals some fairly rough areas which will not be polished smooth by lots of stringbending practice. The rosewood fingerboard is of reasonable quality, but looks much worse than it is because of its uneven surface-finish and lack of a suitable dressing for the wood. Even a little raw linseed oil (as used on cricket bats) would improve the colour and "slip", and a specific fingerboard oil such as "Boogie Juice" or neat Lemon Oil (which now costs as much as some perfumes) would be even better.

The fingerboard inlays are Pearloid and most of them are loose on the side nearest the body. This is in no way typical of most new Les Paul models, but I have found it common for one or two to come loose after about three years playing.

Pick-ups are of the smaller Humbucking pattern which are commonly referred to as the old Epiphone type, but they appear to have a much higher output than similar units from some



years back. Gibson claim to make over 20 models of Humbucker; I think it would be a useful exercise in customer relations and goodwill to identify precisely which pick-ups were and are fitted to which model of guitar, and how these are related to the humbuckers which are on sale as replacement parts.

Fittings on the review sample are made from good materials and well finished, with the exception of the bridge support screws which are bent forward by about ten degrees, and appear to have been fitted at this angle.

The sunburst finish is done well, with none of the spray "Splatter" which often defaces both new and old sunbursts, I would find it hard to fault the quality of the finish.

There is nothing really wrong with the internal wiring, except for the absence of any sort of screened lining to the body cavity. I cannot understand why the amount of screening in guitars seems to decrease in proportion to the gradual increase in onstage electrical interference. However, what is wrong is the tone controls. I have been unable to find any amp/pre-amp combination which causes either of the tone controls on this guitar to give any intermediate settings. The treble is full on from 10 to 3 and full off from 3 to 0.

In spite of these faults, the instrument sounds and feels undeniably like a Gibson, and although the action cannot economically be made very low, you may find certain subtle, but significant advantages in buying the real thing, and having it privately adjusted. To put it bluntly, if you buy a copy it is just as likely to need adjustment, and is unlikely to have the tone, balance or sustain of the original.

Guild G 75

Retail Price £280:00

At first sight, the concept of reviewing a small, big guitar seems only slightly less crazy than the idea of trying to build one in the first place. If you add to this the price of the guitar in question - £302 (inc. tax) - and also note that you can buy a full-size one for £190 (inc. tax), you may rightly wonder what the hell is going on in New Jersey. In fact there are several perfectly good reasons for making a smaller version of the standard "Dreadnaught" shape Jumbo, and the apparent price difference is NOT for the common reason that minority tastes mean smaller production runs and consequently poorer value for money: The G75 at £302 costs more than the very popular D25 (full size) because it is a very much better guitar. It is in fact marginally cheaper than the same quality of Guild Jumbo in full size D50 (£337 inc. tax), and this is as it should be, since the lower cost of smaller pieces of Rosewood just about balances the additional costs of smaller quantity production. This fair and flexible attitude to production is entirely consistent with Guild's policy of supplying almost anything in a left-handed version for a reasonable 10% surcharge, providing you are willing to wait for it.

The G75 has only been available in England for a few weeks, and certainly not for very long in the U.S., but the idea of 3/4 size versions of well known models goes back several years. About 1969, a well-known American artist

approached Guild with the problem of making several 3/4 sized instruments for him, which were to look AND SOUND as near as possible to the full size versions In the early seventies I saw several of these instruments and considered then that Guild had done the near impossible in meeting both size and sound specifications. In the following years, I made occasional enquiries about the general availability of these guitars but their importers at that time returned a consistent "no comment".



Time passed, and eventually I decided to start making guitars and the memory of the little Guilds faded.

Two weeks ago, while considering which guitars to review, I discovered a cryptic entry in the importer's catalogue, listed simply as G75. Purely out of curiosity I asked for a sample, and was a little shaken when I unwrapped a charming miniature Dreadnaught which looked for all the world like the specials I saw some years ago.

It appears that you no longer need to be famous to get your hands on one of these amazing instruments, and I still think that Guild have done the near impossible in making a small guitar that sounds like a big one. I also think after carrying it about with me for a couple of weeks that I would need a lot of persuading to take a bath-tub sized guitar case on the road ever again.

To be more specific, the G75 is a scaled down version of the well known D50 Jumbo but with a full 635 mm scale and a standard neck. (25% inches for devout non-Europeans). It has chrome Schaller machines, simulated pearl inlaid head, an ebony finger-board with pearl inlaid dots and white edge dots, polished frets, ebony bridge, real ivory nut and saddle and regrettable, the plastic bridgepins. The nut was cut too low on the review sample and the bottom string buzzed but this is not typical of Guilds and if the plastic bridge-pins offend you, they are easily replaced.

As with many new Guilds, the finger-board appears to have been sanded with fairly coarse abrasive and as a result, its surface is rough and the pearl dots look cloudy, On a guitar of this price I expect the old silver and black enamel truss rod cover - this one is plastic. I also expect to see wood shavings, glue smears and buffing compound removed from the inside of the guitar before it leaves the factory. My final complaint is that while sloppy joints between centre strip and struts on the back are not significant, they are not consistent with the workmanship elsewhere,

The top is fine-grained (Canadian?) spruce, back and sides solid Rosewood - possibly from India or Madagascar. Considering that a guitar of this price is more likely to be used by a professional and will inevitably suffer the occasional knock, I am pleased to see that the edge bindings manage to combine a light and graceful appearance with immensely strong corner protection. It is unfortunate that this model of quitar cannot be properly produced in an economy version. Guild have done what they can. by omitting extravagant pearl decoration, but a small guitar which sounds like a big one, absolutely requires high quality materials, 99% of Guild's production falls into two catagories. good and very good: this is very good.

By the time you have bought a case, £340 is a lot of money but if you want a professional guitar, your money is better spent on this than on some other makes.

Antoria Florentine Les Paul

Retail Price £123.60

This guitar is described as 'Custom 74' in the importers' catalogue and as 'Memphis Original De-Luxe' in some price guides, and appears to be a copy of an equally exotic Gibson which I have not been fortunate enough to examine.

Whilst the title 'Custom' is following precisely in the tradition of well known American makes, I must view it with some reservation. At least one maker has used the term 'De-luxe' enthusiastically since the early days of electric guitars, more often to identify a particular styling than a level of quality. As a result, the term 'Custom' has been taken over to identify guitars of rather better quality and/or finish. Surely, a 'Custom' guitar should be one which has been specially built or modified to suit the needs of one particular musician? However, this is a criticism of the name, not the instrument.

The Antoria 2405, as you will see from the photograph, is an ornate and highly decorated form of Les Paul copy. With the exception of the bridge inserts, metal fittings are all gold plated or gold lacquered or both. (It is always difficult to be able to differentiate between them). The fingerboard is inlaved with attractive floral and abstract designs in real Mother of Pearl, which are not only well made, but firmly set in the rosewood fingerboard with what seems to be black epoxy cement. They are also absolutely level with the fingerboard surface and bright-polished. I must once again complain about fingerboards treated with black colouring matter to make them appear darker. It soon wears off in the most used places. Treatment with a penetrating oil is permanent, and looks better, but means that the fingerboard must be cleaned thoroughly after the frets have been polished,

The decoration on the head and body appears to be some form of natural shell similar to Abalone; it is not inlaid into the surface but cut to almost transparent thinness and laid between the wood and the lacquer film (This technique is derived from ancient Chinese and Japanese Lacquer-work and can be very effective if applied to a suitable background.) Unfortunately, cutting pearl very thin diminishes the colour and reflectance, and these inlays do not compare with the thicker ones in the fingerboard. In fairness, I doubt whether any difference would be noticeable on stage, where simple and beautiful guitars remain unnoticed, and this sort of large scale inlay work looks very attractive. All the decorative features on this guitar are a little





exaggerated and it appears particularly suitable for public performances, under Theatre-lighting.

Mechanically, this instrument is very similar to the better sort of sunburst Les Paul copy, with the exceptions, that the bridge seems to allow slightly more adjustment to the inserts, and that the tuning machines combine the best features of enclosed low-ratio gears and metal "Tulip" buttons (which some people find easier to control). The fingerboard is bound with black and white stripes and the fretting is adequate except for 3 near the nut, which are too high under the bass side.

Lowest action for this Antoria 2405, is 1.6mm top and 2.mm bottom strings or 1.3mm top and 1.8mm bottom strings after adjusting the nut and lowering 3 frets on the bass side.

Other relevant mechanical points are: The neck is firmly glued into the body at the correct angle for this model.

The curved front of the body, in common with almost every Les Paul copy, is a hollow shell, built up underneath around bridge, pick-ups and neck joint. This may have more influence on the failure of most copies to feel or sound quite right, than any aspect of pick-up design. Sustaining properties appear to improve in proportion to the thoroughness of blocking underneath, and this sample is above average for the better copies. Some of the cheapest copies of this style are so badly assembled that they can actually suffer from acoustic feedback like a "semi",

The standard of electrical wiring is a little better than some originals, (which is no excuse for not screening the cover plate and cavity), but tone and volume knobs grate when turned (easily fixed). Was it really necessary to copy the erratic nature of the original's tone controls? (This is also easily fixed, and you would probably have the same trouble on a real one anyway.)

Conclusion: With the exception of 3 high frets, this is a nice "copy" guitar, with flamboyant decoration of a sort which shows up well on stage. The additional price above that of similar, undecorated instruments, is very reasonable. The "inlay" on the body should be improved.



GlassCase

Road, Ash, Aldershot, Hants., have recently started production of Fibreglass guitar cases. The sample sent for review is the standard model which will accommodate guitars up to the size of the J 200 or Guild F 50 and also most 12-string. The shell and lid are constructed from multiple layers of fibreglass, built round carefully positioned foam and glass stiffeners, to give the greatest protection to the instrument. while being relatively light. My experience is that if you are already carrying about a large guitar, the last thing you need round it is a heavy case.

There are already some fibreglass cases on the market, but light glass shells, while difficult to break, are relatively flexible. They may bend enough, during an impact, to allow the guitar inside to be damaged, while the case remains intact. The usual solution is to use a much heavier shell than is really necessary, but the foam and glass construction of this case maintains rigidity, while reducing the weight by about 1/3.

The standard case retails for £40, which is rather less than the price of an equally strong American wooden case, and is available in several colours (which will not scratch off).

The case is lined with soft foam and velvet, has a large string box, and supports the guitar sensibly: 12-strings and custom guitars with wider necks may need some adjustment of the neck support. Other less good points are the tendencies for the rubber lid seal to come unstuck after much use (Calton have now discovered a better adhesive) and for the velvet lining to fray around the clasp fixings. The clasps do not break finger nails, and are strong, but the handle, while solid leather and well made, is obviously not designed for quitarists. Please will case makers look at the large padded handles fitted to the best Spanish-made cases, and if necessary, import them. Most handles seem either to be plastic, with a sharp edge underneath, or leather and so flexible that they mash your hand into a banana shape. Just for a change, this handle is leather with a sharp edge underneath.

Small Things

The shark-fin pick is quite an old idea, consisting of a plectrum with one corner and part of each adjoining side finely notched. It takes a slow and deliberate approach to picking, but has the advantage of adding a rasping sound and a lot of presence to chord work. It has been described as "The Poor Man's 12-string" and will also brighten up strings which should have been changed weeks ago. Unfortunately, when made in plastic, the notched edges soon wear down, but wholesalers Hornby Skewes are now importing a shark-fin pick of high quality made from real tortoiseshell, which should wear very much better. Ask your local retailer. Price about 60 penœ.

Hardly a new product, but keep your eyes open for the last few Seamoon battery powered practice amps at nice prices. Called "Peter Poxtable" (which strikes me as a loser of a name to start with) they are apparently about to be discontinued in this country, and have the advantages of clean and dirty inputs and a warning light to tell you when the batteries are switched on. They look like black A.C.15's the size of a cigar box.

Strings: — Did you know that there are TWO sets of Gibson Light Gauge Rock and Roll strings; G 740 L with a plain third, and E 290 with the same 11 thou first string, and the rest, (including a wound third) just a little heavier than the 740 L.

Strings:— Did you know that most gauges of Guild acoustic 6string sets are available in Brass or "Bronze" windings. There is an interesting difference in tone, and although the original Guild strings were Brass, Guild now fit the "Bronze" ones to their new guitars.

Portable Bass Amp: I saw some Novanex amps recently. I was not too impressed with the larger ones, but VERY impressed with a little one about the size of 2 "Pignoses" called 'Automatic 6' (where do amp manufacturers get their names?)

This one is mains operated, 6 watts output and sounds like 20. Not only does this amp sound good with guitar, organ and BASS GUITAR, but I have totally failed to blow it up with any of these instruments. Instead of distorting badly at full output, the Automatic 6 has a built-in compressor, which tactfully keeps the output down to what the amp and speaker can handle. If you insist on overdriving the amp with a bass, you get an "undistorted" 20 second sustain! The performance is already remarkable, but would be improved by 2 screws and a piece of draught-excluder, holding the rear of the control panel to the cabinet.

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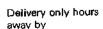
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HENR



Bob Henrit's recent illness gave him time to think - with hepetitis, he could hardly do anything else. It was the first extended rest the drummer had taken for quite a few years and although stricken with lethargy of the body, his mind remained as active as ever. The results of the illness were mostly bad. Argent had to call off their U.K. tour which was to have been their biggest ever, not only taking the band to the people but also a circus set that included acrobats and jugglers in a fantastic package put together by Bowie's S. stage designer.

But thoughts occupied Bob's six weeks of idleness and after the initial frustration at the loss to the band, the loss to himself and the loss to Argent's fans (not in that order of priority, he insists), his thoughts turned to more constructive things like opening a drum shop, writing some articles for *International Musician* and having a go at recording a "drums

record'

The drum shop idea is something that's been kicking around the list of "future plans" for Bob for some time. "The real reason that I decided that a drum shop might be a good thing to do is that I've never been able to get any service for drums. Each time I go to the States I make a point of visiting the drum factories, the Ludwig plant and so on, and t collect all the little bits I find hard to get here. The problem in this country is that you just can't get spares. If you can get spares for American kits a nut and bolt costs £5 so it's ridiculous really. As far as I understand it, the U.S. manufacturers grant a U.K. concession for their drums on the understanding that £20,000 worth of drums is bought in a particular period. Naturally, an importer wants to get a return on his investment and £5,000 worth of spares sitting on a shelf isn't nearly as attractive as £5,000 worth of kits that can be sold immediately.

"The result is that you can buy the kits but you can't get the spares very easily. To a lesser extent U.K. manufacturers' spares are also hard to come by and once a drummer has bought a kit, he's got to pray that nothing breaks on it. I'm planning the shop to open fairly soon in my home area (Enfield) and I'm going into partnership with some-body who's already quite well known in drum retailing.

"Another important aspect of the business is that I'm going to hire out complete drum sets. Believe it or not, it's impossible to hire a complete set of drums in London. With the cost of shipping drums to the U.K. from the States I'm hoping that the idea of hiring a kit will be very attractive to

visiting musicians. I've got a garage that is stacked high with my kits and all of those will be available for hire. I really don't mind other people playing my drums, and I'm sure that the idea will be attractive to many drummers.

"We're also going to stay open late in the evenings so that semipro drummers can get to us in the week - I think that's a very important factor". Bob's mind was obviously

working overtime during his lay off and his energies were expressing themselves in planning projects for the future.

"Argent are due to record a single," Bob admitted, "I suppose I'm really letting the cat out of the bag, but we're going to record a proper single. It's a song of Rod's that's in the same vein as 'She's Not There'- you know, a commercial single, not something from an album. I'm hoping that I'll be well enough to play on the single, but I don't know. I'm under a doctor in Harley Street and unfortunately he knows me too well. He's told me that if I was just going to play sessions, I could drum, but as I'm a bit more energetic than the average drummer, I'd better lay off a

Despite being a corner stone of Argent and enjoying an elite pedigree that goes back to the Zombies out of the Roulettes, Bob has remained a drummer capable of stepping outside of the group format. He has managed to live with the pressures of touring America and Europe each year, of making a couple of albums and all the obligations he has with the band, and still finds the time to do enough sessions to keep his name on everyone's lips as a drummer to use if available.

"I believe that a good drummer should be able to play all types of music. If someone rings up and asks you to play on a C & W session I think it's important that you're open enough musically to be able to enjoy playing it even if it isn't your particular type of

Once a drummer closes his mind to certain musical areas he's stopped improving. That's what happened to Gene Krupa really. I'm not criticising Gene Krupa at all but he was a truly great inno-vator and having made the amazing start he kind of stayed there while other drummers like Buddy Rich came along and kept innovating and improving. I was talking to Lenny White in New York a while ago and he was explaining to me how he woke up one morning and decided to completely change his technique.

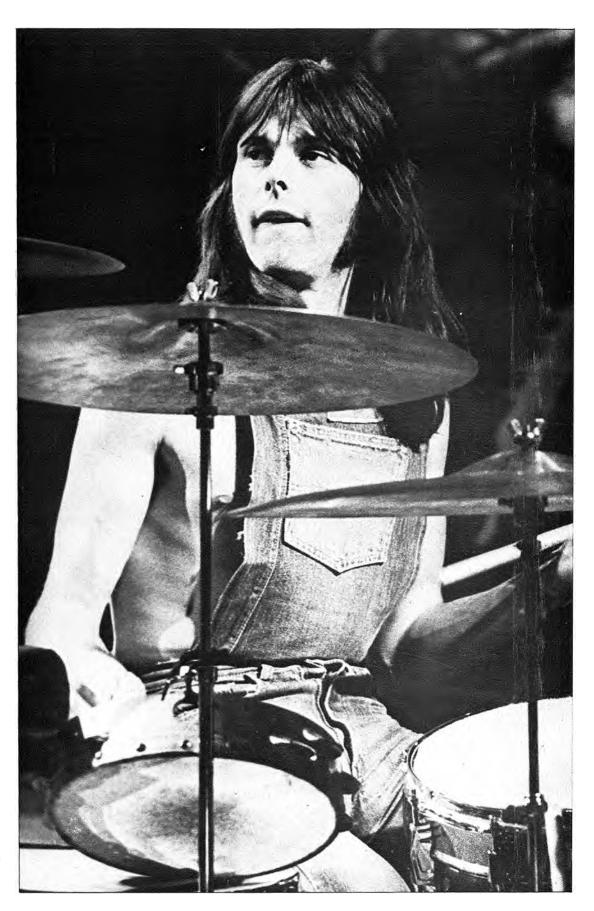
"All his life he'd been playing with the left hand on the snare and the right hand on the cymbal and he woke up and realised that his best hand, the right, was doing less work than the left and if he put his cymbal over on the left and played the snare with his right hand he might be able to do a bit better. He also reasoned that rolling round the drums from centre to right would be easier if he led with his left on the way back. He sat down and for day after day he practiced getting his new style of playing together. I mean, can you imagine someone like Lenny White having to go through a situation of weeks and months where he was allowing his whole technique to suffer because he wanted to improve his overall

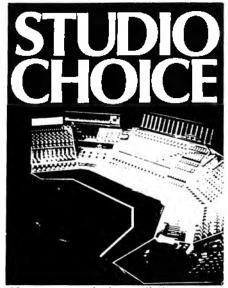
style.
"During the time that I've been inactive I've been thinking about my drums. I think I'm probably going to get a new Pearl outfit. Lot's of people in the States like Ed Shaughnessy have got turned on to Pearl and I do like them quite a lot. It's become a trend now for drummers to use bigger and bigger tom-toms and I've been wondering about this. The problem with big toms is that the sound is hard to get over. In the old days when a drummer wasn't miked up it would have been impossible to get the sound over and I've decided that I'd still be a bit better off with smaller tom-toms because of the penetration. In the smaller sizes, tomtoms are usually made as single-headed drums but I'm going to get double headed models. With single heads they sound too poppy and light and I want a small drum sound, but one that's got a bit of depth. I'm going to have a 6", 8", 10", 14" and possibly a 16" and an 18" as well. Of course I'll be keeping my double bass drum set up but one problem is that few people are making an 18" bass drum these

Drum records are the peculiarities of the record business. Sandy Nelson started the genre and more recently Cozy Powell has proved that it still exists but it's a dangerous and, some might say, foolhardy thing for a highly respected drummer to do.

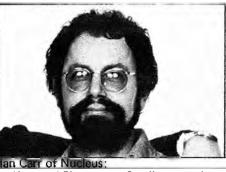
respected drummer to do.
"I made a drum record ten
years ago with Bobby Elliot. That
was for EMI and because of some
bickering within the company
between the A & R men of mine
and Bobby's, the thing never got
released. I'm still quite proud of
that record and at that time
Bobby Elliot and I had some
similarities in our playing

similarities in our playing.
"The thing I'm going to release will probably be a maxi single and it's a song that Russ (Ballard) and I wrote that's been sitting around awhile waiting to be used. It's not like Sandy Nelson and it's not like Cozy Powell, but it's a funky thing and I'm really looking forward to seeing how it goes".





Why does a particular studio become popular? In an effort to discover what artists look for in a studio we asked nine players about the studios they choose to record in.



I've used Phonogram Studios over the past five years. They have good facilities-16 or 24 track, I'm not sure which-and it's a pleasant place to work. By that I mean that it is aesthetically pleasing and that the staff and services—tea and coffee for instance—are quite good.

The engineers there are very good, we worked first with Roger Wake and most recently with Steve Lillywhite. They like our music and they've occasionally come to our gias.

I'm on the Phonogram label, but even if I left the label- which is a completely hypothetical proposition-I would still like to use the studio. I think if a real virtuoso were to record at Phonogram, we could do a fine record. We've done eight albums there—the first one was actually recorded at Trident and then mixed at Phonogram, and Jon Hiseman who produced Belladonna mixed that at Lansdowne with Peter Gallen.

But I'm quite happy at Phonogram, although both Lansdowne and Trident are very good, as is Olympia.



John Hudson of Hudson-Ford:

Most recently we used Ascot Sound, Ringo Starr's studio. It's got a really nice atmosphere, there are cottages down there where the band can stay, and you can really get into recording, It's only a 16 track studio, but that's ample, there's a decent mixer. The engineer was Tom Allom, who also co-produces us, and he's very good. We met him through Dave Cousins when we were in Strawbs.

We've used Air before which is nice, but it's a bit 'cold'. I prefer something a bit smaller-we've also used Sound Techniques. They build their own equipment and it's very good, and perhaps it adds to the sound they finally get, I wouldn't mind using a mobile studio and recording in an old building or castle. Your chances of getting a live drum sound would be better, with more natural echo.

I think we're lucky to have so many studios to choose from in London-people should get around a bit and try more of them.



Rod Argent of Argent:

The last studio I used was CBS, which is very good. Most major studios have very good equipment, but good engineers are the most important thing. We work with Mike Ross at CBS, who is great. He's got the right ears and he can also understand what we want and translate it into technical action. We've also used Abbey Road, with Peter Bown, who is also quite good. Each studio is going to have its own sound, depending on the acoustic design and size, but the major studios around the world are all more or less the same, I think it's the engineer, more than anything. A few years ago, people were talking about an American sound and a British sound, but really it was that at the time, British engineers weren't as experienced. Now, they've caught up and they're just as good.

I am sure you could put a good engineer in an average studio and come up with a good sound, much better than the sound you'd get by putting an average engineer

in a good studio.

Some studios also have listening facilities which are too good, and give you a better sound than you actually get on more modest equipment. This happened to us a few years ago, when we were recording Oddessy And Oracle at Abbey Road. Studio 3 there had been very good for listening to playbacks, but they modernised it and put in big JBL speakers which were fantastic—just the thing you'd love to have at home. But it made the playback sound much better than it really was.



Mark Ashton of Headstone:

We recorded the first Headstone album at Rockfield Studios, which is really nice It's beautiful there, the whole environment is really ideal. They've got a lot of little things-like a Cordon Bleu chef laid on, and Charles and Kingsley Ward are fantastic. They have a small 16 track studio which is ideal for small line-ups, it has a really good, funky sound. I think 24 tracks can complicate things unnecessarily—after all, a lot of the Beatles' stuff was done on eight track.

We did the backing tracks at Rockfield, and then went to Trident to do the vocals and overdubs. We used Trident because they manage us, but they're really good. The engineers are important too, Pat Moran at Rockfield and Ted (Sharp) at Trident are both great. The engineer is important, because if you're in the studio and you really feel like getting it on and you have to waste time while the engineer gets it right, you can lose momentum and just end up pissed off.

I think people are turning away from formal studios-more people seem to be rejecting the plush atmosphere of most studios and going out to look for something a bit more natural.



Dave Holland of Trapeze:

We've used Air and Decca, but we've mostly used Island, their number 1 studio partly because of the general atmosphere and partly because of the good, unique live sound that you can get there. They use ambiance mikes, and you can get a good, Traffic sound. Phil Brown is a good engineer as well, all their engineers are really laid-back.

The engineer is really important, especially in mixing some engineers can pull out a really fine mix, I've been round to the Moody's studio, which is amazing, I heard a true quad mix there which was really fine. One of the best things about Threshold-it's true of Island's number 2 as well—is that when you hear something played back, what you hear is what you get. Some studios can distort the sound when it's played back, and that can mess you up.



Ray Thomas of The Moody Blues: (Thomas has recently completed a solo album, From Mighty Oaks, in Decca's rebuilt Hampstead complex). We negotiated and looked for premises for a long time, and finally we decided to rebuild Threshold Studios in Hampstead. It took six of us 12 months to put it together, and now we use it almost as a workshop,

We've used (the old) Threshold before, as well as Decca's Tollington Park Studio, and we had pushed them beyond their limits. The atmosphere was like you might expect from a large corporation, very cold, with quite a lot of cream and brown - very like the BBC, in fact.

The new studio is much more comfortable, and it's 24 track as well as quadrophonic. I was a bit worried at first, but this album turned me on to quad you have to be careful, because it's still new, but there's a tremendous future for



Phil Lynott and Brian Downey of Thin Lizzy:

Phil: We've used Trident, Air and De Lane Lea, but Olympic is our favourite studio 1 for backing and 3 for mixing. Keith Harwood is the engineer we work with, and he's tops. He's got the right temperament, easy going and efficient. Olympic is God for us.

Brian: We first used Decca's studio in West Hampstead, which I liked for the good drum sound you got. It's a big studio, and you can set up your kit more or less like it is on stage. I like a bit of overspill, cause it gives more body.. We also used Decca's Tollington Park Studio, but that wasn't so good. The album Vagabonds Of The Western World came out alright, but I wasn't happy with the drum sound we got, except for three tracks. They had a drum booth, but it took about four days of pre-recording to get the sound right, and then the humidity in the booth was too high and the fans stopped working... Eventually I moved the whole thing out onto the floor, and it came together perfectly.



Graham Gouldman of 10cc:

I've used Strawberry Studios exclusively over the past four years, I was involved in setting it up financially, and Eric Stewart and Pete Tattersall really set it up technically. The equipment is the best available in the world, but the atmosphere and the young staff are what really make it. There are no clocks anywhere, and the pressure is less. If you're recording some vocals at five to five, and you're supposed to finish at five, you can just go over.

I've used Olympic, Advision and E.M.I. before, as well as Lansdowne, I worked in a studio in New York which had a ballroom downstairs, and it had a really

unique natural echo in it.

Drums sounds are the hardest thing to get right—I've found that EMI and Strawberry are both good. We've got a drum booth at Strawberry, which doubles for use with acoustic instruments. I really think I'd like to work in another studio I like Wally Heider's studio in L.A.

Different studios definitely have their own sounds, whether it's due to the acoustics, equipment or the size and shape of the room is very difficult to say. The classic example is the change in the Motown sound when they moved their studios from Detroit to L.A. The echo in the old studios was really predominant, and they lost that up-front drums and bass sound. The bass players haven't changed, they're still phenomenal, but the studio and the sound has.

ERRAPIN

Nottingham, Sheffield and the area of the Midlands which they occupy may be small in size, but it manages to support as much musical diversity as most places in the world. What more can you say about an area which encourages hopes as diverse as those of Carlo Santanna and Terrapin?

Terrapin were formed in April of this year, by bassist Terry Penn. As he says, "I knew Richard (Guildford, lead guitarist) for quite a while, and when I left my last band, I was going to join him. But instead, he left his group and we formed Terrapin."

The outgrowth of this is a country-rock band, playing material influenced by the Eagles and Commander Cody. "Getting a drummer was perhaps the hardest part of forming Terrapin," Richard continued. "We've been through quite a few but for the moment settled down as a trio, with drummer Paul Pinder." Oddly enough, Pinder was until recently drumming for Carlo Santanna.

The hunting, however, isn't over yet. "We really want a second lead guitar, as well as another voice. Right now I'm doing the lead vocals, with Richard — who's an old Beach Boys fanatic — singing harmony. I think a rhythm guitar is important — too many people ignore it, but it shouldn't be denigrated."

"We also like to do more acoustic numbers," Richard added, "and we need another guitar for that."

Terry Penn has played in the Nottingham area since Alvin Lee first rose to national prominence. His strongest taste of success came in a band a few years ago. "We had seven singles and an album, and we had some 'hits' in Australia and Japan, but nothing much ever came of it. The only bright spot from it all was from the publisher Chappel!'s, who still send me statements regularly."

Terry uses four basses regularity. He discovered that some instruments are more effective—not only on some numbers, but also in some venues and not in others. "I usually use the Fender Precision for rock numbers, it's got a good gutsy sound, but in bigger venues, I've begun to use a Jazz Bass, because I can get more volume out of it, I've also got two Rickenbackers, one which is standard and another which I converted slightly."

The vigour and experience is there, but at the moment perhaps patience is the most important quality demanded of Terrapin. "We work a lot, almost every night, but it does get a bit trying. Last week, the van broke down twice, once with axle trouble and the second time we discovered we needed a new engine. All in all, it

was more than £300, and we'd worked a week for the van."

The city of Nottingham is perhaps not the easiest place for rock bands. The one major venue only does two nights of rock a week, and one of those is a residency, held by Cisco, "There are about half a dozen bands fighting for that night," Richard Guildford told IM. As a result, most of their work takes them around the North and Midlands, Still, the work is there for bands that want it, and Terrapin have been getting a good name over the past three months.

The next step? "Recording, I suppose," said Terry, "but not just yet. We want exactly the right sound first, and that takes some work." With that and a little luck, the rest of the country should hear more of Terrapin before the year is out.

Terry Penn plays Fender Precision Bass, a Fender Jazz Master Bass, and two Rickenbackers throughanOrangeGraphic Amplifier; Richard Guildford plays a Gibson SG standard through a Carlsbro Stingray amplifier; Paul Pinder plays a Premier kit, with Paiste cymbals.



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CARLO SANTANNA

Some might call it anarchy, but the music scene in the Nottingham area is remarkably free and easy, and Carlo Santanna and his band are a case in point. Carlo was formerly a member of Paper Lace, but following a joint decision to disagree viz a viz the group's musical direction, he decided, with Manager Brian Hart, to go solo, and form his own backing group.

It takes some gumption to opt out of a chart topping group like Paper Lace, but Carlo is certain that he made the right decision about the whole situation. As he says, "It must be the records which determine which way a group goes, and it was obvious to both Brian and me that we were about to head in the wrong direction."

In short, any change in direction was, to Carlo, a mistake of the first order. On his own, things are progressing very well. Towards the end of February, Carlo began to put a band behind him that could both blow independently and aid him in the interpretation of his own musical ideas. He picked up that band with surprising ease. The first to join was Graham "Berry" Ruffles, bass guitarist, "I've known Graham for about ten years, and he was first on my list.

"Norman Williams was next. He was playing in a cabaret backing band in Sheffield. Originally, we had though of a trio, with me playing guitar and singing, Graham playing bass and doing the arranging, and Norman on keyboards, and writing the parts."

After three weeks of rehearsal and a few attempts to find a drummer which failed until relatively recently (ending with Gary Fox behind the kit), the band were ready to go. Their first engagement was in Jersey. It was hard going at first, and to a lesser degree it still is. Says Carlo, "We don't have an Arctic and a large road crew — we still do all our own roadying." It is, admittedly a hard life, but Carlo's eyes are firmly on the future. "I've got a really good band behind me now.

"It took some time to find the right drummer — we went through three before settling on Gary — but he's fantæstic. He's only 16, but he can read music and he's going to be great, all he needs is a little moulding.

"The rest of the band are great, too. Norman used to be in Billy Fury's backing band and was his M.D., Graham has played in quite a few local groups, and once turned down a chance to join Exit, which at that time included Terry Bennett, who's now in Sassafrass."

The musical pedigrees are good, and Carlo is no exception. His family was musical, and as a

child he used to go to Sheffield to take singing lessons from a former teacher of the Royal College of Music.

Musically, his tastes run the gamut, from opera to pop. "I guess the band I rate highest now musically is 10 CC. They really are great, but as far as listening goes, I'm quite open. I like Mario Lanza, for instance, and Andy Williams as well."

A recording contract is in the air for Carlo and the band. Peter Shelley is interested in him, and there are rumours that Mickie Most is, well, most interested. "We've laid down a demo single, called 'Midnight Thursday Last', at Chappell's in Bond Street. But most of my own ideas I record myself — I've got a Klark-Teknik recorder, which is good for putting them down."

Carlo's approach to writing is idealistic in a way, and yet at the same time highly realistic. "Most of my stuff is very personal and yet it's also a reflection of what's in the charts. It's O.K. to write for yourself, but you've got to write things that the audience want to hear as well."

Carlo Santanna and his band are attracting a lot of attention in cabaret in the North and Midlands, and with an eye on the charts and clubland, both he and the band are a force to be reckoned with.

Carlo Santanna plays a Gibson Les Paul, a J160E Acoustic, and electric mandolin; Graham Ruffles plays a Fender Jazz Bass; Norman Williams plays a GEM Organ, a Mellotron and a Fender-Rhodes piano; and Gary Fox uses a Premier kit.





Once heralded as the "Face of 1968", Peter Frampton has come a long way since his days with the Herd, During his tenure with Humble Pie, Peter established his credibility as a quitarist, and became (along with Chris Spedding and Alan Parker) one of Britain's top session quitar players. Peter currently is making his of fifty-fifty between guitar and piano. mark on the world via his career as a solo artist, with several albums on the A&M label - his latest, in fact, rests in an enviable position in the American charts. We spoke to Peter about his new band, his various interests, and the making of his latest album, Frampton.

Since leaving Humble Pie, you've been a solo artist, a group member, and now a solo artist again. What prompted these changes?

There wasn't really a change. Only the identity of the group members is different, Frampton's Camel got confused with Peter Bardens' Camel in England, so now it's The Peter Frampton Band.

Who are the band members now?

We have Bob Mayo, who used to be in a group called Doc Halliday with Frank Carillo, who played on Wind Of Change. Bob doubles on keyboards and guitar. I just bumped into him at the right time and it worked out really nicely, It's great to have someone that can play keyboards as well as they can play guitar. I love a two-guitar line-up. It makes the sound closer to the record . . . definitely more

Then there's Stanley Sheldon on bass, coming from Steve Stills' band, and 'The Rock' (John Siomos) on drums. It's a completely American band,

Most quitarists who leave a band for a solo career lean towards heavy, quitaroriented material, while your work is more melodic, Why?

I think onstage, people come to see me play guitar. But on record, nothing is more boring to me than three-minute guitar solos and things like that, although I think there's more guitar on the new

album than any of the others. People like to listen to the voice. My songs are a vehicle for my guitar, but the guitar is there to compliment the voice.

Do you write on electric or acoustic auitar?

Both . . . more on acoustic, and it's sort

The plane has become more important especially on Frampton. me. 'Fantare' 'Day's Dawning', 'Nassau' were all written on piano. I find it easier to write on piano because I'm much more limited and I write much more simply. That's always the secret -the simpler the better.

Is it true that you write about three times as many songs as you actually release?

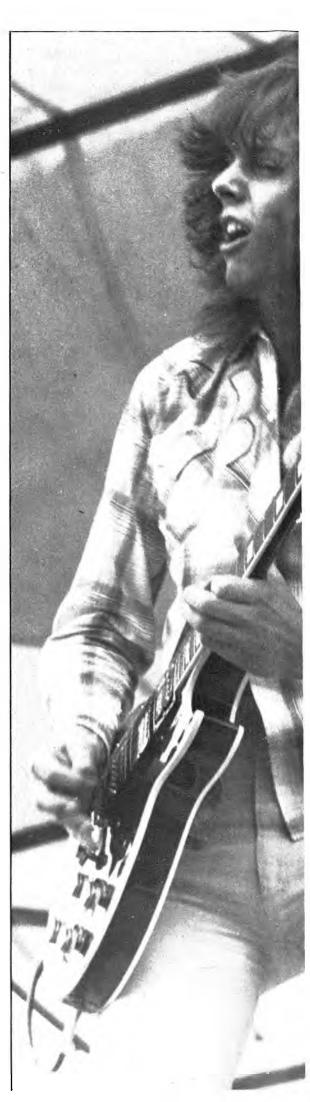
I've got loads of cassettes that are filled with anything from five second ideas to three minute ideas. After I've collected a couple of cassettes over the weeks, what I'll do is play them through and pick out the things that still interest me. Of course, some songs I'll just sit down and write, but for others I depend on the cassettes.

How far back in time do the cassettes go? They go right back to the period before I. left Humble Pie, But I tend to move on even though I go back and listen to them. Do you usually write the music and the lyrics at the same time?

It happens lots of ways except I never write the lyrics first. I can't work that way. Sometimes it goes from me writing the lyrics at the same time, to actually recording a backing track with just the melody and then writing the words afterwards.

How does it feel to produce your own records?

Having always been very involved with the technical side, I love it. I worked very closely with Chris Kimsey, the engineer. I don't like studios. Things just don't sound like they should in a studio. Drums, to me, don't sound like drums in the dead studio environment - you can





hear all the rattles and buzzes. Drums sound best in a big room like at the Clearwell Castle with ceilings thirty feet high. You see, if they don't sound good before you mike them up, they're not going to sound good afterwards. I feel that's where a lot of producers make a mistake.

Have you done any live recording thus far?

The next album is going to be a live one. Will the band stay the same for the next one?

I love this band, I'm really happy with it. It's funky and I've always loved the American feel. John Siomos is my favourite drummer, and to be in a band with your favourites is always a thrill.





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KTM-1

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

SPECIFICATIONS

Impedance:

50K ohms

Sensitivity: Frequency -58db/1,000 cps.

Response:

100-10,000 cps.

Dimensions:

43 dia. x 163 (mm) 1.7 dia. x 6.4 (inches)

Weight:

395 grams/14 ounces.



KTM-3

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

SPECIFICATIONS

Impedance:

50K ohms

Sensitivity: Frequency -57db/1,000 cps.

Response:

100-10,000 cps.

Dimensions:

41 dia. x 170 (mm) 1.6 dia. x 6.7 (inches)

Weight:

370 grams/13 oz.



KTM-2

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

SPECIFICATIONS

Impedance:

High 50K ohms/Low

600 ohms

Sensitivity: Frequency -57db/1,000 cps.

Response:

100-10,000 cps.

Dimensions: 52 dia, x 230 (mm) 2 dia, x 9 (inches)

Weight:

510 grams/1 lb. 2 oz.

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

use with any standard microphone stand.



KTM-4

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

SPECIFICATIONS

Impedance:

High 50K ohms/Low

600 ohms

Sensitivity:

-57db/1,000 cps. 44 dia. x 200 (mm)

Dimensions:

1.7 dia. x 7.8 (inches)

Weight:

510 grams/1 lb, 2 oz.

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From the moment "Heart Full Of Soul" started to get radio plays in 1965; guitarists all over Britain were asking what that funny guitar sound was. Jeff Beck's guitar sounded fuzzy.

I was playing in a London 'R'n'B' band at the time and I remember during a Saturday's window shopping in Charing Cross Road, calling in at a music instrument shop owned by the Macari Brothers.

From a small back room issued sounds unlike any I'd heard from a guitar before. Today the shop (in Denmark Street) is owned by another music company of a citrus hue, but then these sounds were pulling in knots of the mod-headed guitarists who regularly thronged Tin Pan Alley.

Of course it's well known now that the cause of all the excitement was a bunch of tricks put together by a gentleman called Gary Hurst under the patronage of instrument entrepreneur Larry Macari.

The fuzzing of the electric guitar sound was unlike any other sound captured before. It owed its life to the birth of the transistor and was truly the first rock child of the solid-state age. The principle now appears simple. The guitar strings reproduce a musical note when plucked - a sine wave to a technician. It took a cross between the mind of a technician and the mind of a musician to consider squaring off the top of the symmetrical sine wave and making it into a square wave. Quite where the "Eureka" stage happened is shrouded in the mists of rock time, but somewhere Gary Hurstfound the circuit that produced a flat topped wave on an oscilliscope and (far more important) a bloody amazing sound with a Telecaster and a 100 watt Marshall.

From those initial attempts came the box of tricks Jeff Beck used on the "Heart" recording session — the Tone Bender. The title was (and is) of course a reference to the affect of the circuit on the wave form. The term fuzz was then something highly undesirable as the creatures of pop had only recently struggled out of the mire of badly designed 30 watt valve amps which provided a form of fuzz as an unoptional extra:

The fuzz box produced a sound very different to the kind of distorted fuzz most of us had to put up with then. It wasn't just a matter of choosing one form of distorted sound rather than another, it was more a question of being able to control the depth and existence of the fuzz at the plunge of a cuban heeled boot.

Far more than just fuzzing, the fuzz box, by the nature of the tiny pre-amp in its circuit, compensated a little for the low output of some cheaper guitars and also "souped" up some rubbishy amps a bit. Not un-naturally, it became a trifle popular.

As you might imagine, within three months eight out of ten records at the top of the chart had fuzz guitar on them. Big Jim Sullivan and his colleagues must quickly have cursed the invention adding their stock of Tone Benders and batteries (they wore out a little quicker then — a comment on advancing battery technology rather than on the fuzz circuits) to his kit and telling all the fixers who rang up "Yes, I can do a fuzz guitar".

The important thing was that the novelty of the birth didn't kill off the child. The advent of the heavy group two years later (out of the mad, acid-inspired psychedelia in 1967) provided fresh ground for the fuzz box. The principal of a tiny effect box for an electric guitar which could be controlled by a footswitch was a good one and the "heavies" started discovering how the square wave led them into feedback and sustain situations which they made all their own. In other words, the tool was adaptable to the music and for that reason it grew with the music rather than being encapsulated in the summer of 1965 as some other tricky sounds have suffered.

A record called "The Crying Game" by Dave Berry had come out in July 1964 and the guitar solo had a "crying effect". Wah-wah was born, but it wasn't until well after the fuzz box package that it was marketed.

The Wah-Wah effect is the novel idea of providing a tone - filter operated by a swell pedal. By mounting a potentiometer sideways in a metal case and causing it to turn back and forth by the foot platform, a guitarist could boost the middle frequencies and induce a "crying effect". The "Cry Baby!" pedal was born.

Before you could turn round, guitarists were linking both fuzz boxes and wah-wahs together and some incredible sound combinations were evolving.

By the end of the sixties many firms had launched fuzz boxes and wah-wah pedals, the Tone Bender, the Fuzz Face and the Cry Baby being far and away the most popular.

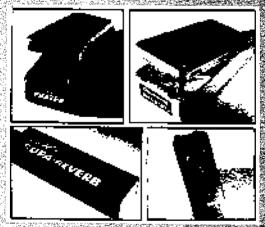
Larry Macarl, the man at the beginning, decided to specialise in producing effects pedals for guitarists (and a few other instruments as well) and by the early part of this year he had wandered off into new waters dragging the plagarists in his wake, producing items like Phaze-pedals and Wah-Fuzz-Swell single pedal combinations all under his brand name Colorsound.

Of sourse, the Japanese rapidly decided the market was large enough for their attention and they must have produced many failing copies of things like the tone bender (which must have seemed a rather odd piece of electronics to them) before managing to produce acceptable copies of the original product. Like most Japanese musical products, the copies developed until they bore no relation to the initial Anglo-Japanese production effort, and today organisations like

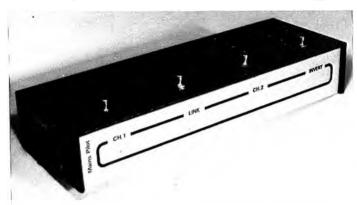
Roland produce a wide and varied range of effects pedals.

It's still possible to buy, the original Tone Bender—it's still in the Colorsbund range—and many swear it has yet to be beaten, but most modern guitarists accept that a slightly more sophisticated pedal combining at least two functions (fuzz and wah-wah, for instance) is the ideal (and necessary) addition to the traditional guitar and amplifier combinations

In practice, effects pedals require very little fiddling. Batteries need changing comparatively rarely and the mechanics and electronics are not subject to foliability problems. Occasionally small things need attention — the odd pedal which persists in behaving like a radio aerial and pumping a religious programme into the amp, for example — but these are easily overcome and there are few plectric guitarists today whose art has not been immeasurably improved by taking an effects pedal and working with it sto discover new techniques.



GUITAR ROUTING BOX



In last month's issue I discussed the possibility of pick-up and amp selection, controlled by footswitches, "DAISY" is the result of many hours of thought and trial and error, to produce a flexible routing box with a minimum of wiring problems, and at a reasonable price. There were certain problems encountered in building the prototype, the major one being where to obtain a goodlooking, thin, flat box, long enough to allow for separate operation of four foot-After switches. trying electricians' "Adaptable Boxes", which are virtually unobtainable, and aluminium radio chassis, which are too soft and always seem to look like radio chassis whatever you do to them, I found a case No. C-3. available through your local radio from Norman shop. Rose Ltd.

I cut both lid and base to practically half-size for the sake of appearance and stability, but if you have limited metalwork skill, leave it fullsize. (Although the base is aluminium, the top is fairly hard steel.)

The second problem was that of indicating which way the switches were "pointing". As this is essentially a signal routing box, it seemed obvious to use spare contacts

on the switches to operate lights, as in recording desks,

To keep heating effects to a minimum, the lights are relatively new components called Light Emitting Diodes. As long as you remember to connect the lead called "Anode" to the + wire of the power supply through a suitable resistor, and not to bend the leads sharply near the body, they should cause no trouble. The anode of the R.S. Components LED 4 -586 475 is the shorter lead. Others may vary - ask for written lead identification don't guess. Most L.E.D.'s will work happily from a 6 volt D.C. supply via a resistor of about 120 to 150 ohms/ 1 watt, for each L.E.D. and taking about 25 m.a. each. With all lights on, total current is 100 m.a. You could power this off (say) a 6 volt Lantern battery, but it is not going to last very long.

It appears that the simplest way of getting 6 volts D.C. from mains is some form of battery eliminator. As it only supplies the indicators, the fact that the D.C. supply can be rather "rough" from these eliminators is irrelevent. The most suitable type is the A.C. 101 C., again from Norman Rose. This is rated at 500 m.a. and is required to only 100 m.a. so there should

ng box, it seemed m.a. and is required only 100 m.a. so there should be spare contacts.

IN 1

OUT 1

IN 2

IN 2

Invert Link

be no problems about fitting it inside an enclosed cabinet.

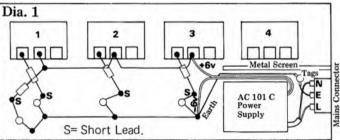
It also occurred to me that some of you might not wish to be involved with do-ityourself projects including mains voltage wiring - quite right too! The advantage of using a battery eliminator is that all the mains wiring is done for you. Mains wires go in one end, and + and - 6 volts comes out the other. All you have to do is screw or glue the entire eliminator inside the switch box, cut the wires short and connect them correctly to the mains socket on the side of the box. You will also need to connect a wire from the earth terminal of the socket FIRMLY to the box, preferably with a crimp tag and a spiked washer between tag and chassis.

Any radio, television, or electrical engineer can check whether you have done all this correctly and safely. You also need a wire from the chassis to the -6 volt supply, but note that none of the jack or switch connections go to the chassis. Apart

from the fact that audio wiring is inside an earthed metal box, any direct earthing required will be provided by the amp to which it is connected.

IF YOU SCREW THE BATTERY ELIMINATOR IN PLACE, DO SO WITH ITS COVER OFF, TO ENSURE THAT SCREWS DO NOT TOUCH ANY (MAINS) WIRING, then replace cover before starting rest of wiring. The mains plug for this switch box should be fitted with a fuse not larger than 3 amps.

Before you wire anything, drill all the holes, check each component for fit and remove it again. You will find a library book on "O-Level" PRACTICAL metalwork, and a 1/2 inch or 11mm chassis punch (Home Radio Ltd.) a great help for this part. The odd shaped hole for the mains connector must be filed or nibbled out from a round hole and should be cut first. Nibbling tools are made for radio work and for installing windows in the sides of vans.



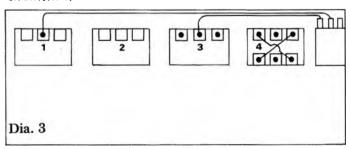
The I 6 v lead has a small ridge along its side - check before separating ends

Wire in the following order:-

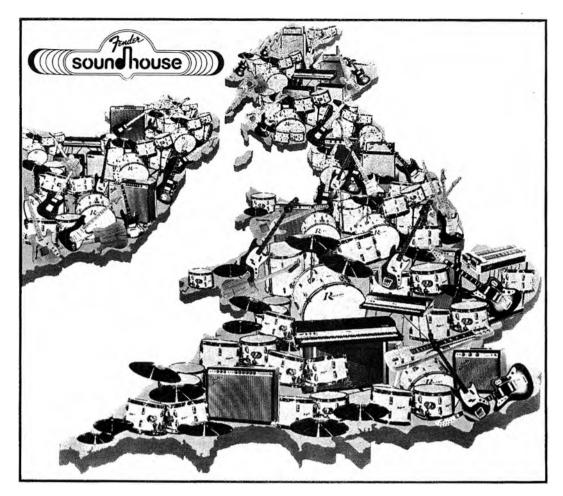
Diagram 1 — Mains socket, power supply, earth tags, metal screen, L.E.D.'s, and indicator wiring.

Diagram 2 – Input jacks. Diagram 3 – Input jacks to switches 1 and 3, and links on switch 4.





Stereo



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Julian's Rayboards	London, N.W.2	01-452 675 L
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Chingford Organs	Chingford, E.4	01-524 1446
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	Tarabasa Paga	
	Caristro, Sheffield 0742	
	Huddersfield Music Cent	re 0484 27653
STOP /	Kennards, Margate 0843	23205
SIUP /	Dudley Music Contro 03	84 58462
•	M.E.L. Malody Centres.	
PRESS \	Musical Sounds, Shelfiel	d 0742 51445
	Mitchells, Salisbury 231	73
	John Savage, King's Lyn	n
	Take 5, London W.I. Gt	-637 4402

TRADE SHOW HERE AUG-17-21

CBS/Arbiter Ltd., 213 215 Tottenham Court Road, London Wi PoAF for Funder Rogers and Rhodes

R lot more than a music store

Diagram 4 — Switches 1 and 3 to switch 4.

Diagram 5 — Switch 4 to switch 2 and output jacks, and input jacks to output jacks.

Get/an engineer to check mains wiring, and screw on lid.

Components for DAISY: 4 Light emitting diodes see text

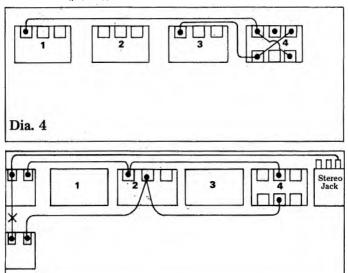
4 switches, 2 pole changeover, foot operated as used on fuzz boxes etc. 4 mono jacks, insulated from chassis

1 A-type stereo jack, insulated from chassis 4 Resistors 150 ohms 1 watt

Small piece of aluminium for internal screen Norman Rose case C.3.

Norman Rose Battery eliminator A.C. 101 C. Mains chassis connector,

plug and lead.
Assorted screws, earthing tags, and wire.



Operation of DAISY

This is only a few of the possibilities.

Stereo lead in from stereo wired guitar — Guitar selector switch in centre position — Switches 1 and 3 route pick-up 1 to output 1 and/or pick-up 2 to output 2. Switch 4 routes P/u 1 to o/p 2 and P/u 2 to o/p 1. Switch 2 routes whatever pick-up(s) selected, to both outputs.

By using two mono leads from guitar to box, one or both input channels may go through different effects boxes.

A mono guitar may be put through two different effects, by expanding its output into 2 leads using a split lead in reverse, or a 1 into 2 adaptor from Hi Fi shops.

You may have fuzz into right-hand amp and phase and reverb into left-hand amp and by pressing switch 4, change them over to opposite sides of the stage.

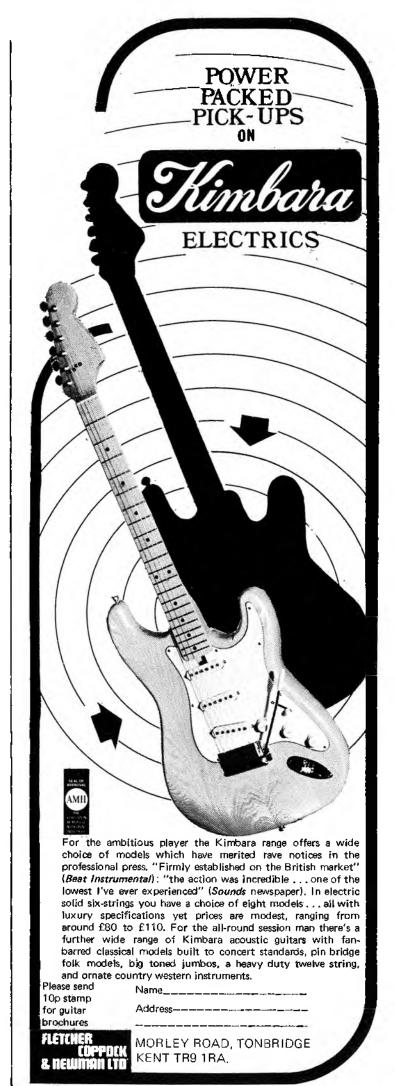
A guitar solo may be directed to right stage, left or centre. I am sure you will

find many more tricks — Good luck, and let us know if you hit on anything really good.

Amendments to DAISY

If you have hum troubles when two different amps are connected, try disconnecting the "earth" lead to ONE of the output sockets at point X. Alternatively, break both leads to one of the jacks and insert the same transformer as used in the Hum Loop Isolator. (Point X to pins 1 and 5/other lead - pin 4/pin 6 to Tip connection on jack socket/pin 8 - jack body connection). You should not fit the 22 K resistor or any other additional components. There may be, with some amps, a slight increase in treble from omitting the 22K damping

resistor and/or loss of volume when the "LINK" switch is pressed. Next month I shall describe a simple addition, based on the "Blob" circuitry, which runs off the existing 6 volt supply, and solves both these problems.

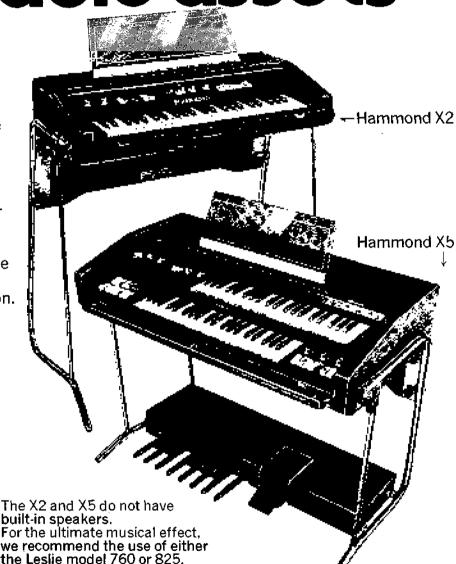


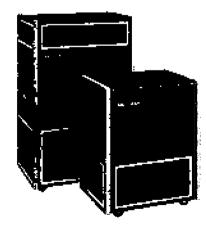
Hammond ortobles ovable assets

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 tailormade for you.





built-in speakers. For the ultimate musical effect, we recommend the use of either the Leslie model 760 or 825.



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NAMM SHOW

THE BIGGEST music instrument trade fair in the world took place in Chicago recently. The NAMM (National Association of Musical Merchandisers, held their annual Expo convention at McCormick Place.

The whole of American's instrument trade was there and most manufacturers were exhibiting. Buyers from all over the world visited including a strong British contingent who were as interested in selling British wares as in looking for items to sell in the H.K.

The British contingent, as may be imagined, flew a combined flag for much of the time and could be seen together seeking world wide deals and pushing British products not only in the U.S.A., but to the many Japanese and third world buyers who were there.

Visitors from the U.K. included Ivor Arbiter and Andrew Wallace of CBS/Arbiter who were naturally based on the giant CBS stand, Larry Macari of Colorsound and Cliff Cooper of Orange who could both be found on the Musonic stand. Iim and Rene Marshall, Derek Morris of Rose-Morris, James and Martin How, Craig Bradley and Ken Top Achard of Gear, Bob Birthwright of Canary, George Osztreicher of Cardiff Music Gene Strings, Ashworth of Chingford Organs, Keith Beckingham - naturally on the Hammond Organ stand, Don McCril of Take 5, James Coppock of Fletcher, Coppock and Newman, Dave Martin (newly promoted) and Peter Stien of GMS, Gordon Gibbons of Gem, Dickie Wren of Farfisa and Phil Dudderidge of Soundcraft.

Many well known international music executives who are frequent visitors to the U.K. were naturally on hand and a few from the long list are Leo Quan, Manual Huber (FM Acoustic), Ernie Briefel, Bob Moog, (demonstrating his polyphonic synthesiser), Dave Fredericks (who replied with ARP), Gail Martin (Cerwin Vega), Steve Marks (Acoustic), Willie Davoli and Roy Fliss (Hilton Electronics).

NEVE SALES

RUPERT NEVE have recently announced the sale of ten BCM 10/2 broadcast consoles to the Iraqui Broadcasting, Television and Cinema Establishment. Due to be installed before the end of the year, this marks the second substantial order from Iraq's national broadcasting authority in the last 18 months.

Alan Foster, Sales Director of Rupert Neve, remarked that "It is extremely gratifying to see our business grow in a part of the world that has such potential."

He added that Neve look forward to significant orders in the future as they continue to expand in the Middle East.

VEGA DEBUT

THE WELL known American range of sound equipment, Cerwin Vega, has been launched on the U.K. market.

Long a coveted import item, the equipment includes a 2K Bass Bin which, it is claimed, produces 148 dB at the horn mouth from an enclosure measuring 48" x 32" x 24". Several models are rated over 400 watts, with sound pressure levels reaching 120 dB plus.

Cerwin Vega (U.K.) is being handled by Managing Director Don Purkiss who can be reached by telephone at 01-573-1566.

KAY MIKES

TWO NEW condensor microphones have been introduced by Kay.

The KCM.44 is a professional condensor mike which is supplied with pen light battery and windshield.

A KSH.22 mike holder is available which provides insulation against shock.

JASMYN INTRO

JASMYN ELECTRONICS - a new Edinburgh based company - have announced the introduction of a professional power amplifier.

Called the IC500, the amp is a four channel unit capable of delivering 600 watt RMS into 4 ohms. Protection against overloading, thermal or electric, and open and short circuits is built in. The price is around £229. A matching three-way crossover unit for P.A. systems of 1000 watts and over is shortly to be launched and the company is currently working on a two manual electronic organ.

CALREC CUTS

CALREC AUDIO have taken the highly unusual step of reducing many popular microphone prices by as much as 35 per cent.

The news was made in time for the recent APRS exhibition and, as might be expected, stimulated considerable interest in these lines.

SUE VISIT

BLACKFOOT SUE, currently touring the U.K., made a guest appearance on the Vitavox stand at the recent APRS Exhibition in London.

Under International Musician's sponsorship, the band are conducting field trials on Vitavox Thunderbolt bins and will be reporting to Vitavox and International Musician on their performance in the next month or so.

Thunderbolt bins represent the first step into the professional group amplification market by Vitavox, a company with a long history of loudspeaker manufacturing.

The picture shows the band (centre) with Managing Director Neil Young (far left) and Technical Director David Young (far right).





THE ALEMBIC REPORT

Orange OR120

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

The most outstanding feature of the Orange amps is the incredibly rugged way in which they are built. We have become used to unusually high quality workmanship from other British munufacturers, such as Marshall and Hi-Watt, but Orange perhaps surpasses them all.

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

of this strength does make the unit rather heavy.

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



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

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

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

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

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

PLEASE SEND ME YOUR FULL COLOUR BROCHURE OF THE COMPLETE ORANGE RANGE. I ENCLOSE CHEQUE/ P.O. FOR 15p.

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MOSIC NEWS

CBS/ARBITER SHOW

CBS/ARBITER and Dallas are combining to stage their own show for the musical instrument trade from August 17 to 21. During this period several trade shows are being held in Central London, including the British Musical Instrument Trade Fair.

CBS/Arbiter and Dallas are of particular importance to the trade this year for several reasons. The first is that it is a new liason between the companies following CBS/Arbiter's financial involvement with Dallas a few months ago. It is also important because several impressive new products will be launched at the show. It is also Dallas' 100th year of trading.

Arbiter Auto-Tune drums will be a major new product at the show which is to be held on the second floor of the Fender Soundhouse in London's Tottenham Court Road. The floor is being considerably enlarged for the show to incorporate the many CBS/Arbiter and Dallas products.

BLACK ORANGE

FOR THE first time, afficionados of Orange Sound Equipment will be able to purchase the same gear in black.

Cliff Cooper, Managing Director of Orange Musical Industries, announced recently that Orange gear would soon be available in black, for a minimal increase in price.

NEW MELLOTRON

THAT UNUSUAL keyboard instrument the Mellotron has re-emerged as a new model. Many musicians believe that synthesisers can't offer the sound obtainable with Mellotrons and a Mark-5 Dual manual is the most sophisticated model yet.

It's a two manual instrument set side by side. The manuals each offer 2¾ octaves and they can be panned throughout the stereo image. An important sophistication is a governer which ensures that the instrument remains stable in temperatures ranging from 10 to 55 degrees centigrade and that voltage variations of 20 per cent will not affect tone of more important pitch.

The usual CBS/Arbiter products will be on display, including Fender guitars and amplification, Rogers drums, and Rhodes electronic keyboards. Dallas are also re-launching the Vox range of amps. There will be several demonstrations during the show including the first ever U.K. visit by Harold Rhodes, inventor of the electric piano which bears his name. Other visitors and demonstrators will include Big Jim Sullivan, Jon Hiseman, Gordon Beach and Carl Palmer.

Visitors will undoubtedly be particularly interested to see Auto-Tune drums for the first time. The drums are based on a revolutionary principal of head tensioning which permits the player to tension heads from one central socket on the drum shell. Not only does this make head changing a matter of seconds, it also means that tuning (to a particular note for instance) can be achieved with far greater ease than with a conventional rod-tensioned drum.

GMS PROMOTION

DAVE MARTIN of General Music Strings, has been promoted to Sales and Marketing Manager.

He is now responsible for the world-wide sales of GMS' Picato, Monopole, Ambassador and Red Dragon music strings as well as P & N microphone stands and accessories.

Although being based at the Company's Treforest office in South Wales, he will also be travelling the world promoting sales.

SHOW PAGE

BEN PAGE of B. Page & Son (Sound Equipment) Ltd. is sensibly making use of the centralising of the music industry executives in London in August to stage his own show for the trade.

At the same time as the main AMII show is taking place, Page are showing their ranges of Sunn, Dynacord, Morley Pedals, Micro-Frets and Command Speakers at the Ivanhoe Hotel on Bloomsbury Street.

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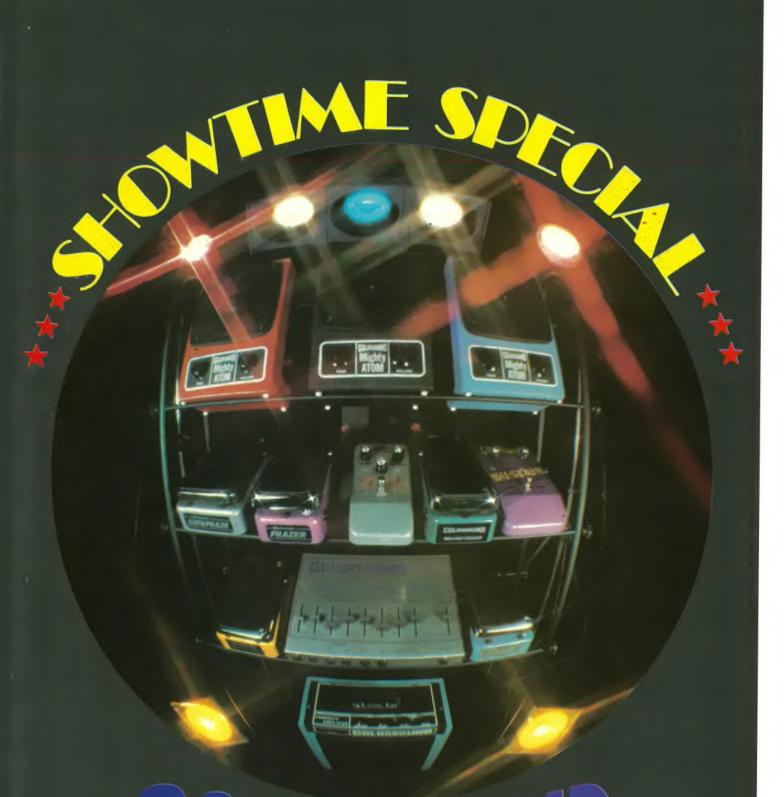
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COLORSOUND are still extending their famous range of effects pedals. Leading British and American musicians have helped to develop and improve these units, which feature exclusive positive pedal action. The most complete range of effects, ever!

WAH-WAH An original 'Wah-Wah' featuring positive action, a Colorsound exclusive activated drive system. The full frequency Wah-Wah circuit makes this unit a best seller.

SWELL PEDAL suitable for organ, accordion or guitar. With this unit it is possible to produce sounds from pp. to ff.

WAH-SWELL a very popular unit for guitar and bass guitar giving a wide range of volume control from pp. to ff. A push switch activates the Wah-Wah full frequency circuit.

WAH-FUZZ — Weh-Fuzz uses Colorsound's full frequency Wah-Wah. With the addition of a 'Fuzz' circuit and an extra switch it is possible to obtain Wah-Wah/Fuzz-Wah/and 'Growl'. This is, without doubt, a 'Best-Seller' with its wide range of effects.

WAH-FUZZ-STRAIGHT Independent control of wah and fuzz, with an extraswitch to cut the effects to allow the straight quitar sound through.

ORGAN WAH-SWELL Especially designed for electronic organs not fitted with wah-wah. This unit can also be used with electronic accordion, Hawaiian guitar or electric piano. The pedal is simply used in place of the standard volume pedal giving volume and Wah-Wah effect at the touch of a switch.

SUPA WAH-SWELL New circuitry incorporating a double 'pot' to give an improved wah and swell combination.

TONE BENDER a new version of the original Tonebender, much improved by an additional 'Fuzz' control. This unit was conceived with the help of leading British and American guitarists.

TREMOLO adds exciting tremolo sounds to guitar, accordion, organ and electric piano. With two controls the unit gives a range of speed and depth of vibrato. A foot switch cuts to normal sound.

OVERDRIVER A popular unit. Actually a pre-amplifier with a treble boost and a bass boost incorporated. It is also possible to create overdrive sustain fuzz

RING MODULATOR creates an exciting new range of sounds simulating synthesiser effects.

WAH-FUZZ-SWELL a 'Jumbo' size combination of Wah-Wah, Fuzz, and Volume. Each effect can be produced separately or in a combination of sounds. One of the new effects is Fuzz-Swell.

FUZZ PHAZER reproduces "phasing" effects, as used in recording. Usable with any instrument, or even voice.

SUPA TONE BENDER A new 'Jumbo' size unit with improved fuzz circuit, producing longer fuzz sustain.

SUSTAIN MODULE At last, sustain without 'fuzz'. Organ, woodwind and string sounds are simulated with this unit. Long, legato passages are played with ease. The module has two control knobs for various sustain combinations.

OCTIVIDER This "New Sound" unit opens the way to entirely fresh ideas for the lead guitarist. The control settings and switches enable the normal guitar to produce simultaneously the sound of organ and guitar, bass guitar, guitar or bass guitar only—with normal setting for straight guitar provided.

CHUCK-A-WAH An interesting new device for use with electric guitars, bases, pianos and organs. The unit is housed in a steel pedal case, and has a special type of sound filter which is triggered by the output of an instrument, the harder you play the more effect obtained.

6 CHANNEL MIXER Mixing facility for six inputs each with smooth action slide controls. Overall volume, treble and bass controls.

MIXER REVERB Five inputs using smooth action slide action volume controls. Overall volume, treble and bass controls.

ENVELOPE SHAPER This new unit enables the guitarist to shape sounds, and control the rate of attack and decay of notes, with a release control to cut off, or sustain the note.

PHAZE PEDAŁ A four segment phaze unit, the phaze effect is speeded up with the action of the pedal, straight sounds are actuated by foot switch.

DOPPLATONE five segment phaze unit with two circuits phaze and bubble, the speed of the phaze is variable by means of a skider pot, the second circuit bubble is also controlled by a skider pot and gives you an accentuated phase sound plus a distorted ring modulation sound.

SUPA PHAZE A seven segment phaze—unit has a much wider range of phaze than the two previous models, the speed of the phaze being controlled by the angle of the pedal.

These Units are made to be used in conjunction with the electric guitar, electric organ and pianos or P.A. vocal units.

COLORSOUND MICROPHONES Great new microphones from Colorsound. A high impedance dynamic cardiod with high antifeed back qualities — Smart too—in colours Orange, Yellow, Blue, Silver, Gold. Comes complete in a presentation case.

MICROPHONE CLIP A super-styled quick release microphone clip finished in black polypropetene, with shim-friction washers.

ADDA-MIC, BRACKET enables you to fit a second microphone to an existing mic, stand, Ideal for guitar or barrio players who play and sing simultaneously.

MIGHTY ATOM A mini amplifier with a 5-watt kick. Perfect for off-stage tune-up, or just plug in a microphone and you have your own portable P.A. System. Size: 9" x6" x 4".

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COLORSOUND COMPACT A studio or practice amp with 10 watts output. Light, but powerful, with built-in Tremolo.

SUPAREVERB A superb new unit with two inputs, Battery operated for use with P.A., Guitar, or Organ amplifier.

COLORSOUND Products are Manufactured by SOLA SOUND LTD., 20 Denmark St., London, W.C.2. 01-836 2856

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Colorsound Phase Pedal 4 segment phaze unit, the phaze effect is speeded up with the action of the pedal, straight sounds are actuated by foot switch

The Supa Phaze a seven segment phaze unit has a much wider range of phaze than the two previous models, the speed of the phaze being controlled by the angle of the pedal

These Units are made to be used in conjunction with the electric guitar, electric organ and pianos or P.A. vocal

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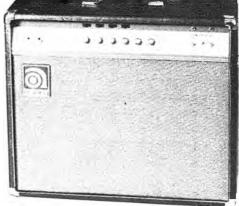


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See these and other new lines at the Boosey & Hawkes stand at the AMII Trade Fair, Bloomsbury Hotel.

coat and small van - looking after dodgy hire that came in. sets. When he left school - as soon as he could he was a pattern maker working in wood for items that would later be manufactured in metal.

In 1962 he was 19, living in rooms, newly married and expecting a first child, Today 13 years later he's the boss of 21,000 square feet of new factory on a trading estate in Kirkby-In-Ashfield. Around 70 people work for him and his Mercedes and luxury yacht proclaim the success of Carlsbro amplification.

He still looks extremely boyish, as if the struggle hasn't really taken a personal toll at all, but the story indicates that it must have.

Mercer survived the nightmare that has sunk thousands of other small business men. One morning he arrived at his factory to find it had completely burned down.

"I fost everything," he recalls "It was a really bad time. Apparently our cabinet factory was blazing away at 3am and it wasn't until I arrived in the morning; that I knew anything about it."

Perhaps it's characteristic that his first thought was of recovery. "I remember seeing the building had no roof on it. I realized that everything had been destroyed and my mind immediately started working on how quickly I could find other premises."

That was three years ago. Carlsbro was then a big name in the North of England amongst artists of every hue, but it's only in the last year or 18 months that the make has become a brand leader.

The story started when Stuart was 19 and busy with TVs. He met a musician who realised he had electronics knowledge and started complaining about the unavailability of good amplifiers. He persuaded Stuart to build him one.

"I spent a couple of months working out a circuit and a design and I built a little 15 watt combo amp that I thought he might like. Because I'd been a woodworker I was able to build a really professional little cabinet and 1 took it round to show him. To my disgust he'd lost interest and I was left with the amp I'd built.

"Although I've never been a musician my family were musical and my grandfather had a shop in Sheffield. That was E. Spooner's and I took it round to him. He liked it and said he'd try to sell it in the shop for me. At the same time he asked me to build another one. He was interested in miking up pianos for pubs using contact mikes and that was the reason he wanted to sell the amps."

Still working as a TV repair man, Stuart started building amps in his spare time and also doing repairs on amps that came into Spooners.

'I was living in rooms at the time and I had a real problem with space. I used to build the electronics in the bathroom and then move them out so that I could start to build the cabinets. In the end I asked a few friends if they knew anywhere I could use and one offered me the back of his uncle's greengrocers. So I started this tiny workshop in Mansfield Woodhouse. I was still knocking out the odd

Stuart Mercer was a TV repair man - white amp for my uncle's shop and doing the repairs

'Very slowly things started to build up and people such as Shane Fenton and the Fentones asked me to build something special for them. I remember that Benny the bass player was never satisfied with his sound and he asked me to build a bass cabinet for him.

"At that time there was absolutely no information available about loudspeakerenclosures, apart from the obvious things intended for hi-fi and I realised that if I put an 8" bass speaker in the type of cabinet they recommended it would be really huge. Lexperimented with reflex cabinets and eventually produced a cabinet that was compact but which also had a good bass response. In fact that cabinet has altered very little to the present day."

As the group scene grew in the Nottingham area, so did Stuart's business. Eventually holding down the TV job and making equipment became too much, "I went for lunch one Saturday and never went back. It wasn't really like me, but I suppose I'd hadtoo muchreally. I started work on my own account with £20 capital I had earned as profit for installing an intercom system in an ice-cream factory.

"My wife was very understanding. We were only just married and I was often up working till 3am trying to make and repair enough to keep us going. For three months I made about £12 a week profit which we could just live on in those days. When I think back now I realise that at 19 I hadn't a clue about running a business and if it hadn't been for my wife making a careful note of our earnings and expenses, we'd have been in a real mess."

Eventually the Mercers got the council house they'd been promised for so long. With the added space available, he started to build more earnestly. "Around this time a job I had applied for a year ago came up. A firm wrote to me offering me a job in which I could work from home and they would give me a van and a phone. It was too good an opportunity to miss and for the next year Stuart kept the business running and held down the job that provided the van.

Carlsbro is an odd name for amplification. One would naturally think of name like Vox (latin for voice), Hi-Power or proper nouns, but Carlsbro came about by accident really.

"I've often thought what a silly name it is," admits Stuart. "It came about because Carl was my grandfather's stage name and I just added the 'bro' bit at the end. I've often thought of better names since then.'

A year later Carlsbro amplification was healthy enough for Stuart to part with the useful van and the job that went with it. "I kept the telephone of course," and he was rich enough to buy himself an estate car.

By this time early Carlsbro PA systems could be seen about the county of Nottingham. Invariably they consisted of a Leak 50 watt amplifier, a Carlsbro pre-amp that was the forerunner of today's mixer and speaker cabinets which usually contained one 12" speaker each,

By 1965 the business had grown sufficiently for Stuart to employthree people to help him. Barry Selby joined at the time and to this day he still assists Stuart in the business.

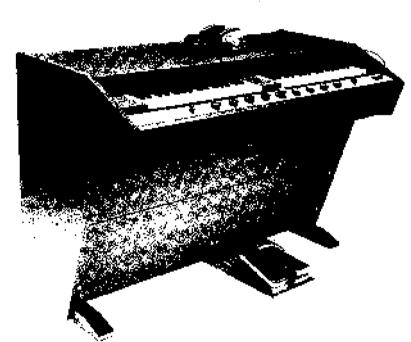
Carlsbro





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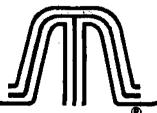


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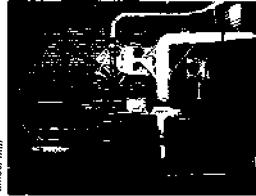
Mellotronics Limited, 35 Portland Place, London, W1N 3AG, England

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CARLSBR





"Our gear was beginning to get known in a during these years and at that time I bitterly leasehold on a industrial estate in Kirkby-Inregretted that I wasn't big enough to take full Ashfield. Since that time the company's advantage of the situation. They were fantastic position has strengthened increasingly and years, but we were really too small to take full within the next three months a new factory advantage of the situation. Now I'm quite built onto the side of the exisiting plan is due thankful that I wasn't ready. Look at some of to open. This will give Carlsbro 21,000 square the names who were big then - what happened feet, to them? Our gear was in Birmingham at this but it hadn't reached London,"

By this time Carlsbro had two factories. A the ground.

To this day we don't really know what comes from the tone circuit in a guitar amp. caused the blaze. The fire brigade put it down turned off from the main switch before we went home. Apparently there were some old circuits under the floor boards that were still live. That wiped out all our stock and machinery. Of course we were insured, but as usual we weren't insured enough. At that time we had ting. just planned to build our own factory on an industrial estate. We had some money in the just happened. We had somebody down with bank and we were planning to use it for the University training to tell us how to plan our new factory, so we bought some new tools progress. But that didn't work out at all, things and within a few days we had started produc- just happen without us planning them." tion again,"

The new factory is a 10,000 square foot wider circle, really. The Beat Boom was on building which Stuart built on land they bought

A major part of the success is due to the time and quite a few of the bands were using it, solid-state range which Stuart produced 18 months ago. "I'd been watching transistor London didn't fall to Carlsbro until the end technology for some time. The early stuff just of the sixties. One of the first major bands wasn't reliable enough, there was terrible using a PA from Carlsbro were the Strawbs, trouble with the power stage. I still design everything myself and I began trying to get a cabinet factory and an electronics assembly reliable solid-state amp that had the same sound shop. It was the cabinet shop which burned to that I got with my valve lead guitar amps. That's a very particular and peculiar sound that

"I often work in the laboratory at home to an electrical fault, but all the power was until early in the morning. I don't get to the factory very early in the morning but I tend to work very late at night."

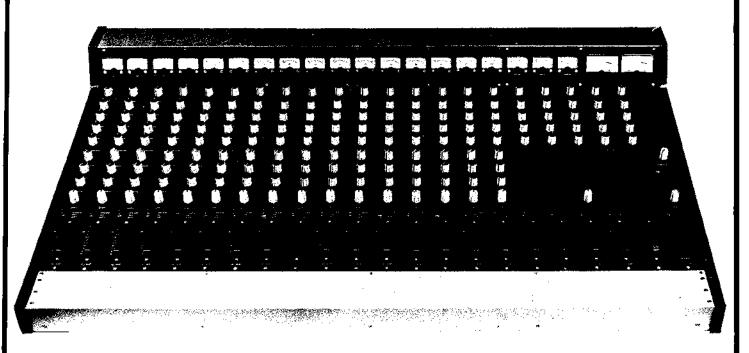
> Carlsbro's continuing success is an achievement many manufacturers seek to emulate, but Stuart's own attitude to it is a little disconcer-

"It's not been planned, you know. It's all



modular mixers, 4.40 in, 2.16 out.

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A few sound points about the 8024

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The 8024 is a lot of value for the money. It is an investment backed by Neve's reputation for service to people whose business is sound everywhere.



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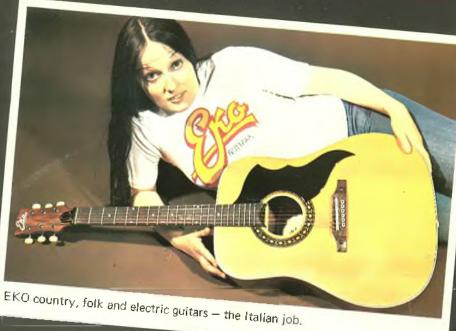




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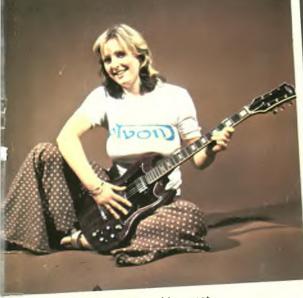




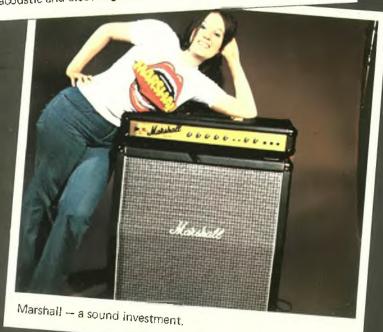
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APRS 1975 Photo Review



As usual the main display was centered in the main hall at the Connaught Rooms and visitors started their tour of the exhibition here.



Naturally, International Musician was out in force at the exhibition and Production Manager, Barny Pia, welcomed people to the stand.



Seen here is Peter Eardley of AKG and his pet Bunny.



Alice (Stancoll) Ltd. displayed their broadcast equipment, the well-known Alice mixers and the first of the Alice instrument range.



On the Altec/Theatre Projects stand in the balcony of the main hall, Ben Hogan, the evergreen comedian, kept visitors reeling while Mike Ingrams did all the business.



Hans Freytag – jovial sales director of ATC – was proudly displaying the cut-out model of ATC's 12" driver on the Midas-Martin stand.



A.V. Distributors market
Stellavox portable tape machines
in the U.K. The tiny machines
have the ultimate technical
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ultra compact and light.



F.W.O. Bauch are one of the best known distributors of professional recording equipment. All their lines are well known, but Studer is probably the best known.



Brenell produce high quality multi-track recorders at competitive prices and of particular interest was the portable eight track machine.



Calrec's surprise of the show was a reduction of up to 35 per cent on the prices of popular microphones.



Visitors to the show included the crew from Central Sound Studio. The three gentlemen on the left are Bryan Hewson, Freddie Packham and award winning engineer, Simaen Skofield



Cetec Audio attracted a lot of attention with their display of Gauss drivers.



The full range of Revox machines was on show at the C.E. Hammond stand.



Jacques Levy is the president of APRS. Commenting on this year's exhibition he said: "I'm pleased to say that there have been far more 'serious' visitors to the show this year.



Lockwood were displaying their exceptionally well-known range of monitor systems under the direction of that tireless boss, Stanley Timms.

continued on page 65

With its all-modular construction and plug-in pre-equalised head blocks your Stellavox recorder need never be obsolete.

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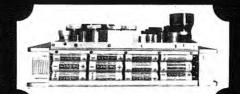
Available in stereo, mono, with or without pilot track, or quadraphonic.

Illustrated: SM7 Stellamaster, music mastering recorder.





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Alice 'On stage' Mixers from the AM modular range are expensive—but so is a Rolls Royce!





Macinnes Laboratories are U.K. agents for some very respected products. Lines on their stand included Amcron.



Midas desks are finding great popularity among professional bands — Argent have recently taken delivery — and they work in close association with Martin enclosures.



Rupert Neve & Co, were, as usual, extremely busy throughout the show. Most of their desks on show had power, and our picture shows the Melbourn desk which is intended for broadcasting applications.



Amity-Shroeder announced a startingly original approach to multi-track recording at the exhibition. The company has produced a multi-track machine which can be built from a kit by engineers.



Shure Electronics displayed a new P,A, system that caused considerable interest. It will be marketed alongisde the wellestablished Vocal Master and is a high quality professional P.A.



Soundcraft mixers have become very popular with professional artists for stage work. The mixers are extremely robust and the studio versions provide great flexibility in a compact package.



Trident Audio were showing their Triad range of desks as usual, A part of their impressive display included photos of desks they have supplied in their locations.



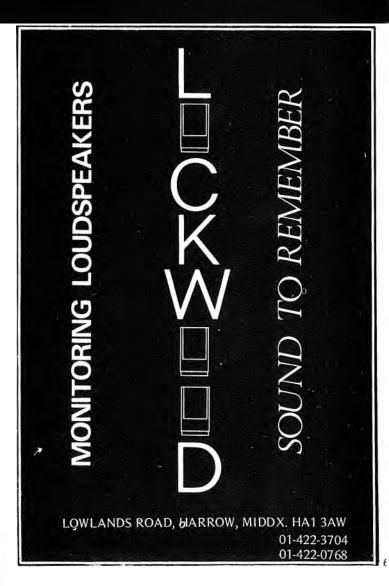
Turner P.A. systems and mixers are almed almost solely at the professional band and are manufactured to withstand the stresses of life on the road.

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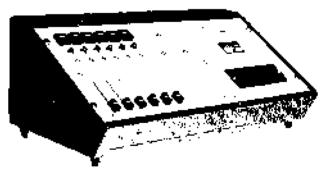
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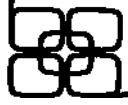
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CARLSBRO SOUND CENTRE in Sheffield run the gamut of musicians' needs. Both a Gibson Star Dealer and a Fender Soundhouse, they also stock a full runge of Arbiter, Ibanez and Antoria guitars, and also self-quite a few of the more inexpensive Columbus and Saxons.

Their amplification ranges include Carlsbro, Laney, Marshall, Orange and Altec, and when it comes to P.A.s, these proven names are supplemented by Simms-Watts and S.A.I.

The keyboards stocked strike a familiar chord with Wurlitzer, Farfisa, Crumar, Elka Orla, Hammond (accompanied by Leslie speakers), and Mellotrons, as well as Vox split end keyboards. Drums stocked include Rogers, Ludwig, Pearl and Olympic, and the second-hand department offers some extraordinary bargains in both these and many other ranges of equipment. The current "big buy" is a Les Paul Recorder at £285, while a new model goes for £480! Most of the group musician's questions are answered in this shop -afull range of strings, and picks are available, and a substantial stock of Shure, Beyer, Electro-Voice and Calrec microphones are always in the shop. The manager, Nelson King, and his assistant manager Colin Crabtree are musicians themselves - as is their assistant, Clive Eggington - and they know how to make musicians feel at home. They have provided a soundproof 12' x 12' studio booth where anyone interested in an instrument or amp can go in and have a

The management recommend that any guitar bought from them be brought back after three months so that they can make sure that any future problems are taken care of before they come to light, and then they further recommend that the instrument be brought in again after a year, for a second look.

Local bands such as O'Hara's Playboys and the [.]ames Vagabonds are regular visitors, and Paper Lace have been in recently, as have the Mersey Beats, Alvin Stardust bought a P.A. not long ago. Carlsbro of Sheffield are a friendly, experienced bunch with a vast array of stock and a large parking area, all designed to aid their customers.

IIMZ of Christchurch in Hampshire are perhaps the ideal place on the south coast for musicians in search of amplification - be it advice or equip-ment. Manager J.H. "Jim" Harris is an electronics engineer, and he knows what he's talking about. As a Fender Soundhouse, he stocks Fender guitars and amps as well as a full range of spares, but he has also developed a fuzz unit which he calls the "Creamer", for its softer sound, an Illusion not dispelled by the sturdy die-cust case which renders it more or less immune to the dangers of the road.

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ALER NEW

McCLARENS of Edinburgh Midlothian and lowland Scotland, providing musicians in the area with a broad selection of instruments and equipment. They carry Fender, Gibson, Jedsen, Antoria and Huyman guitars, all looked after by Colin McClaren, and Baldwin, Yamaha, Kimball, and Zenta Keyboards, looked after by Colin's father, Sandy McClaren.

Lines of amplification stocked in the shop include WEM, Selmer, Fender and Marshall, and their percussion side is basically Rogers and Hollywood.

McClarens sold equipment to the Bay City Rollers and Pilot long before they gained national prominence, and local bands suce as Dillinger, Barnaby and Coloured Harmony frequent the shop. They offer a 24-hour repair service, and their staff of five is well versed in the answers to the problems bands run into on a day-to-day basis. There are two engineers on the premises to look into difficulties with guitars, organs or sound equipment.

This is perhaps the key to Jimz' approach to things; finding a problem and sorting it out to the customer's satisfaction. They stock HH P.A. systems and amps, as well as a selection of Acoustic, Peavey and Custom systems, and a wide range of spares.

Local aroups such as Albatross come in frequently and, in Albatross's case, actually work there, and the Wiltshire group Tracker (which includes Dozey, Beakey and Tich) drop in to discuss equipment and seek advice. Repair service on amps is done straight away, while other repairs will be seen to as quickly as possible, depending on their complexity.

The shop's keyboards number among them Crumar and Mellotrons, but it is not so much what they stock that makes Jimz a good market as it is what they'll get for you, And that, we were told, is anything. The grapevine has proven effective for Jimz - they recently had an order from Blackpool for some equipment, which was handled quickly and professionally.

SCHEERERS of Leeds cover a wide range of musical areas, and answer the needs of such diverse groups as schools, groups and clubs in the process. They are a Fender Soundhouse, and they also offer a wide range of Gibson copies, including Les Paul and SG copies which retail around the £50 mark.

Manager Alec Swain has been in charge of the shop for 30 years, and over that period he has built up a tradition of service and performance that is carried out today, ably assisted by assistant manager Paul Reynolds, Bill Gibson (whose special province is amplification) and Mick Ibotson (a fine drummer).

Groups who come in are welcome to go upstairs and try out amps or guitars at their leisure. Recent groups who have taken Scheerers up on that proposition include Wally, a local band from Harroaate.

Located near the heart of clubland, Scheerers do a range of equipment for cabaret performers, including Beyer, Shure and A.K.G. microphones, and the HH range of amplification.

Offering a discount for cash, full credit facilities, and complete brass, violin and woodwind repair facilities, Scheerers are prepared to provide help and information to budding musicians as well as pros. Perhaps best of all, their diversity is summed up by the presence of a Chinese gong in the window - retailing for £290.



continued on page 71

THE INTERFACE UNIT 'A' STEREO ORGAN PRE-AMP FOR TONE CABINETS



FEATURES:

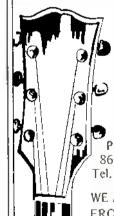
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ST. GILES MUSIC CENTRE in London, W.C.2 have been on the go for ten years now, and their performance has recommended them to a variety of musicians. Recent visitors have included Pilot, Brian May, Argent, Rory Gallagher, Man and Headstone, while up and coming bands like Salutations, King Size and Second Offence are in fairly often.

Shop Manager Richard Manders and his assistant Steve Potter are aided by Harry Varley, Jack Gordon, Chris Bryant, Carl Barnett, Trevor James and repairmen Bill Childes who specializes in woodwinds, and Dennis Lofthouse, an expert in brass repairs.

Guitars sold in the shop range from Fenders and Rickenbackers to Gullds, Antorias, Angelicas, and such rarities as a Ned Callan hand-made copy of a Gibson Firebird, at £108. Percussion is represented by standard drums from Beverley and Premier, as well as a good selection of tuned percussion such as Glockenspleis, vibraphones and both hand and pedal tuned tympanies. St. Giles also offers a range of Latin percussion instruments, as well as cymbals from Zildjian and Palste, and they've just received a large shipment of Regal tip drum sticks.

Keyboards include ARP synthesisers and the Diamond range of portables, while the amps stocked include Laney, Ampeg, Altec-Lansing and Peavey.

That takes care of the ground floor! Upstairs, there is a selection of Boosey & Hawkes brass and woodwinds, and a repair department. St. Giles have mail order facilites, a repair service and honour both Access and Barclay cards.

SOUND PAD of Leicester have recently moved to a new site on the London Road, and the additional space means that they will be able to expand their service. Both a Gibson Star Dealer and a Fender Soundhouse, the Sound Pad also offer an extensive number of copies, including Arbiter, Ibanez, Antoria, CSL, CMI, Kasuga and Yamaha. Their amps and P.A. systems include Acoustic, Fender, Peave y. Carlsbro. WEM.Marshall, and Yamaha.

When we spoke to sales manager B. Grant, he told us that the more than 2,000 square feet of space would provide them the opportunity of carrying even more keyboards, to supplement their Vox, Crumar and Fender-Rhodes ranges. Percussion is represented by Rogers, Ludwig, Beverley and Hayman. Sound Pad do a roaring trade in disco equipment, and the new pitch will include a basement fitted out as a disco



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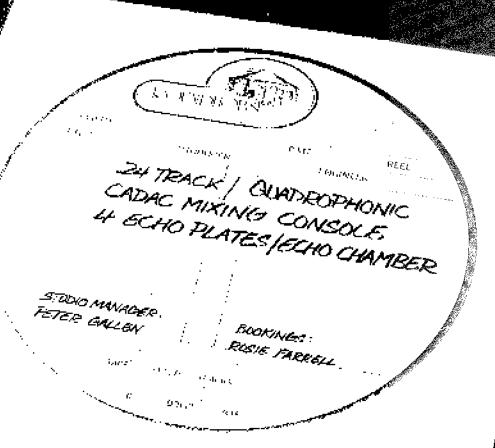
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ROUNDHOUSE STUDIOS

Recording studios are born for all sorts of reasons. Most are set up as an exercise to make money and are run by people who like recording, but are principally interested in making a profit. Some exist as legal tax evasion exercises for the super-rich super-stars and a few exist in a service capacity as in the case of record company house studios.

The Roundhouse Studio is a little of both the first and the last and a great deal more that is aside from the usual reasons, It's the studio arm of Bronze Records, the miniempire that Gerry Bron has created - more than a little around Uriah Heep's worldwide success. The label flourishes and because Gerry is first and foremost a producer, it was an obvious step to set up his own studio, both to record the house acts and to be available for hire.

In charge of the day-to-day running of the studio is Peter Gallen, a studio manager who has served his apprenticeship in the time honoured way. For over five years he was a balance engineer at Lansdowne Studios and he arrived at Roundhouse through a long standing association with Gerry Bron. "I did most of the Uriah Heep albums with Gerry," said Peter, "And towards the end of my time at Lansdowne I was working almost exclusively on Bronze artists".

In addition to his work as a balance engineer, Peter has also worked in the producers chair and he naturally has gained an understanding of the needs of producers as well as the needs of engineers. The artists that Peter has produced included Osibisa and Ken Hensley.

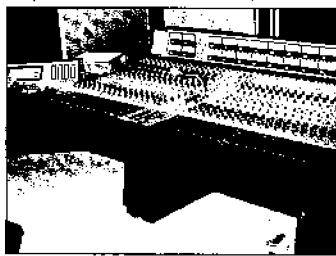
'Our aim in building this studio is to create a producer's studio rather than an engineer's studio. We made a point of laying back the technical aspect of the studio. although we believe we are as technically advanced as it's possible to be at the present time. Many studios open with 🧏 grand announcements about their highly sophisticated technical specifications, but we prefer to keep the technical aspect in the background and just provide a comfortable atmosphere to work in".

Atmosphere is something that has been considered very carefully at the Roundhouse Studio, Most studios concern themselves greatly with the installation of the desk and machinery and then when it comes to the final decoration, scatter a few spotlights and chairs around and believe that they have taken care of everything. Gerry and Peter approached the problem differently.

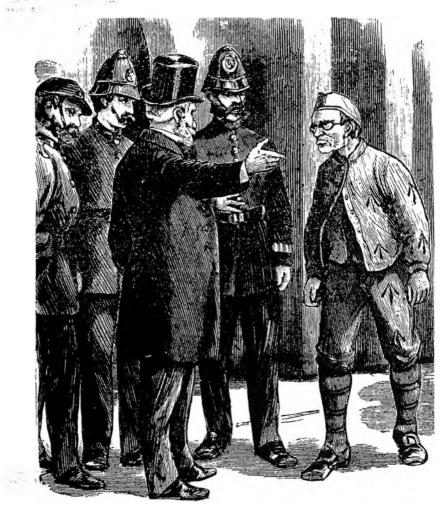
"The studio interior decor has been designed by John Page of Charles Page Interiors because Gerry felt that the







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Roundhouse

way the studio looked was vital". Describing the job done by Page as interior decor is something of an insult. The decor is built into the studio. Despite being over-worked, the terms, futuristic and ultra-modern are really the only way to describe the decor, All corners have been rounded. That means all windows are rounded, that all doors are rounded, that means that Cadac had to build special monitor enclosures that had rounded corners - the cost must have been staggering. No official statement about the cost of building the Roundhouse Studio is available, but rumour puts the figure at around £250,000, a sum which a visitor is prepared to believe.

Epic Record's boss was visiting the complex at the same time as *International Musician* and to quote him, "The only thing to compare to this is Caribour" (the Ranch studio in the Colorado Rockies beloved by Elton John and others).

The non-music facilities are as impressive as the technical spec. There's a large rest area outside the control room (despite a huge control control room that could possibly absorb 20 people without seeming full) which is fitted with a colour TV. There's a kitchien at the disposal of producers, artists and their staff which has a giant freezer and a microwave oven, So steaks at 3am

can be on the menu at minimal cost as well as any drinks required.

"This is what we mean by making this a producer's studio. It's a studio that makes his job as easy as possible by keeping everybody fresh and presenting artists and producers alike with a minimum of hassles in getting sounds and also in getting something to eat".

The main studio is capable of taking around 40 musicians comfortably. The studio has mains outlets of 220 and 110 volts and it incorporates an unusual fold-back box.

More than anything else in the studio itself, the inability to hear each other in the cans causes hold-ups for musicians. Roundhouse provide a small mini-mixer headphone box which allows a musician to mix his own foldback. If more than four instruments are going down at one time the engineer can send any groups required to the four faders in the fold back box on the studio floor.

In the control room the main impression is one of space, "The reason that our opening was delayed for several months is because we were working on the control room. I feel very strongly about control rooms and most of the ones I've worked in have been bad. In this room I think we've created absolutely flat sound round the entire room.

"So many controls are so bad that the engineer and the producer are actually hearing different things, so when the producer asks for more bass the engineer thinks he's mad because he can hear plenty of bass. We wanted to achieve a uniform sound wherever you are in the studio and I think we've managed to achieve that. We've chosen Cadac monitors because they're the only flat monitors I've ever heard. We may not be right, people may not like a truly flat sound, but at least if they record here thay will know they are hearing it as it really is

Cadac have certainly been favoured by the Roundhouse. The desk is a massive Cadac console. "Cadac have the most flexible system we've come across. The equalisation is very good on each channel and for that reason the amount of off board equalisation is cut down to a minimum".

Studer machines are used throughout. The main workhorse is a 24 track and all reductions go into 2-track Studers. A 16 is expected to arrive shortly. The monitoring is by Cadac power amps and Cadac enclosures. Peter's main assistant is engineer Ashley Howe (also Lansdowne) and assistant engineers are Mark Durnley and Trevor Hallesy. Technical engineer is Pete Osborne.

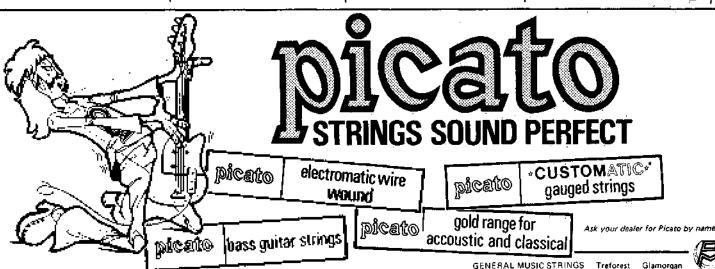
Despite the newest studio in London, the Roundhouse Studio already has plans to expand. Their connection with the Roundhouse itself ("there is a small financial involvement by the Roundhouse Trust") is one that works to their mutual advan-

tage. The studio is housed in the basement of a newly completed office block, and just beside the Roundhouse (the Bronze record company occupies a floor of the building).

Peter Gallen is currently wiring up the Roundhouse itself for recording using their main control room. At the back of the office block is a large building built as a rehearsal room by the Roundhouse and the studio is also wiring this for sound, Eventually the Roundhouse studio will be the first studio in London to be able to offer an important London venue to recording artists and the "live" recording possibilities are endless. For once the restrictions of a small mobile control room could be lifted and the Roundhouse could be the perfect recording venue for artists who feel that the addition of an audience is a vital ingredient in their recording.

"I think the arrangement will work very well for us and for the Roundhouse. Obviously it will be perfect for them when they want to record something that is being produced and it's obviously a perfect venue for us to use".

The Roundhouse Studio is much more than just a control room and a studio. It will soon become a highly sophisticated recording complex that features two main recording studios and a major London venue among its facilities, while at the same time remaining the most attractive and comfortable studio in London.



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AIR STUDIOS... Mott came in to do some overdubs and mixing with engineer Geoff Emerick, Mott producing... Renaissance were in mixing... Alex Harvey came in to mix their recently released single "Delilah" ... The Drifters came in to record... Roxy were in putting down some tracks... Art Garfunkel was In, laying down some strings with Pete Sweatenham engineering (Sweatenham has since Joined Warner Brothers A & R department as a producer)... Steeleye Span came in to record, as did Scrounger, Federation and Philip Goodhand-Tait... Robert Fripp was in producing himself with Steve Nye engineering... Argent came in recently as did Billy Cobham, Andy McKay, Tim Rice, Don McCafferty and Cleo Laine...

CBS STUDIOS ... Tammy fones was in recording an album, with Robin Blanchflower producing, Dick Palmer engineering... Guys and Dolls were in doing vocal overdubs with producer Arnold Martin-Morrow, Bernie O'Gorman engineering... Alan Love was in with Nicky Graham producing, Dick Palmer engineering... Gene Chandler was in for Joda Enterprises, Rabbit Brundwick producing, Bernie O'Gorman engineering... Andy Fraser came in for Trentdale Management, producing himself with engineer Doug Bogie... Glenn Turner's Tundra were in doing an album, as well as producing and engineering... Mis-Ter Men were in with producer Paul Phillips and engineer Dick Palmer... Ashta Puthli was in with Paul Phillips producing and Dick Palmer engineering . . . Jonathan King was in for UK Records, recording and producing himself with engineer Steve Taylor... Rinky Dink And The Crystal Set were In for Evolution, with Bernie O'Gorman engineering... Cleo Laine came in for some vocal overdubs with producer George Martin and engineer Steve Taylor... Johnny Nash was in to mix his latest album with engineer Bernie O'Gorman...

CENTRAL SOUND... Marianne Faithful was in recording with producer Derek Wadsworth and engineer Simaen Skofield... Ed Welch was in for Quarry Productions, Simaen Skofield engineering... Scott English was in for a remix with producer Jerry Shury, Simean Skofield engineering... Simon Townsend (Pete's brother) was in recording with producer Mike Jacobson and engineer Simean Skofield.

EMI STUDIOS... Olivia Newton-John came in to lay down some tracks, John Farrar producing, Tony Clark engineering... The Hollies came in to Studio 2 to record an LP with producer Ron Richards and engineer Peter Bown... Wings came in, Paul McCartney producing and Richard Lush engineering... Nick Ingman was in with an LP, Gil King producing... John Miles was in with Alan Parsons producing and engineering... Steve Harley came in to produce Patricia Paay, Tony Clark engineering... Cliff Richard was in with engineer Peter Vince... Pink Floyd were in... Russ Ballard came in to produce himself with engineer Mark Vigars...

GROSVENOR STUDIOS
(BIRMINGHAM)... Len Magee was In recording for Word UK Records, with
John Pantry producing and engineering...
Nutshell came in with producer Gordon
Miller and engineer Dick Hobbs... Japen
Carrot was in with Jeff Lynne producing... Ron Anderson was recording with
producer Bob Hopton and engineer
John Taylor... Brian Sharp was In with
John Taylor producing and engineering...

IBC STUDIOS... Peter Shelley was in for Magnet Records, recording an album with engineer Mike Claydon... Chris Neal finished his album with Trinifold, Hugh Jones engineering... Keith Potger came in to mix some Seekers tapes, with engineer Hugh Jones...

ISLAND MOBILE STUDIO... Ken Russell was using the mobile unit to record the sound track on Liszt-o-mania.. The Osmonds recent concerts were recorded on the mobile unit.. The Wembley Concert in June was recorded in its entirety... A series of recent Robin Trower gigs in Sweden were recorded... The Kinks concert at London's New Victoria Theatre was recorded... Frank Owen, one of Island's chief engineers, was in charge of the unit at all of the above gigs...

ISLAND STUDIOS... Eno was in recording and producing himself with engineer Rhett Davis... Steve Smith was in, alternately producing Trapeze and Robert Palmer... Keith Emerson came in, working on some material that he previously recorded on the mobile unit... The Sensational Alex Harvey Band were in working on an album, with producer David Batchelor and engineer John Burns... Kiki Dee was in recording... Brazilian artist George Benn came in to record with Joe Boyd...

KINGSWAY STUDIOS... Steve Hackett was in to finish up the mix for his album, with producer and engineer John Acock... Leo Sayer was in recording with producer Adam Faith... Kingsway have successfully completed negotiations for new premises in Macklin Street, WC2; it is estimated that the new studio will not be fully operational for 18 months, but the alterations have already begun...

LANS DOWNE STUDIOS... Barry Mason was in recording for Magnet, Jerry Shury producing, John Mackswith engineering... The Pearls came in to cut a single with producer Phil Swern, John Mackswith engineering... The Rubettes have finished an album, with Wayne Bickerton and Tony Waddington producing for State Records, and John Mackswith engineering... From August 1st, Lansdowne becomes a 24 track studio, in addition to their existing 8 and 16 track facilities; the machine is a 24 track Studer...

MUSIC CENTRE (WEMBLEY)... Roy Wood has been in recording and producing himself with engineer Dick Plant.. Showaddy waddy came in to cut a single with producer Mike Hurst, Dave Hunt engineering... David Carradine was in recording an LP with engineer Richard Goldblatt... Glenn Cardier was in with Labi Siffre producing, Dick Plant engineering.

THE MANOR... The Manor have, as they say, been 'Westlaked' over the past six weeks, and are open as from the 28th of July... The Manor's Mobile unit has been busy recently, recording the Jack Bruce tour, Phil Newall engineering, the Kevin Coyne Link Wray concert at London's Lyceum, Chris Hollebone engineering; Gong at Metz, again with Chris Hollebone engineering; and Slaphappy, with engineer Anthony Moore, which was recorded in the Manor's music room.



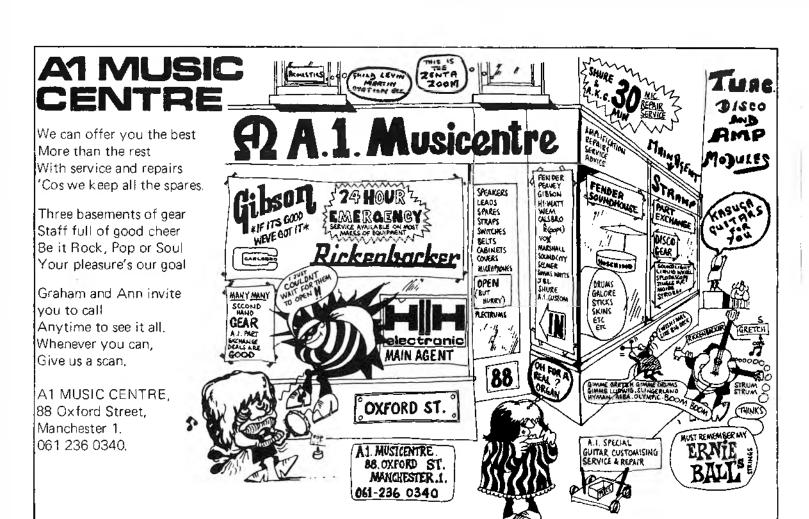
PYE STUDIOS... Mungo Jerry were in for some mixing... Mike Batt cut a single with engineer Howard Barrow... Man came in for some vocal overdubs with Vic Mayall, engineering... Sweet Sensation came in to record with Terry Evenette engineering... April, a new group from Pye, were in recording...

RONNIE LANE'S MOBILE STUDIO... Paul Kossoff's Back Street Crawler were using the mobile unit at Ridge Farm Studios near Dorking...

ROCKFIELD STUDIOS... Budgie were in with Kingsley Ward engineering... Dave Edmunds came in, producing and engineering himself... Van De Graaf Generator were recording with Davb Charles... Dirty Tricks were recording with Pat Moran... Queen came in with Roy Baker... Mr. Big have been recording with Kingsley Ward producing... Ace came in with John Anthony producing...

SARM STUDIOS... Starry Eyed And Laughing were in doing overdubs with producer Dan Loggins and engineer Gary Lyons... Foxxe were in with Kenny Young producing, Gary Lyons engineering...Hustler were in for a mix with producer Roy Thomas Baker and engineer Gary Lyons... Marty Wilde was in with Hal Carter producing, Barry Ainsworth engineering... Jackson And Edwards were in with engineer Geoff Hurley... Barry Blue came in to produce Dave Jordan, with Gary Lyons engineering... Queen came in with Roy Thomas Baker producing and Gary Lyons engineering... Mike D'Abo was in producing himself with engineer Gary Lyons...

SCORPIO STUDIOS... The Jack Bruce Band were in, recording with engineer Dennis Weinreich... Junior Campbell came in to produce Barbra Dickson, with Dennis Weinreich engineering... Steve Harley was in, with Ray Hendriksen engineering... Street Walker came in to record and produce themselves with engineer Ray Hendriksen...



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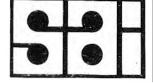


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Sound Advice Installations Co. Ltd. Regent St., Coppull, Chorley, Lancs Tel Coppull (0257) 791645 & 791163 There's been an explosion in the North West, Entertainment in Lancashire is as vital and dominating today as it was in the 30s and bands, cabaret artists and disc jockies are hard put to satisfy the demand. Before you start a second Klondike rush, you need specialist knowledge to be successful, S.A.I. has more than most.

Partly by luck, but mostly by judgement, Bob Dewhurst and Mick Atherton were in the right place at the right time to service this explosion. In September 1968 the pair both ex-TV repairmen -decided that the music market was set to expand in a big way in the NorthWest, That was the time of the mobile discotheque's climb to fame (many musicians would say notoriety) and it was an obvious move for the partners to look at that market first.

They called themselves Sound Advice Installations (S.A.I.) shrewdly leaving the club and industrial sound equipment installation market open. The outfit was based in Standish and they started out very cautiously making one or two amp and disco units. The premises were in Preston Road and slowly the S.A.f. equipment started to sell, Mick made them and Bob sold them.

Bob's always been a dealer and he's always made personal contact a priority. The original shop sold other things besides S.A.I. equipment and Bob rapidly built up an understanding of artists' needs on the equipment front.

The distinctive S.A.I. logo was designed for the company by a department at Wigan Technical College and later in the company's career it became a point of contention when another, larger, electronics company applied to the High Court to stop S.A.I. using it.

"They thought that our initials might be confused with the initials they used on products, even though they weren't in the same field as us. It took a couple of years for the thing to be decided but in the end we won,"

S.A.I. won battles in many other fields as well. As the disco business boomed so did the fortunes of S.A.I. Bob and Mick — now joined by designer Jim Collings — decided that the group market wasn't being catered for properly.

"We decided that although the needs of the musician were changing," said Bob, "the equipment wasn't keeping up with the changes. We set about designing certain items of group gear and they quickly proved very successful."

Just over 18 months ago S.A.I. moved into a large warehouse in Regent Street, Coppull near Chorley, They did some major conversion work on the interior which included building a stage at one end of the warehouse.

"One of the problems that bands always have is testing equipment under gig conditions. By providing a stage

S.A.I.

0



L-R. Malcolm Maguire, Mick Atherton and Bob Dewhurst

81

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S.A.I.

it's possible for a band to set up, use an item of equipment in gig surroundings and judge it's performance on that basis. We often have bands who come down and set up all their equipment and we spend many evenings helping them to choose the right gear"

The venture into group equipment proved to be as successful as their discomarket and they have gained a high reputation as both a manufacturer and retailer and bands from all over the Manchester and North West regularly visit the showroom.

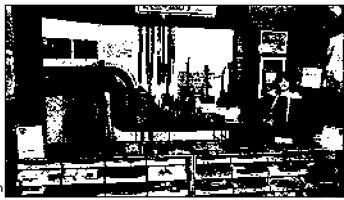
On the hoary old subject of disco versus live music Bob says: "I'm aware that many musicians feel that the disco has done them out of work. Like everything else that is new it had a boom during which time things were hard for some bands, but now it's levelling out again and the good bands are getting plenty of work and the good DJs are O.K. as well.

It's the bad bands and DJs who have suffered and that's probably a good thing."

The national breakthrough for S.A.I. came when the company exhibited at a trade fair in 1973. The trade started to take the brand seriously and within a few months SAI equipment was finding widespread acceptance.

S.A.I. today is far more than just a retail and manufacturing operation. The banner now covers activities such as hiring and sound equipment installation.

Export is becoming an important word at S.A.I. A large number of professional disco consoles have recently been exported to Scandinavia for use in the Blow Up Discos there and if you're in the USA and you dial the central business computer in New York for information on companies who make professional discotheque equipment, out pops S.A.I.'s name.



"We're just exploring the export possibilities now," says Bob enthusiastically. "The disco market in the States is about to explode and we're in at the beginning. The Board of Tradeare very helpful to exporters, and things certainly look very good for us."

Malcolm Maguire manages the S.A.I. showroom. He was in the car trade until last December when he joined S.A.I. He's always had strong musical connections, though.

"I may be old-fashioned but I still believe the customer is right," says Malcolm very emphatically. "Service is what we believe in here and if we haven't got something a customer wants instead of shrugging our shoulders and saying 'no', we'll go out and get whatever he wants.

"There are going to be major changes in the show-room here. We're having it completely redecorated and we're also building a studio on the side. At first I should think it'll just be a DJ studio but later on we'd like to enlarge it for bands."

S.A.I. also has a rapid turn round on repairs.

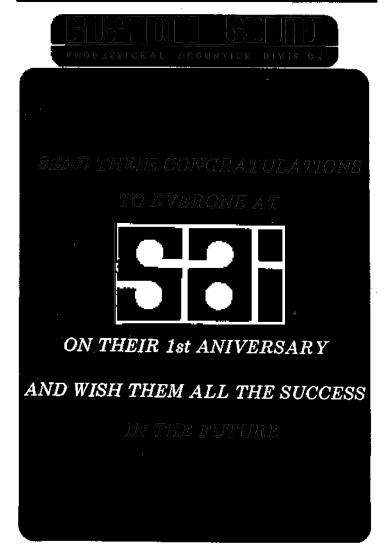
"I think we can fix something almost as soon as it's wanted," says Malcolm. "Usually with a few hours notice we can do something in half a day, but if something's really urgent we'll do our best to mend it very quickly.

"Most of the people who visit us are based locally. People we've had in recently have included Bunny, Wigan's Ovation, The Real Thing, The Chance, Russ Winstanley and Wilma Reading, Picadilly

Radio also uses all our gear for outside stuff. We had to do a sound system for Peter Noone and Herman's Hits (be careful not to say Herman's Hermits) recently and we've just installed a P.A. system at the Park Hall Cabaret Lounge, Some of the cabaret venues round here are really big and can hold thousands. So the sound system has to be really good."

The S.A.I. retail showroom is a Fender Soundhouse and a Gibson Star dealer. A fantastically wide range of amplification is stocked and there's also a wide range of new and secondhand guitars.

"We'll take anything in part exchange," claims Malcolm, "doesn't matter what the gear is, even if it's tatty, we'll give a fair price for it,"





Not exactly a legendary name in rock'n'roll, Miller Anderson certainly has all of the credits needed to be elected to rock's hall of fame except the band that takes the world by storm. He's been in obscure hands with those who are currently reigning as kings of the rockpile, he's fronted rock hands like the Keef Hartley Band and Savoy Brown, but has always managed to escape the limelight, even when he's the main musical contributor to the outfit in question.

But currently, Miller is in a bend called Dog Soldier playing guitar and singing, and if this group breaks big, Miller will go unacclaimed no longer. Dog Soldier also features his old mates Keef Hartley on drums and guitarist Derek Griffiths.

You and Keef first started out several years ago as The Keef Hartley Band. How did that band originally come together?

In 1968, I'd been in a band with fan Hunter. Ian was playing bass and I was playing guitar and we had a drummer. Both of us used to sing, and we did a lot of our own material, but at the time people didn't really want bands who were playing their own material. It was O.K. for the Beatles and things like that, but it was hard for a new group to start playing their own stuff. So anyway, Ian went to Mott the Hoople and I went to join Keef.

Keef was dissatisfied with his vocalist, and I was actually a guitar player who did a bit of singing. I didn't figure I was much of a singer, but things were so rough moneywise that I answered an advert in the music paper: "Group requires vocalist who plays instrument." I thought I'd go and pretend I was a vocalist.

Can you tell us a little more about this group with lan Hunter? Who else was in the band?

Well, we did have Bill Bruford on drums, who was with Yes. It was just him and lan Hunter and myself, and nobody wanted to know.

Who was writing the material at the time?

Ian and myself were writing it. We had an EP out in Japan which we never saw a penny from. In fact, on one of the tracks Mitch Mitchell's playing drums. The band never really had a name though, we used to back people and do little clubs, we never even bothered to have a name, It was a shame because the band was really very good. Ian's a good bass player although he doesn't play bass now.

Were you writing with lan or separately?

We used to write separately and together. We have quite a lot of songs that were written together. In fact, if you look on the *Mott* album you'll see 'thanks for the riff Miller Anderson, the f sharp

riff,' because he stole it from me. He was trying to remember where he got it and he was saying to the guys in the band, 'Is that the Kinks? Where have I heard this before?', and it was one of mine. I said, 'Hey! Fuck! That's one of mine! You've stolen one of mine!' And he said, 'Oh fuck me, I better credit you for that,'

Anyway, to get on to this band, I came over to New York to be auditioned by Blood, Sweat, and Tears, I did the audition and they offered me the job, but I didn't take it because I didn't want to get into that. It wasn't what I wanted to do.

I'd just finished a tour with Savoy Brown. I did that for the money and so did everybody else in the band apart from Kim Simmonds. Kim was really into it and it's a shame because everybody else just joined for the money. I felt I couldn't do that again, so I didn't join Blood, Sweat, and Tears.

I got to thinking, 'What's the best thing I've done where I really got into the music?' And I said to myself that with Keef we used to get some really good things down on record and we used to really have a good band together. So I came straight back to England and rang up Keef and said, 'Look Keef, I know we've had our differences, but let's get a band together again.' He asked me if I was sure and I said I was, so here we are.

How many are there of you in the band?

There's five in the band. We have Derek Griffiths on lead guitar, he was with Keef in the Hardwoods. and then with Colin Blunstone. Mel Simpson's on keyboards. He's an excellent musician - been around a lot of jazz clubs in England. One of the best I've heard that isn't well-known. The young guy in the group is Paul Bliss, he plays bass. He's going to be an incredible talent. I mean he already is, but it's frightening to think just how good he is at the age of twenty-one. Then there's myself and Keef, I play guitar and sing and Keef plays the

Do you write all the material yourself?

It's all written by the band . . . I wrote three on the album, Keef wrote one, Derek wrote one, Mel wrote two, and Paul wrote one I think. It's pretty much scattered around.

You had a band of your own just before you joined Savoy Brown...
Yeah, it was called Hemlock. Actually the album was supposed to be my second solo album, I had one called Bright City, but the band came together through the album. It only took twenty-six hours to make that album. There's very few overdubs on it. It's mostly live with just overdubs on the guitar because I'm the acoustic things on the back tracks and then dubbed on the electric.

There's a couple of tracks on there, like 'Monopoly', which is completely live-vocals, guitar, everything.

Did you ever play gigs with that band?

We did a tour in the U.S. a couple of years ago, but we didn't call it Hemlock. It was before we called it Hemlock. I did it as Miller Anderson. We did a tour with Savoy Brown top of the bill, Uriah Heep in the middle, and I was on the bottom. We really were well received by the audiences, I don't think we ever played New York though.

Who was in the band?

There were two guys who used to be in Noel Redding's Fat Mattress. That was the drummer and the bass player, Eric Dillon and Jimmy Levitt. They were also in Savoy Brown, 'cause when Hemlock broke up we joined up with Kim and Stan Webb.

What are they doing now?

Jim, the bass player, is working with Henry McCullough. Henry just left Paul McCartney, and he has a really nice band in the works.

How did Hemlock do financially? Terribly. We cost Harry Simmonds something like \$ 65,000.

Do you see Bruford or Hunter much anymore?

I saw Bill just after he reformed King Crimson, about a year ago. Ian I see all the time. Did you know his father was in the secret police during the last war — in the intelligence thing? A captain. I suppose Ian was a rebellion against his father's brains.

How is Ian?

He was in Mott the Hoople for five or six years now, and that kind of wears you out. It was very demanding upon in as much as they expected him to write everything. It was the rest of the band that was laying back. Every time they had an album coming up it was, 'Hey Ian, where's the album?' You just get fed up with that and it made him ill. He just left the band bacause he didn't feel it was worth making himself ill for.

Who's produced Dog Soldier's first album?

It's kind of confusing. A guy who works at Island engineered and produced it at Island Studios in London, His name is John Burns. Then it was re-mixed in Los Angeles. They did a really nice job.

You haven't played much in England, have you?

We should have, but I was taken ill. My appendix burst and we had to cancel everything. I'm still recuperating actually.

Are any of the members of the band doing session work . . , is Derek Griffith still working with Blunstone?

Derek does the most sessions because technically he's a very clever guitarist. I never do any sessions ... well, actually I did Dave Cousins' Two Weeks Last Summer. I played guitar on that album.





Earring Switch

Lead singer Barry Hay discusses SWITCH, the latest album by the group which gave the world *Radar Love*.

Why did you call the album Switch?

Well, because it is a Switch in every way from the last one. And because a Switch is a way to get something going, as in flick a switch, you know—the electronic connotations. And in the abstract sense, a person has to keep switching in order to stay alive.

In what way has the band changed musically since the last album?

The new keyboard player adds a lot, naturally. He'd been playing with Elton Dean and all those jazzers and for him it was a switch to rock 'n' roll music. To have a player like that in a rock 'n' roll band really made a difference for us.

Is there less pressure on George, having a keyboard man to fill in some of the rhythm parts.

Definitely. I won't have to do the rhythm guitar parts anymore because there's a grand piano onstage, in addition to an electric piano, and synthesizer, and consequently I can stand and sing. I can finally concentrate on my singing more, and we're really happy with the situation as it is. The evolution of the band has been

speeding up since we've gone five-piece.

Any switches in the songwriting?

No, George and I are still doing all of it, although we are making them a bit shorter — there are eight songs on the new album. I write just the lyrics, and George writes the music, he writes primarily for the guitar. George will have a tune and we'll sort it out together and then arrange it with the whole band. I end up adapting his melody to the way we eventually play the song.

Can you briefly run down the tunes on the new LP?

There's "Love Is A Rodeo", a chauvinistic pig song about a guy whose girlfriend is an incredible lover, and he's wondering where's she got all that technique. The key line is "Love is a rodeo/Once you think you're riding high, off you go". The title song is about all kinds of switches, naturally, as in switchblade, switches that can drop bombs, just about any switch imaginable.

The single has a different title on the album, the album version is called "Kill Me (Ce Soir)" and the single version is "Ce Soir". I hate to explain songs, actually — they're there for anything you want them to be, some people think a song is silly, some songs

come off as being a down, but it all doesn't matter, the song is there and you can make out of it what you want to make out of it.

But to go on, what are the rest of the songs on the album?

Well . . . alright. There's a reggae number called "Tons Of Time". There's a song called "Daddy's Gonna Save My Soul' about the son of a millionaire who really lives it up, and there's one called "Troubles & Hassles" which is on one hand very plain and forthright and on the other hand there's a soft melodic part. George sings one song, the last song on the album which is called "Lonesome Deejay" about a disc jockey whose girl has just left him and is driving in her car, and he's talking to her through the radio, asking her to come

How did it affect you when you found yourself playing songs a year or more old in America on your first American tour, as there was such a long delay between the English and Stateside release of *Moontan?*

Actually we found ourselves doing the songs from Moontan onstage differently from what was on the album. The songs always change, no one show is the same as the one previous.

What bands did you enjoy playing with on American

tours?

We did a lot of dates with Santana, and we were very paranoid about that at first, but it turned out really well. We did some with J. Geils and the Doobie Brothers, and it's always been good, we hit all these weird combinations but it always seems to work. A rock 'n' roll audience is a rock 'n' roll audience.

What bands do you like?

I really dig the J. Geils Band, and Santana, and Little Feat.

Some critics have painted a likeness between you and an American group The Blue Oyster Cult — how do you feel about that?

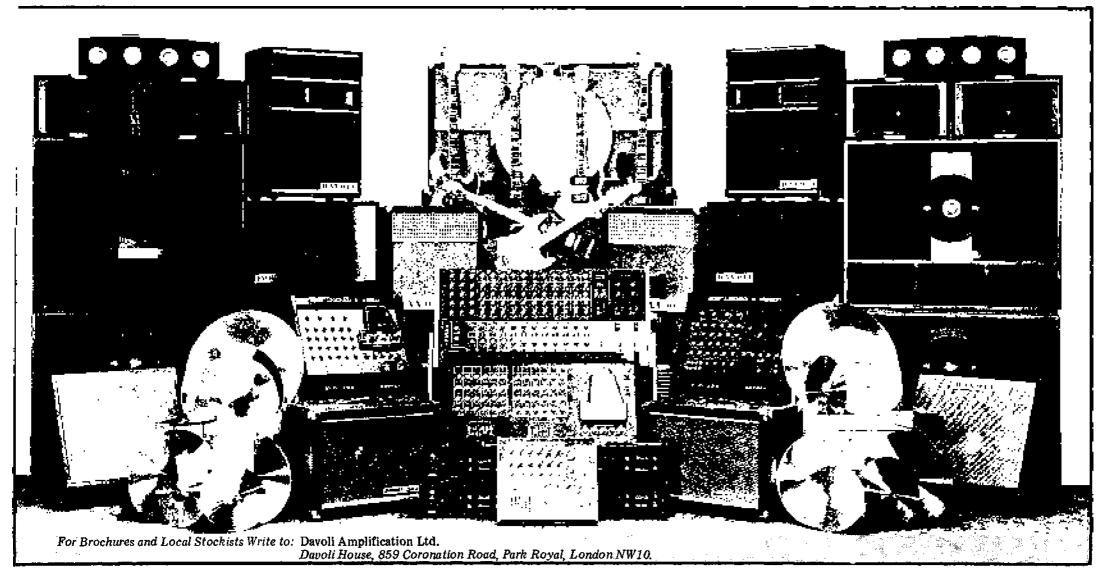
I like them for what they are but I wouldn't get any of their albums. I think the guy who compares us to them is a moron. Somebody compared us to Slade as well, but they must have made a terrible mistake somewhere.

Do you get a charge out of the Disco-Tex and the Sex-O-Lettes record which mentions "Radar Love"?

I flashed on that — it's a very noisy record! I was fortunate enough to see them on TV in Holland and they're crazy, it's a real fun, AM record. We're also in that song "Life Is A Rock (But The Radio Rolled Me)" and it's all really flattering, It suits me fine.

DAVOLI

P.A. Amplification & Keyboards. UFIP Cymbals. GHERSON & GIANNINE Guitars. MEAZZI Percussion. FOXX Foot Pedals, Phasers & Synthesisers.



READING Whose using what

The Reading festival stands alone among festivals for its consistent appearance in the pop calendar. Here we look at the equipment some of the headlining acts will be relying on to reproduce their performance.



THIN LIZZY

Scott Gorham, lead guitar: Gibson Les Paul De Luxe (Epiphone pick-ups), a Cry Baby Wah-Wah, a MXR Phase 90 Phaser, a Marshall 100 watt Lead amp, and a Fender Dual Showman cabinet with Gauss 15" drivers. Brian Robertson, lead guitar: Gibson Les Paul De Luxe (Epiphone pick-ups), Colorsound Wah-Wah, Compact Phase A Phaser, Marshall 100 watt Lead amp, and a Fender Dual Showman cabinet with 15" Gauss speakers. Phil Lynott, bass: A Rickenbacker 4001 Stereo bass with split pick-ups - treble going through a Cry Baby Wah-Wah, a Maestro Brass Master. a Hi Watt 100 bass amp, and a Hi Watt 4" x 12" cabinet: the bass pick-up goes through an Acoustic 270 top and a 301 bass cabinet.

301 bass cabinet. Brian Downey, drums: two 26" Gretsch bass drums, two 16" x 16" Gretsch tomtoms, two 13" x 9" Gretsch drums, one wooden shell Ludwig snare, a Rogers Dynasonic snare, a Rogers Hi-Hat, Rogers cymbal stands, Premier snare stand and bass pedal, 20" and 17" Zildjian cymbals, a 9" Paiste Splash cymbal, a 14" Paiste cymbal, and an 18" Super Zyn cymbal.



HAWKWIND

Nik Turner: Selmer Sax Paul Rudolph, bass: Fender Precision, Acoustic 261 amp. Dave Brock, lead: Fender Jaguar; a Dick Knight custom built Les Paul copy. Simon King, drums: Hayman double drum kit, including 10 Paiste cymbals, two 10" floor tom-toms, a 26" bass drum, a 13" and a 12" top tom-tom, a 14" Hayman wood snare, a 14" Ludwig metal snare drum, a 13" and a 14" timbali.

Alan Powell, drums: a Ludwig single kit, 22" bass drum, a 13" x 9" tom-tom, a 16" x 16" tom-tom, a 14" Hayman snare, a Hayman Hi-Hat, a 20" Paiste cymbal, 15" and 18" Hi-Hats, an 18" Super Zyn cymbal. Natal Congas Simon House, synthesiser: a Mellotron, Mini-Korg, a Synthi 'A' AKS Synthesiser, an RMI Piano. Amplification includes: four Phase Linear 400 amps, two Phase Linear 700 amps, four Quad 303 amps, six HH 100

watt amps, one Vox AC30.

28 bins: 4 Electrosound W Bins, housing 1 x 18 speakers; 12 Electrosound folded horn bins with 2 x 15" Gauss speakers; 12 mid-bass cabs with 4 x 12" Altec drivers, 120 watts per speaker 10 Altec 329 horns, 2 290E drivers in each horn; 20 HF units with 2 vitavox 100 watt drivers on 4 K horn mouths Amcron amps and electro sound monitors, adding up to 20,000 watts; a selection of Shure, AKG and Neumann mikes, two Electrosound mixers with 24 track with 12 switchable Eqs per channel

4 JBL Long Throws, with two 2482 drivers at 120 watt in each 4 Echo reverb phasers and digital delays, and Revox recording facilities for any artist who wants their performance recorded.



YES

Jon Anderson: Martin
Acoustic 12 string; Gibson ES
140 fullbodied,
Steve Howe, guitar: Gibson
ES179D acoustic; 1953 Telecaster; 1955 Telecaster;
Gibson 345 stereo; a DAN
electro Sitar-Guitar; a Gibson
Les Paul Junior; a Gibson
twin neck; a Gretsch 12
string; a Martin acoustic

0068. Chris Squire, bass: a Rickenbacker 4-string; a Fender Jazz Master: Gibson Thunderbird: Ripper 4-string; an EBI 4string violin-bass; Melody Maker bass: Guild fretless. Patrick Moraz, keyboards: Hammond C3 Organ; Fender-Rhodes 73 and 88 pianos; two String Thing synthesisers; a Mini-Moog: a D C cabinet: two Mellotrons; ARP Pro Soloist; two Rhythm Ace Drum Machines; two Binson Echos; Alpine horn; an Electronic Slinky.

Alan White, drums: Ludwig kit, including 22" x 14" bass; two 13" x 9" tom-toms; three timbalis: 14" x 6", 13" x 6", 13" x 5": two 16" x 16" tom-toms; four Dresden timpanis $-23^{\prime\prime}$, $26^{\prime\prime}$, 29", and 33"; Tubular bells; Symphonic gongs - 14", 20", 22", 26", and 32": Octopulse drums; two cymbal trees; three Ludwig snares -14" x 5"; 14" x 6", and 14" x 5", a Gretsch snare, 14" x 5"; assorted cymbals: 4" - 24"; three Thunder sheets; a Bell Lyra; cowbells;

a box of assorted percussion.



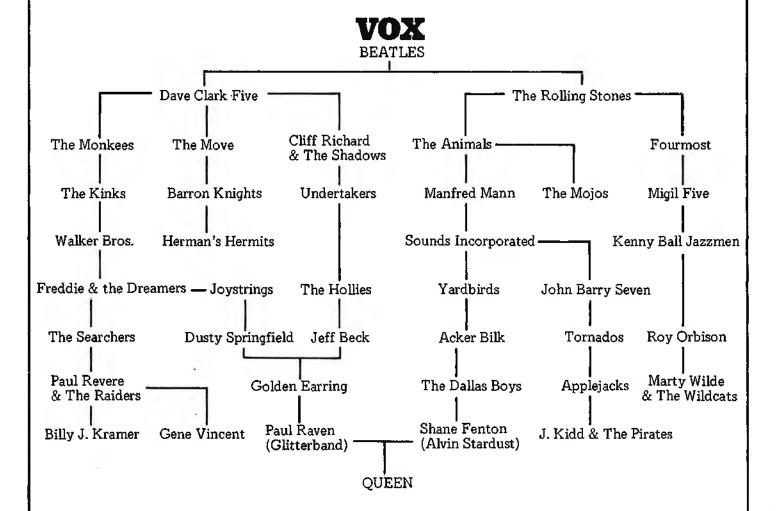
HEAVY METAL KIDS

Cosmo, lead guitarist: 2 modified 100 watt Marshall amps, two Electrosound 4" x 12" cabinets at 120 watts per speaker, a Maestro phasing unit and an original Gibson Les Paul Sunburst guitar; Keith Boyce, drums: an original, custom built Ludwig wooden shell drum kit (built-U.S.) with Evans clear heads. Paiste 2002 cymbals, a 28" bass drum, 8" snare, two top toms, two floor toms, 2 tympanis, a Hi Hat, seven cymbals and specially made heavy built military drum sticks, and an Eventide phasing machine; Ronnie Hatfield-Thomas: Fender precision bass, 2 Acoustic 370 tops, 2 Electrosound 4" x 12" cabs with Gauss drivers, 2 Electrosound 2" x 15" cabs with Gauss drivers:

Rocky Sinclair, Keyboards:
RMI piano, Hammond C3
Organ, Mini-Moog, Hohner
Clarinet, a String Master, the
Organ uses two American
built 300 Watt Leslie
speakers, the rest use two
doctored 100 Watt Marshall
amps, 3 Electrosound 4" x 12"
cabs with Gauss drivers, three
370 Acoustic tops;

Vocalists will be using SM 58s for mikes, and a Revox ADT tape machine.

What other amplifier can trace its ancestry back to the Beatles?



Pedigree is important, ask any of the above names. The VOX AC 30 is the cornerstone of rock' music. The greatest bands in the world make it so

and today it's combination of tonal response and compact power has still to be equalled. Generation (after generation of the rock aristocracy have founded their fortunes on the Vox sound and have handed the Vox heritage on to their successors as kind of rock heirlooms.

Dealers: See the latest from VOX at the Trade only show 12 Alfred Place, London W.C.1.
August 17th-24th Today's AC 30s have something no other amplifiers have - a track record. They have survived the ultimate tests - Wembley and Shea Stadium for instance and have proved that the best bands in the

> world choose the best amp in the world - the Vox AC 30.

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AMII PREVIEW

The message from Roy Morris, President of the Association of Musical Instrument Industries (as well as Chairman of Rose-Morris), is clear: "We are particularly keen on welcoming overseas visitors to the British Musical Instrument Trade Fair this year. Every U.K. manufacturer and distributor will be anxious to improve his export position.

"The show has traditionally been the meeting place of the British musical instrument trade and this year the Bloomsbury Centre and Russell Hotels will be completely given over to AMII members, EODA members and PMA will be at the Connaught Rooms.

"I am sure that 1975 will prove to be a record year, both in turnover and the number of visitors to the fair. Although there is a recession in many countries, it is paradoxically a fact that the making of 'live' music becomes more significant at such times."

The importance of AMII as a trade body has been remarkably well illustrated this year. Following the Chancellor's recent Budget, certain musical instruments and amplification immediately became subject to an extra 17 per cent V.A.T. Through the efforts of Roy Morris on behalf of the Association, the

Customs and Excise department agreed to modify the ruling to limit "professional" equipment to 8 per cent. Thus items like amplifiers over 30 watts R.M.S. escaped the crippling 25 per cent V.A.T.

At the time of going to press, Roy Morris was still in negotiation with the Treasury in an attempt to secure relief from the high rate on all instruments representing to the professional musician the tools of his trade. Indeed he had expressed to the Minister his Association's opinion that all musical instruments which produced live music should carry a rate of V.A.T. no higher than that which is levied on recorded music and that individuals should be encouraged to make their own music rather than listen to the recorded variety.

Boosey & Hawkes

A broad selection of Boosey & Hawkes' wide range of musical instruments will be on display this year. The "Axxe" synthesiser, an addition to the ARP range of keyboards, will be joined by the Diamond 70 and 701 Electronic Organs.

Boosey & Hawkes will also be exhibiting a couple of combination amps. The Firehawk 30 and 50 watt combos will doubtlessly attract a fair share of attention

Carlsbro

The highlight of the Carlsbro stand this year will be the improved Mk. II models of the proven Martin and Stingray Boasting improved sustain circuitry and controls and a higher input sensitivity, these models

The British Musical Instruments Trade Fair is the most important date in the UK trade diary. It runs from August 17 to 21 at the Bloomsbury Centre and Russell Hotels, London, W.C.2.

will be joined by Carlsbro's new Scorpion, a 35 watt combination amplifier fitted with two 12" Celestion speakers.

Also on display will be the celebrated Mini-Bin and two models of Sennheiser dynamic microphones. This marks Carlsbro's first foray into microphones, which they recommend for use with their P.A; systems.



Carlsbro's Scorpion, 35 watt combo amp.

Invitation

Coop. CASTELLO manufacturers of PARI electromagnetic organs and tube amplifiers cordially invite you to attend an exhibition and demonstration of 'PARI sound' equipment at the Horseshoe Hotel, Tottenham Court Road, London W.1.



Monday 18th August until Thursday 21st August Hours 9a.m.—6p.m. Drinks and snacks served



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WELSON Vedette piano

WELSON Winner 45

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Welson space-age electronics give you tones as pure as crystal—and the scope of the sounds at your fingertips (and toetips!) is phenomenal. You name it, a Welson reproduces it—with full backing percussion rhythm.

And full modulatory controls give you all sorts of

freedom to vary your sounds.
Welson make the famous Syntex synthesiser too. So from Welson you get

a range of sounds, as endless as space itself.

And at what value! When you weigh up the quality, scope and

the price of a Welson you'll see what we mean.

Cost for cost Welsons are probably the finest value for money organs available.

Go to your local dealer and play one. Hearing is believing.

(If you'd like details write to us. We'll send you some literature and the address of your nearest stockist.)

Weison. Fine organ from

AMII PREVIEW

Cleartone

The full range of Cleartone products will be on display this year at the Bloomsbury Hotel. Among new lines to be shown are a range of Latin American percussion instruments from Latin Percussion.

Stingerland Drums will welcome a new range of military drums to their legion. The main section of the Slingerland display will be an enormous 19 shell kit which is made up of an 11 shell 11N kit plus a full range of concert torn-toms.

C,M.I. amplification will also be exhibited, and the new Maximin cabinets, small but powerful, will be introduced for the first time. The Maximin 152 is available with a variety of 15" speakers — Celestion, Eminence and Gauss among them — all handling 100 watts.

CMS/WMI

Cardiff Music Strings, distributors of WMI products, are announcing a new "Direct Import Scheme" for main dealers. Under this scheme dealers will be able to buy middle price acoustic guitars through WMI's Tokyo office at

"extremely competitive prices".

The full range of CMS strings will naturally be on show and these include Cathedral, St. David, Londoner, and Summitt. CMS are also introducing Sound City strings.

WMI's new range of Kay guitars will be prominently displayed. The range includes a 3-piece back classic, a similar jumbo model and the Kay electrics, which feature a new multi-ply neck that hasn't been seen outside Japan before. A Grand concert model will also be displayed.

Dealers are being exceptionally well treated at the CMS/WMI stand this year. There's the offer of an exciting holiday for many lucky dealers and a superb £1,000 Kay banjo which is inlaid with beautiful Korean lacquer work, pearl inlay and gold plating will be raffled. The Kay mike range, including the brand new competitively priced KCM44 and KCM33 condensor mikes, will also be shown.

Other curious items on the stand include something called a Man-Handler which is a mechanical organ or piano mover capable of lifting instruments up steps.



Cleartone's Maximin 152 bin.

Continued on page 93

NEWMAN ORGAN STUDIOS

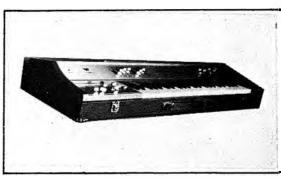


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WERSI WX 100T ORGAN



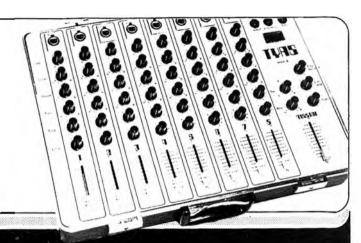
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The basic unit is an eight input mixer providing two outputs, main and foldback. A high overload marging coupled with a gain control makes the unit admirably suited for live P.A. work.



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- Facilities for adding extra levers and pedals
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0.05% at 1KHz Hum & Noise - 116dB

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150 watts r.m.s. into 4 ohms T.H.D. typically 0,05% at 1KHz 25Hz -20KHz + 1dB.

AMII PREVIEW

Coppock

The Leeds based firm of J.T. Coppock will be exhibiting a number of new products at this year's trade fair. New models of Antoria guitars include the Black Hawk Bass, which boasts a double Bullhorn body; the Stereo Thin-Twin, with genuine stereo wiring and twin pick-ups and a red finished thin acoustic body; and the Vulcan, a copy of the original Flying V.

Accessories on display will include a new Renometer from Ibanez, an effective graphic equaliser: the new range of Ibanez condensor microphones, and a new Phase Tone unit.

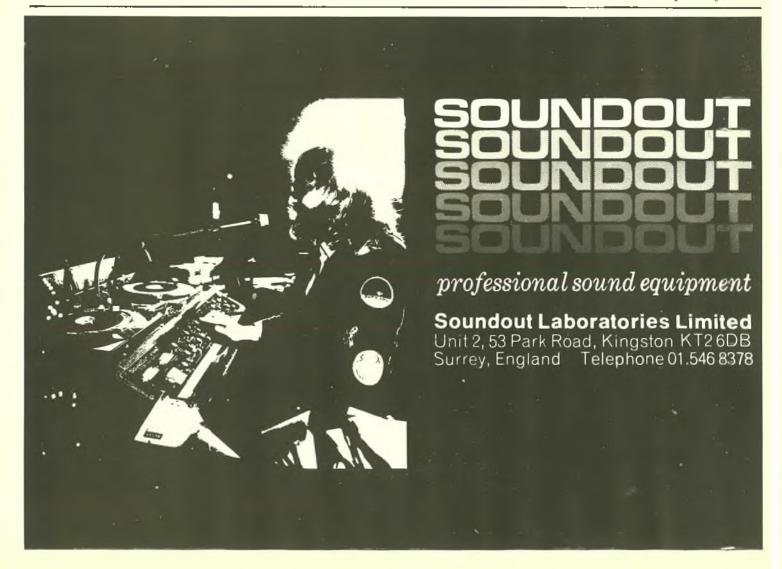
The Elgam range of organs will boast three new members: the Royal, which boasts drawbar tone changers and six separate feet; the Talisman, a portable version of the Royal console; and the Crystal, a mid-range console.

Elka-Orla

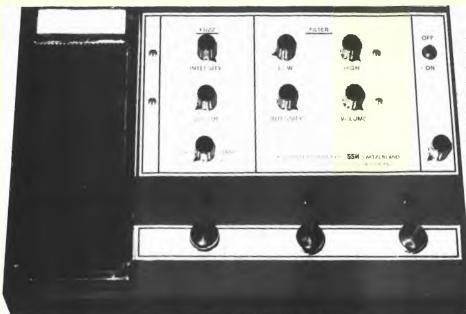
The stand this year will revolve around the extensive range of portable keyboards. Chief among these is the Rhapsody 610. The Rhapsody 490 will also attract a lot of attention, as will the relatively new X55. The Elkapiano 88, the Notturno and Capticcio organs will also be on display.



Farfisa's Buckingham Organ



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AMII PREVIEW

An additional boon for beginners is the Orla range of instruments, which includes the Tiffany 4, Fantasy 20 and Companion 21, all of which are attracting a good deal of attention.

Farfisa

The recently introduced range of Farfisa home organs, which includes the Balmoral, Beaumont and Balfour models will hold pride of place at their stand. These home organs will be accompanied by Farfisa's proven range of professional portable instruments. The V.J.P. range, the Syntorchestra, the Professional Duo, the Professional Piano, and the super Piano will all be on display.

Fletcher, Coppock & Newman

This is a bumper year for Fletcher, Coppock & Newman, with more than 60 new items being introduced at the Trade Fair. Paramount among these are the Kent Drum kits and the Kimbara stereo bass duitar.

The Kent Superstar five-piece outfit is the newest jewel in Fietcher, Coppock & Newman's crown. Designed for the professional, the Superstar is also joined by the Apollo 1V and V kits,

four and five piece kits respectively, which combine a low price with professional quality.

The Kimbara range of bass guitars boast three new additions, and chief among these is the N 125, which can be used either as a regular bass when played through a single channel amp, or as a stereo model when played through either a two channel amp or two amps.

The Columbus range sees the introduction of a new 12-string Jumbo, and other items sure to attract a lot of attention range from ukeleles to accessories such as cases and machine heads, to violin bows and the Guban range of saxophones.

General Music Strings

The established range of Picato strings on display at this year's exhibition will be joined by some new additions. Hawaiian guitar, banjo, tenor banjo, mandolin and ukelele strings will complement the popular "round box" packed guitar and bass strings.

General Music Strings will also have a complete display of the Peter and Nicholas range of microphone stands, as well as some new models designed for use with disco units, speaker cabinets and mixer units. There will be further new additions announced at the show. Continued on page 97



Sharma's 650 Professional Cabinet

ELKA-ORLA

19, Bluebridge Industrial Estate, Halstead, Essex, Tel: Halstead 5325/6



RHAPSODY 610

MAIN FEATURES

- 61 note keyboard from FA 43.6 Hz to FA 2793 Hz which may be divided into two: 25 keys for the accompaniment and 36 for the melody.
- The following draw-bar registers, giving way to an unlimited combination of sounds, are available for each of the two Sections: Violincello, Strings, Piano and Clavichord.
- Decay: Allows sustain control on the four voices.
- Each of the four push-buttons marked "Cancels" offers the choice of the desired effect.

X55



CMARACTERISTICS: Dimensions: cm 103 x 38 x 18 Weight: kg 26 Colour: Green,

SPECIFICATION
Upper Keyboard: 49 keys from C to C. 9 Draw-bar voice registers: Flute 16'-51/3'-8'-4'-2 2/3'-1 1/3'-1 3/5'-1'-2'
5 Percussions: 8'-5 1/3'-4'-2 2/3'-2'
Presets: Clarinet,-Trumpet - Full Organ - Theatre and Draw bars.

Lower Keyboard: 37 keys from C to C. 5 Draw-bar voice registers: Flute 8' - 4' - 2 2/3' - 1' - 2'

Effects: Vibrato: Slow/Fast Sustain on the upper and lower keyboards Brilliance Noise Attack

N.B. Upon request, the instrument may be supplied complete with pedalboard.

ADDITIONAL CHARACTERISTICS This portable organ is extremely compact for easy transportation having lockable carrying lid and carrying case for legs and pedalboard.

JUST ONE OF THE SEVEN WONDERS FROM THE GALANTI MUSIC WORLD

Specifications:

UPPER KEYBOARD: 44 notes F - C.
LOWER KEYBOARD: 44 notes F - C.
PEDALBOARD: 13 notes C - C - Bass 8'/8' + 16' - Bass Sustain.
UPPER MANUAL: Flute 16' - Flute 8' - Flute 4' - Trombone 16'
- Trumpet 8' - Oboe 8' - Violin 8' - Solo sustain.
LOWER MANUAL: Flute 8' - Horn 8' - Meiodia 8' - Cello 8' On/Off Vibrato.
CONTROLS: Reverb volume - Vibrato Heavy/Light - Pedal
volume - Acc. Volume - Repeat On/Off - Magic Chord.
OUTPUT POWER: 40 W. m.p.
LOUDSPEAKER: 12" special design.
JACKS: Headphone and tape recorder.
DIMENSIONS: Length cm 112 - Width cm 65 - Height cm 93.
Lid standard.

GALANTI ORGAN MODEL F2 DE LUXE

The exciting F2 D/L Organ offers a versatile and comprehensive specification of the sort one would generally only expect to find in instruments costing very much more. The authentically voiced tones be used singly or in combination to provide many delightful effects and the built in Vertuoso Rhythm Unit provides drum and Latin percussion accompaniment with quad bass and Arpeggio to make you sound like a whole band! No matter whether a complete beginner or an experienced musician, the F2 D/L will provide the player with many years of creative and enjoyable entertainment.

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August 17th-21st



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Arbiter Autotune Outfit
Pure White Rock No. 100

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AMII PREVIEW

Habig/Kimball

The centre of attention at the Habig/Kimball stand this year will be two brand new organs, never before exhibited in Europe. Literally nothing is being revealed about these organs until the opening day of the fair, and they should surprise a good number of visitors.

The complete range of Kimball grand and upright pianos will also be on display, including the latest player piano.

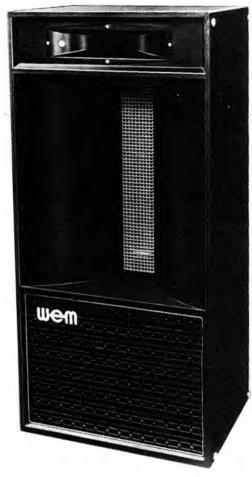
Hammond Organs

Hammond's exhibitions will be split between two venues at this year's Trade Fair. At the Connaught Booms, the Dolphin, Dolphin de Luxe, Cougar, T.500, Phoenix and Grandee, will be displayed, as will the X.2 and X.5 portables. They will be joined by the Hammond Auto-Vari 64 and Hammond Synthesiser.

The London Hilton will also witness a Hammond display of several new models recently launched at the Chicago NAMM show. Hammond have reserved VIP facilities for visiting Dealer Principals and their sales executives.

Hohner

The Beford Suite will house this year's Hohner stand, the largest in their history. Their exhibition



WEM'S X 30 Reflex Bin

will be featuring a number of new items, such as the Hi Piano, Hi Strings and the Hi Piano/Strings. All portable, these instruments are available with legs if required.

The full range of Hohner harmonicas and melodicas, as well as a few surprises in the vamper range and dispenser units, will also be on view. A large segment of Hohner's space will be allotted to a comprehensive display of Sonor Drums and accessories, including the exciting new Acrylic sets which are proving to be one of Hohners strongest sellers.

Hornby Skewes

Represented at both the Russell and the Connaught Rooms, Hornby Skewes will be displaying their wide range of musical instruments. Completely new models of Kasuga, Terada, Zenta and Palma guitars will be exhibited for the first time, as well as the Sam Ick range of electric guitars, the U.K. distributorship of which was acquired at the last Frankfurt Trade Fair. These will be markéted under the name of Zenta.

Hoshino drums, Zenta and Miles Platting amplification, and Tivoli and Rainbow electric organs will also be exhibited, along with the proven keyboard ranges of EKO and Crumar. The Logan String Melody will also be exhibited.

continued on page

Usually about 40 Kits in stock including:

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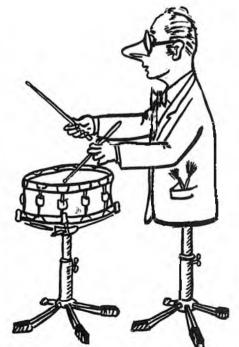
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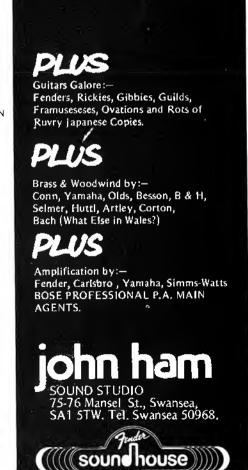
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James How

Long a manufacturer of strings for guitars and basses, James How will introduce the first Rotosound instruments at this year's Trade Fair. The Rotosound guitar and bass are completely original, combining high quality and a competitive price. The original shape makes them equally suitable for left and right-handed players.

Also for the first time, How will be exhibiting their new range of pick-ups.

John Birch guitars will also be displayed, and the complete range of Rotosound strings, with special emphasis on the Gauge Selection and Bass range, will undoubtedly attract a lot of attention.

Kemble-Yamaha

Kemble will make every effort on this, their first time at The Russell, to do things in style. The complete new range of 50 and 100 watt guitar and bass combos will make their U.K. debut, as will the new professional SY2 Synthesiser, and a host of new P.A.s, jumbos, solids and semi's.

Three new mixing desks will also be on display: the PM200B, an eight into one with VU and a wide choice of feeds; the PM300, a jack version of the popular PM400 (XLR) eight into two with twin VUs; and the new PM1000 16 into four modular studio/P.A. Desk with five band EQ, four

Summerfield's CSL 2341



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Trade Fair will be bigger and better than ever this year. There are several major items which are on show for the first time at the fair and it's a good bet that special fuss will be made of these. The new transistor range of

amps from Marshall will naturally attract great interest, Jim Marshall made the world wait several years before launching the new range and the last six months can truthfully be said to have shaken the world amp market. Marshall transistor amps have been a major export winner and obviously Rose-Morris are seeking to sustain the U.K. success that the amps have enjoyed for so long. The other really big news from

the R-M stable is the Ludwig range of drums. The company acquired the U.K. distribution rights for Ludwig at the Frankfurt Trade Fair in February this year and this is the first chance the company has had to exhibit the impressive range

It's an additionally important year for Rose-Morris because the company's Chairman, Roy Morris, is President of AMII this year and he will naturally be concerned to ensure that the Fair is a success, both from the AMII and Rose-Morris point of view,

Other lines on the R-M stand will include the Mini-Kora synthesiser, EKO mandolins, bouzoukis, banjos, Shaftesbury Drums and guitars, Ovation acoustic and electric guitars and the guitars marketed by Rose-Morris under the names Top Twenty, Ned Callan, Avon. Sigma, EKO and Alhambra.

Rosetti

The exciting new H100 Universal Cabinet will occupy pride of place at Rosetti's stand this year, Built to be the first truly universal 100 watt cabinet, the H 100 is equally suitable for P.A., guitar and disco, and houses four HF horns a husky 15" RCF speaker with a 4" diameter voice coil. The frequency response is from 45 to 1kHz, the crossover point is at 2.00kHz (passive), and the unit measures 39" x 20" x 12",

full panning and cueing.

A selection of new cabinets. acoustic guitars, organs and Kembles first display of classic, folk, jumbo and electric guitars will round out the display.

Orange

Along with their already extensive range of sound equipment, which will be displayed at this year's exhibition, Orange will also introduce three brand new products. Among them is a quality, all British-built valve twin combination amplifier.

Boasting two heavy duty speakers and full size Hammond reverb springs, it also offers two channels - straight and one combining reverb and tremelo. This amp and the separate amplifier top and P.A. are rapidly becoming the most popular items in the Orange stable,

Premier

Chief among Premier's exhibits at this year's Trade Fair is their new 14 x 5%" metal shell snare drum, which boasts a novel positive conventional throw off lever. Also on display will be two new sets of rigid frame chimes, six single headed tom-toms, and a 22 cymbal case. Up dated products include a vibraphone with improved electronic speed control, improved bass drum spurs and the latest polychromatic silver drum finish.

Reslosound

Attracting particular attention at this year's fair will be two new microphones from Reslosound: the RGP71 Super Cardoid Microphone (Reslos answer to the Peavey microphone and the lowpriced Omni-Directional Dynamic Microphone.

The Cabaret, the "Walk and Talk" mike which eliminates the need for leads - and is known by Reslosound as the "Star of Frankfurt" - will also be on display.

In addition, a selection of accessories and a range of floor stands will also be shown.

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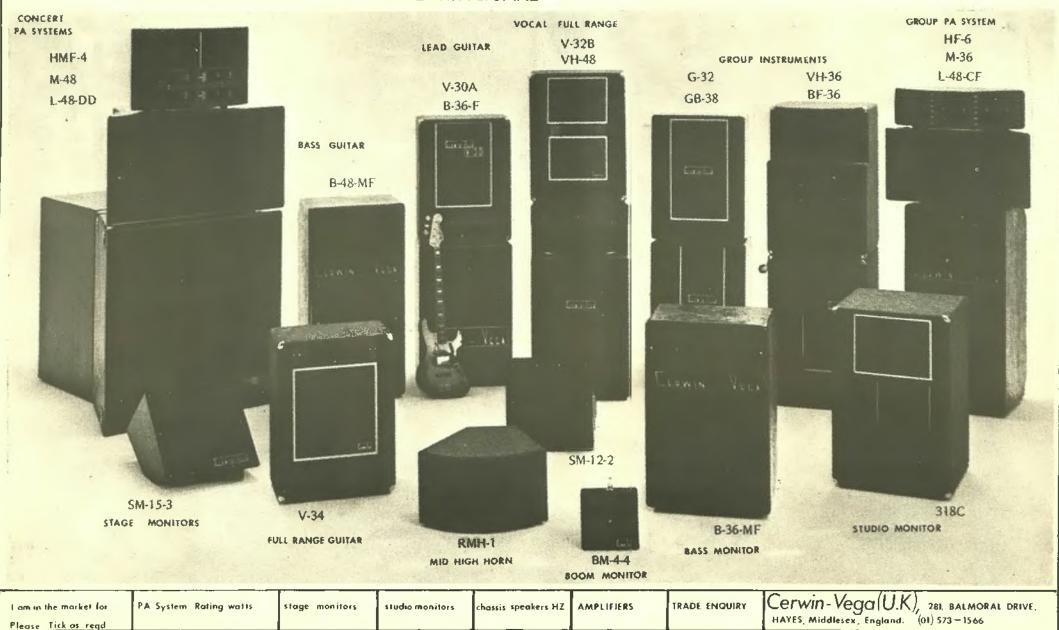
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Selmer

Selmer are, as they say, rolling out the bandwagon this year to display a whole galaxy of exciting new products. Top of the form are the Pearl Professional and Maxwin Drum kits. Moog synthesisers will be demonstrated by Bob Moog himself, and the full range of Lowrey organs will also receive a good deal of attention, with the new Symphonic Holiday attracting particular attention.

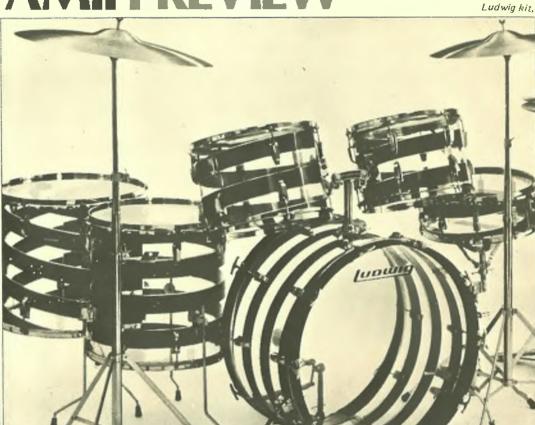
The woodwind scene will star the new range of Mark 7 alto and tenor saxophones from Selmer Paris. A new range of console and portable organs in the popular price bracket, a new range of amplification, six new models of Gibsons, and a wide range of other Selmer favourites will all be ready and waiting when the doors open.

Sharma

Sharma will be exhibiting their established range of speaker cabinets and speakers. The Audio Max, Sharmette Professional and 5,500 speakers which attracted so much attention at Frankfurt will all be on display.

Also on display will be the Sharma professional organ speakers, including the Sharma 5000, the 650, the Carousel 900 Professional, the 2000 Professional and the Sharma 2300 De Luxe cabinets, as well as the Sharma Combo pre-amp.

AMII PREVIEW



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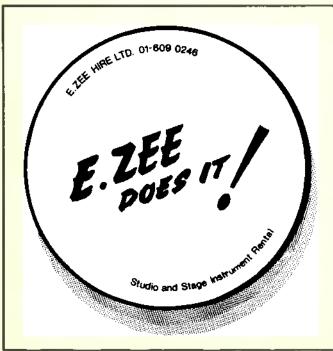
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Stentor Music

The big news from Stentor this year is the unveiling of two new lines of Hokada jumbo guitars, retailing below £40.00 The Fylde range will also welcome another jumbo model, and the Maya range of electrics will be supplemented by a new low priced six string and a bass, as well as a Hawaiian guitar.

Mandolins and mandolas, violins, cellos, and new lines from Rampone, and Cazzanni will also grace the stand.

Sola Sound

Larry Macari's stand at the Fair is going to be crammed with new items, In addition to the already large range of effects pedal, several new Colorsound pedals are being shown, including - for the first time - phase pedals. These include the Phase 4 pedal which has a 5 IC circuit and the larger Super Phaze which has a 7 IC circuit, Other effects units and pedals include the Dopplertone, the Fuzz Phazer and a fascinating item called a Chuck-A-Wah which has a trigger filter activated by hitting the guitar string. The Super Reverb box and a mains version of the Super Reverb will also be shown.

Of special interest will be a range of amps new to Britain called the Unicord. The range includes a six-channel P.A. amp, a guitar amp and a small bass gigging amp.

Electronic keyboards are something of a speciality in Larry's London shops and naturally they are in prominent display at the show. One corner is completely given over to keyboards and the range on show includes the Instant String synthesiser and the Compact Piano.

Summerfield

The emphasis this year will be on guitars and percussion. The true centrepiece, however, will belong to the four new acoustic-electrics and the 14 new electric guitars which will dominate their Bloomsbury stand this August. Ibanez, CSL, Levin, Sumbro, Cimar, Matsuoka — all will be displayed, but the most prominent display will be reserved for the CSL Gypsy guitar range. Signor Mario Maccaferri, the animus for the design of this guitar, will attend in person.

The Tama/Star drums will also attract quite a lot of attention, as will the Tama/Star accessories. Last but not least, the Darco and D'Addario string ranges will also be on display, as will the new Ibanez "2000" Piezo Ceramic miniature pick-up.

Top Gear

Exhibiting for the first time at the Russell Hotel, Top Gear will display a complete range of equipment, and will in addition also offer their amplified instruments for trial in a demonstration room, on the first floor.

Barcus Berry Transducer systems will be on display for the first time, and the "Hot Dots", minute sensors which provide true acoustic reproduction after their installation on the bridge of any guitar, will surely attract a lot of attention.

The Guild range of acoustic and electric guitars will also be on display, along with Hondo and Little Buddy Pedal Steel Guitars. The Strings represented will include both D'Angelico and Ernie Ball, and Peavey Electronics will represent the whole spectrum of amplification. Rickenbacker guitars and basses will also be on display.

For the first time, Top Gear's Model TG-55 Synthesiser will be displayed. This is believed to be the first synthesiser which will accept a guitar signal directly, permitting a guitarist to produce the synthesiser sounds previously restricted to keyboard players.

A selection of accessories including those of Terry Gould, Ambico, Axamp, De Aromond, Gibson, Herco, Hi-Watt and Kiuson as well as Top Gear will round out the stand's compliment. **WEM**

The X.39 Reflex Bin, described as the best P.A. WEM have ever made, will dominate their stand at this year's exhibition. A high capacity system type reproducer, it boasts a 15" reflex bass speaker, two 12" middle horns and an HF horn.

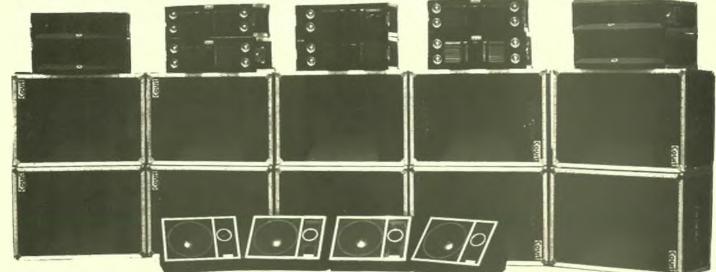
The Pre Mixer IV is an economical and low-priced four channel mixer with reverb which will also be on display, as will the Aggressor, a speaker cabinet for use with rhythm or lead guitar. This boasts a single heavy 12" speaker surrounded by eight mixed 8" units. The Dominator 50 Combo, a 50 watt valve amp which comes in two models — either keyboard or guitar — rounds out the WEM exhibition.

Woods

Woods of Bolton, importers of such musical instruments as Jose Ramirez and Ricardo Sanchez hand-made concert guitars, will be exhibiting a broad range of musical instruments at this year's fair.

Of particular interest will be the Welson range of guitars and organs. These include portables as well as a synthesiser. Included are the Welson Winner 45, which features lower manual volume control and pedal volume, reverb intensity, and repeat speed control, all controlled by slide potentiometers, and a 12 button rhythm selector with Magic Muster; the portable Key Orchestra, with 49 keys (C to C), four voices and sustain control: and the Vedette plane, with 61 keys, an integrated circuit master control oscillator system, and two slide volume controls - one for piano and one for harpsichord.

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RICESCANN

I M's Price Scanner aims to be the most comprehensive guide to the retail prices of musical instruments and equipment available, in addition to listing as many

avaitable. In addition to instring as many retail prices as possible, we're also publishing a guide to second-hand prices.

As months go by, we're hoping to build up this second-hand price section to cover as many items as possible. To this end, we'd be grateful if you could let us know about your experiences with used instruments and equipment. You will see two extra prices against certain instruments (usually the ones most likely to turn up as regular second-hand bargains). These two prices represent a swing between the extremes, represent a swing between the extremes, I rom the private sale price for an instrument in goor condition and the top price e dealer will charge after he has added the cost of his overheads and VAT to the price of an instrument in good condition. Depending on the condition and method of sale of the instrument you are interested in you will be able to calculate where in the owing it will fail. We've compiled our second-hand order from the state of the market as it prices from the state of the market as it stands, but of course you may well find special bergains or particularly good instruments outside our limits. We haven't instruments usisee our imms, we never of offered second-hand prices for many of the copy guitars, but we suggest you take 50% off the retail price — elways allowing for a little fluctuation. All our new reteil prices are exclusive of VAT, 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
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DSS732	2620.00
5TL732	850.00
CPS691	1645.00
GKS681	370.00
LV701	252.00
SSJ701 SM721	352.00 327.00
DS681	540.00
D2001	040.00

EM ACQUISTICS

TW ACOUSTIC	_
E2-E4 Network	
in housing	55.56
E2-E4 Network 3-way	38 89
D5 Driver	57 41
D4 Driver	52,78
D2 Multicell driver	52.78
FM C35 15 cell horn	281.48
FM CB HF hro	28.70
FM C7 ESTho.	19.75
FM C5 EST hn.	21.30
SSH Distort, booster	37.96
SSH Phase-fitter	52.78
SSH Vdf super pedal	82.41
SSH E-1 of pedal	66.67
HORNS	
HVIIIIO	

SSH E-1 of pedal	66.67
HORNS	
1212FX100w FM	230.59
1212GX200w Guass	190.74
1315F100w FM 8s.	114.81
1315G200w	
Guass Bs.	156.48
1317X200w Radial	131:48
1323X200w6 cell	173.15
1336X400w 15 cell	303.70
1345X200w H.F.	104.63

HILL PA SYSTEMS Modular Desks (40 ch. max)

to into 2 C srs.	99J.00
16 into 2 8 srs.	811.00
16 into 4 8 srs.	1016.00
	1548.00
16 into 4 D srs.	
16 into 2 K srs.	1095.00
16 into 4 K srs	1370 00
NON-MODULAR DES	SKS
10 into 2 M 102	239.00
16 into 2 M 102	392.00
10 III(0 Z NI 1QZ	332.00
POWER AMPS	
1 C 108 S 100w/	
8ohms	78.00
1 C 208 S 200w/	70.00
Bohms	121.00
	121.00
1 C 404 S 400w/	
4ohms	194.00
BINS/HORNS	

Martin Bins	203 00
JBL 2420	203.00
JBL 2482	295.36
Gauss 15" Chassis	87.58
04033 10 0143313	07.00

H.H. ELECTRONICS

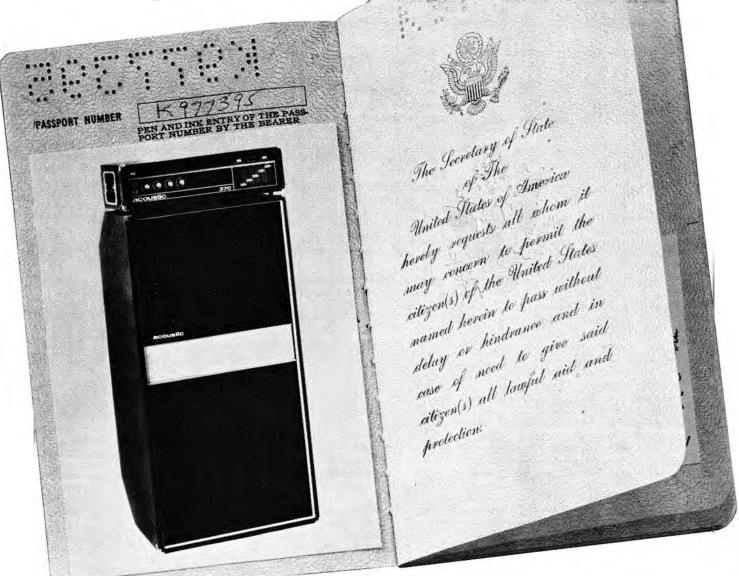
OWER AMPS.	
PA100D	98.00
PA50D	70.00
MM/8/12	46.00
PA25D	52.00
PA25D 19"	52.00
PA25D—M	50.00

KEMBLE	
ACHINDLE YTA 15.25W YTA 25.25W YTA 26.25W YTA 46.50W YTA 95.100W YBA 45 Bass, 45W YBA 100.100W YTA 100.100W YTA 100.100W YTA 100.300W YTA 400.400W YTA 400.400W YTA 400.400W YTA 100 Bass YBA 200 Bass YBA 200 Bass YBA 300 Bass	90.00 89.80 171.81 226.36 126.30 214.64 301.81 343.62 42.94 610.89 739.06 153.63
YBA 45 Bass, 45w YBA-65 Bass, 65w YTA 100 100w	214.64 301.81
YTA 110 YTA 200,200w	343.52 42.94
YTA 300,300w YTA 400,400w	610.89 739.06
TS 100 Horn TS 100 slave	180.91
TS 200,200w YBA 100 Bass	153.63 180.91 222.72 309.08 349.07 596.34 843.61 247.27
YBA 200 Bass YBA 300 Bass	596.34 843 61
BS 100 Bass YDS 200,200w	247.27 361.81
YDS 200 H 200w with horns	669.30
YDS 400,400w 4×12s & slaves	618.17
YDS 400 H, 400w with horns	925.43
. YDS 600,600w 2×1 2s, 4×12s, slaves VDS 600H 600m	979 80
with horns YDS 602 H, 600w	1287.06
with dble hrns YDS 600B, 600w	1594.31
BS 100 Bass YDS 200,200w 2412s & slaves YDS 200 H 200w with horns YDS 400 H, 400w with horns YDS 400 H, 400w with horns YDS 600,600w 2412s, slaves YDS 600H, 600w with horns YDS 602 H, 600w with horns YDS 602 H, 600w 4412s, slaves YDS 600Bh, 600w 4412s, slaves YDS 600Bh, 600w With horns YS 600 300w 4412s, slaves YDS 600Bh, 600w With horns YS 600 300w 4412s, slaves YDS 600Bh, 600w YD 800 300w 4412s, slaves YDS 800 300w 4410s, slaves YDS 800 300w 4410s, slaves YDS 800H, 600w 44 500 300w	1112.70
with horns VS 800 800w	1419.96
4×12s,salves YDS 600H,800w	1236.33
2 horns YOS 802H,600w	1543.59
4 horns	
P.A. EM 60A6ch B rev EM 30A6ch B rev EM 320A, 60w PM 20Q8ch PM 4008ch PM 100016ch CABINETS(PAIRS)	107.27 166.36 217.90 195.45 369.44 P.O.A.
EM 320A, 60w PM 2008ch	217.90 195.45
PM 4008ch PM 100016ch	P.O.A.
CABINETS (PAIRS) ES 60A. 1×12 ES 90A. 1×12 & HFH ES 130. 4×8 cot PS 75, 120w PS 100, 200w TS 100, 200w TS 200. 400w YHS 100 HD In BS 100, 200w PS 400	63.64
ES 90A, 1×12 & HFH ES 130, 4×8 col	90.91 109.09
PS 75, 120w PS 100, 200w	433.63 261.81
TS 200, 400w YHS 100 HD hn	618.17 307.26
BS 100, 200w PS 400	63.64 90.91 109.09 318.18 433.63 361.81 618.17 307.26 494.54 878.70
SYSTEMS	
YES 900 6ch YES 1300 6ch	170 91 257.27 345 51 513.67 629.16
YPA 150,8ch YPA 200,8ch	513.67 629.16
YPA 206,6ch YPA 206H,6ch	629.16 469.08 776.34 557.27 864.53 725.16 1032.42 813.62 1120.88
YPA 208.8ch YPA 208H,8ch	864.53 725.16
YPA 406H,6ch YPA 408	1032.42 813.62
YPA 408H YPA 606	1120.88 1086.91
	1086.91 1403.49 1175.00 1482.41 1248.15
YPA 800,8ch	1248.15
LEM	
Lem Audio road po. 912 amp 4×12 cab.	429.68 336.11 333.06
Lem Audio road po. 912 amp 4×12 cab. 911 bs amp 2×12 cab. Telescopic stnd. LG 300 PA cab.	333.06 22.41 282.64

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M FLECTROI	VICS		ROSE-MORRIS (MARSHALL)	2	_
AM ELECTRO/ lound Blender 150w. llave Amp. 150w	187.50		MARSHALL	,	
lave Amp. 150w	87.50				
V.B.AMPLIFIC	A / / O/V 103.96		AMPS 1959 100w Ld.	155.28	65—100 45—75
lolan 100w.amp. lolan 50w.amp.	74.52		1987 50w Ld.	109.65	4575
IOLAN SESSION MST	Ħ,		AMPS 1959 100w Ld. 1987 50w Ld. 2068 100w Artist Rev. 2048 50w Artist Rev. 1992 100w Bass 1986 50w Bass 1989 50w Org	126.48	
lev. Comb. Iolan 4+12 P A.cabs	134 32		1992 100w Bass	155.46	
(pr.)	151.80		1989 50w Dass	109.65	
folan 2+12 P.A. cabs.			SPEAKERS		
(pr.) iolan 4+12 Ld/θs	105.80 119.60		1982-19828		
			SPEAKERS 1982-19828 4×12" 120× 1960-19608 4×12" 100w 1935-19958 4×12" Bass 100w 2045 2×12" 60w 1995 1×12" 50w 1996 8×10" Ld/Org. 1000w	147.25	
IOLAN DUAL C.HORN P12 (pr.) Cabs Tame 50w.amp, Tame 50w. 2+12	142.60		4×12" 100w	134 81	5590
Jame 50w.amp.	69.00		1935-19358 4×12" Bass 100w	134 81	
Combo.	105.80		2045 2×12" 60w	80.42	
WALLA			1995 1×12" 50W 1990 8x10" Ld/Ore.	62.93	
VICHOLLS			1990 8×10" Ld/Org. 100w 2084 1×12" P/cel, 100w/Bass 2066 1×14" P/cel, 125w 2052 1×15" P/cel, w/Bass Boost, 125v 2049 2×12" Artist 60w 2069 412"A, 120w	134.81	4585
ORN SYSTEMS			2064 1×12" P/cel, 100w/Bass	132.06	
l×12 shpd.cab 2 Midda hns 150w l×Midda× hn, cab,	132.78		2065 1×14" P/cel,	45407	
⊭Middax hn, cab.	132.78 119.81		125W 2052 1x15" P/cel.	154.07	
			w/Bass Boost, 125v	w 184.34	ļ.
SPKR SYSTEMS ×15 bs.ref. ×18 100w G Bs. cab. ×12 100w G	154.26		2049 2×12" Artist 60w	113.94	
×18 100W G BS, cab.	92.16		2069 412"A. 120w 2058 2×15" P/cel,	138.72	
shpd. cab. shpd. cab. x12 100w C cab. x12 400w G cols.Pr. x12 200w C cols.Pr. x12 200w G cab. x12 100w C ceb.	91.31		2058 2×15" P/cel, 250w	. 316.40	
×12 100w C cab.	236.96		COMB.AMPS.		
×12 200w C cols.Pr.	211.20		2040 Artist Rev. com.60w		
I×12 200W G cab.	106.66		com.60w	196.77	90—130
TEM			2041 Artist 2 pc. Revel 50w	240.42	
S-chn mor.	152.67		50w 2059 100w Artist 2pc 2049 2×12"Spk. cab.50w	303.16	
COw slave	153.39		2049 2412 5 px. cab.50w	113.94	
20w slave 5-chn, 120w PA	152.67 153.39 115.12 173.16		cab.100w 2068 Artist Rev. 100w 2069 4×12" Spk. Cab.100w	154.43	
S-chn. 120w PA 100w SL 120w SL	182 74 120.44		Cab.100w	138 76 102.92	55-90
20w SL	120.44		2046 Spec. Rev.	102.92	
VOVANEX			Bass Com.	225.12	
	27.60		2046 Spec. Rev. 2077 100w Trans Bass Com. 2078 100w Trans. Ld. Com.		
AVT 3 AVT 6 AVT 10 POP 15	27.68 32.31 46.20 63.68 78.70 91.66			225.12	
AVT 10	46.20		P.A. 2003 Metr. P.A		
3 25 3 30	78.70		6i.p.s.100w	171.62	85-130
30	91.66		1917 20 w P. A. Set-up 2071 6 chan. Mx.	R3.24	
) 30) 40) 50	110.18 119.44		2003 Mstr. P.A. 6i.p.s.100w 1917 20w P.A. Set-up 2071 6 chan, Mx, 1994 100w Trans. Slave Amp.		
) 50 J 60C	143.51 156.48		1994 100w Trans. Slave Amp 2050 9-chan.Mxr. Ext. chans. for above	307.18	
) 80) 80N	175.00		Ext. chans, for above	28 91	
) 80N	175.00 184.25 254.62		POCCTT/		
J 100N J 120	319.00		/IOOL///		
M 20 M 25	63.88 78.70		LEÓ AMPS.	24.02	15.00
	.82.87 119.44		LEO AMPS. 9641, W/Trem 9642, Leo Ten	24.02 34.33	20.00
. 50	119.44 137.96		SHURE		
. 50 . 60C . 75N . 100N . 125	156.48 208.33		VA300S	135.60	
. 100N	208.33 268.51		VA300S VA301S VA302E-C	98.40 393.01	
. 140	200.51			163.80	
ORANGE			Vocal Blender	163.80 208.33 128.70	
CELE CONTAMVERC			Vocal Blender PA100 AP100	111.06	
101 R 15ch.ster.	946.65			111.06 111.06 71.99	
SELF-CONT.MIXERS 101 R 15ch.ster. 104 A 6ch.pro.	181 06		Hammond Rev Mixer T.S.L. Slave PA Bin 2×12 Cols 1×12 Horn Cols	87.96 157.31	
A. AMPS.			PA Bin	157.31 153.47	
04 B6ch, 120w	265.75	85—125	1×12 Horn Cols	125.00	
P.A. AMPS. 104 B5ch.120w 105 6ch.25w 102 120w	472.94 147.30		All I Orpoaeoo	153.47 125.00 92.13 143.52 172.92	
02, 00 0044611	139.80		Super AP200	172.92	
LAVEAMPS			Super AP200 Super 200PA J.B. 4 Box	196.30	
6LAVE AMPS 103 250w 11 120w, 11/80 80w RMS 103T 200w.trns.	327.44 134.69 124.80	60—85	GE100 Amp. 2×12 Cab 2×12 Horn Cab 1×15 Horn Cab	152.47	
11/80 80w RMS	124.80	00-00	2×12 Cab 2×12 Horn Cab	78.66 87.96 73.61	
03T 200w.trns.	196.94		1×15 Horn Cab	73.61	
MPLIFIERS	00465		R.S.D.		
10/250w 12/120 120w 12/80 80w	364.80 141.42 134.69	65—100	MIXER CONSOLES		
12/80 80w	134.69	100	16 ch. 20 ch.	1600.00 1600.00 114.81	
			20 ch. 3 way X/over	114.81	

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	SINGLE 800/EQUAL 8000 900, Part II SINGLE 800. Base 800, Part II AMPS. Bose 1800 Prof. BOOSEY & HALANEY AMP'N. L80 L100 L4 12 8120 L4 12 8120 L60 PA amp. L100 PA amp. L100 PA amp. L100 PA amp. L100 PA mp. L100	222.50 167.50 550.00 4WKES 122.45 134.86 148.79 153.47 122.45 156.56 295.18 295.18 295.18 58.33	50-80 65-95	Horn cab 2×12 col.100w. Pr. 6×10 col. 150w Pr. 6×10 col. 150w Pr. 50ULBS TATE 50w L&B 100w L&B 50w PA 100w Mst. PA 100w Siv. 250w Siv. 250w Siv. 250w Combo Amp CELESTION SPEAKR G12 M25W G15 M50W G15 M50W G16 Twin Cane 50W MAXMIN CABS 210 50W 410 100w 212 100w 152 100w 153 100w 155 100w 155 100w 156 100w 157	81.57 156.57 127.87 118.84 127.57 118.84 127.57 118.64 153.50 191.60 257.41 173.05 15.33 18.28 22.98 41.23 5.49 25.07	1013 PAGOS 83 1015 B200 225 1018 RH200 225 1022 S 20 155 IBINSON SALES) SPK R. CABS. VLT. REGS 30w Cet. 166 120w Cot. 253 60w Cet. 126 100w Cot. 215 60w Cot. 149 80w Cot. 149 80w Cot. 149	.54 .50 .00 .00 .00 .03 .03 .03 .03 .00 .00 .0	AMPS. 1/C 100 ld/bs.crg. nw/rev 100w 1/C 100-S od/bs.crg. 100-S od/bs.crg. 100-W P.A. AMPS. MA100 5 ch./rev. 300w MA100-S 5ch.100w S130 sl.amp 120w P.A. SPKRS. 2120C 2×12"100w 4120C 4×12"col. 160w UNIT P.A. SYSTEMS 50w radial hora 115bs.compact 1×15" 100w COMBINATION AMP! 1/C100,Twin Rev. Tremelo + Sustain 75/100w 1/C100-S.Sustain 75/100w	111.60 7 138.72 90 119.34 88.90 6 92.54 139.50 99.20 100.75	8—110 70—96 9—120 60—80	LG 100 PA cab. LG 60 PA cab. Flight cs. Vitg. reg. 180w amp Rack Studio Lem Mxr. Baby Lem mxr/amp Pro. Lem mxr. Saturn GR50 tp. Mars GR30 combo Venus G20 combo Venus G20 combo LESLIE SPEAK	120.00 255.00 365.74 393.52 461.11 393.52 461.11 449.07	COMBINATION AMPS 115 80w 115 R 80w/rev. 115 R 80w/rev. 115 R 120R 120w/rev. 115/120 120w 115/120 120w/rev. 125 50w twn. CABINETS 114 115 60w 113 /200 2×15 200w 103 4×12 minl 120w 109 4×12 minl 120w 109 4×12 minl 120w 109 /200 4×12 amin 200w 109 /200 4×12 amin 200w 107 2×12 minl 20w 107 /2H 2×12 127/2H 1×15 126 6×12 180w 114/4H 1×15 P.A. SYSTEMS 107/2×12 60w 107/2H 2×12 127/2H 2×12 128 8×10 120w 114/4H 1×15 P.A. SYSTEMS 107/2×12 60w 107/2H 2×12 127/2H 2×12	203.84 244.65 259.50 300.30 264.75 162.25 214.19 214.19 285.44 145.04 180.19 144.95 50—90 89.25 148.25 140.75 195.23 184.25 180.75 189.25 148.44	SPKR. ENCLOSURIES 215 FHG2x15" 400w 115 FHG1x15" 200w 212 DH2x12 300w 212 FHM2x12 350w 212 FHM2x12 350w 210 DH2x10 200w 2110 DH2x10 200w 212 M300w HORNM/RANGE & H.J 150 LT 200w 200 M 200w 2189 M 80w 100 R 50w AMPS. 300 R 600w 1600 R 1600w 1600 R 1600 Selv. SA280 S 2×80 Ster.slv. SA150 S slv. SA60S	225.00 225.00 225.00 225.00 325.00 325.00 325.00 325.00 300.00 130.00 374.07 750.00 114.81
	9868 25 w. 9868 25 w. AMPEG VT40 60 w.vl. VT22 100 w.vi. G2 12 120 w. s/s G4 10 120 w. s/s H5 18 10 w.s H5 18 50 w.vl. H10 VI 18 18 18 10 w.s H10 VI 18 18 18 10 w.s H10 VI 18 18 18 18 18 18 18 18 18 18 18 18 18	74.02 268.19 412.00 318.00 359.00 3318.40 340.92 268.19 336.81 331.84 340.92 268.19 336.81 318.43 340.92 268.14 420.39 130.19 177.31 197.31 230.69 545.35 ERS 496.00 573.00 687.00 31.00 38.75 MIXERS 2860.00 1700.00 144.00 123.00 163.00 163.00 1163.00 1163.00 1163.00 1163.00	45—65 65—95 45.95 75—100	152 100w.Bin 100w.Combo.Amp196. J.T. COPPOCK ELGEN 100w Id. 100w bs. 100w ster. 100w ster. 100w ster. 100w ster. 100w pA. 1150w PA. 1150w 1150w PA.	116.87 91 115.27 55—85 115.27 115.27 116.27 104.52 119.90 80.09 90.09 159.25 137.07 194.44 165.74 166.55 155—95 146.29 155–95 146.29 155–95 146.29 155–95 146.29 155–95 146.29 155–95 146.29 155–95 177.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 172.30 173.40 173.41 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 177.31 1	60w Cor. 149 100w Col. 182 AMPLIFIERS 50w ster. 185 50w ster. 185 100w ster. 293 50w ster.trans. 291 100w.ster.trans. 318 6 Cha.Mx. 210 6 Cha.Mx. 187 4 Cha. PA Mx. 234 4 Cha. PA Mx. 234 4 Cha. PA Mx. 262 8 Ha. PA Mx. 275 100w Stv. 161 100w Comb. 336 100w Comb. 336 100w Comb. 336 100w Comb. 365 100w Stv. 685 100w Comb. 686 686 F.A.L. Minstrel 24 Massiro 45 Name Col. Mx. 659 200w Cha.Mx. 659	000 000 000 000 000 000 000 000 000 00	1/C100-S.Sustain 75/100-W MSTRUMENT SPKRS 412BL,kdbs.org. 4 ×12-7, 200w 215BL,ldr.bs.org. Twin ported reflex enclosure. 200w HOHNER AMPLIFIERS GA2 GA3 GA0R GB012B GB012B GB012B GB012B 1500B 1	155.00 166.86 31.81 35.83 75.97 98.06 71.85 83.47 119.44 60.19 59.26 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.47 63.57 63.47 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57 63.57		700 710 770 18 60 825 760	449.07 412.04 498.15 461.11 209.60 365.74 342.59 461.11 625.00 1106.48 75.00 69.44 41.67 53.70 120.00 150.00 150.00 120.00 150.00 135.00 145.00 32.85 208.52 166.00 240.00 440.00 440.00 440.00 440.00 440.00 440.00 65.00 65.00 65.00 65.00 65.00 60.00 90.00 100.00 75.00 90.00 100.00 75.00 90.00 1150.00	127/2H 2×12 128 8×10 120w 114/4H 1×15 124 1×12 REVERB 116 PA : CE Sch. Min. Amp./ Graphic Equal. F.P.R. Slave 200w. F.P.R. Slave 200w. Stereo 5-way G/Equal. 10-way Parametric Equal. 12ch.Mix. Desk Bass Bins Radial + Sectional Horns Twin Rev.Unit Phase Unit, Stan. Stan. Mono. Phase Unit, Stan. Ster. D/Ix. Electronic X/overs. B.L. PAGE DYNACORD Echochord Min Magic HS D350 80w cab. D310H 80w cab. A1000 Gigant II Gigant Eminent II Eminent	140,94 164,25 164,25 254,55 84,50 75,00 200,00 118,00 192,00 80,00 2250,00 120,00 120,00 120,00 120,00 120,00 180,00 120,00 180,00 180,00 180,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00 243,00		67.50 75.00 75.00 184.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 115.00 117.7.5 115.65 115.67 73.70 115.65 115.67 115.68 115.74 115.98 115.98 115.98 115.98 115.99 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.09 117.0
5	c 15			Mxr.12 Echo F , Mxr. 12 +5	420.00 992.00	\$508 593 \$607 549 \$608 693 \$44000 1995	.00 .00	P.A. P.A.100 2×12 cel/hern 2×12 cel.	148.00 109.00 90.00		JACK BAY Wood Cab	40.00 2.00 40.00	115S 610M 610S 412S 312S	466.67 200.00 238.69 200.00	Heed only SG8 12 Col.Half PA 2×12 Spkr.	328.70 81.94

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នី Sound Equipment / Keyboards

3 .	Percussion-		-Guitars									·						
٦,	Soundventure 24" Wd-F/gls.	362.96			1	MIAMI FT1	25.35	S/H	N.175 N.28	30.08 32.27	KASUGA ACOUSTIC	25.00	ACOUSTICS AVATION		S/H	ES-345 TD- ES-356 TD-SV ES-335 TD	402.78 532.41	150—240
	Soundventure 24" Wd-F/gls.Satin	384.26				FT2 FT1-8s.	29.83 32.69		N.28 N.29 N.81	30.90 41.67	G200 F140	35.19 95.37		163.63 227.28		ES-335 TD ES-325 TD	323.15 263.89	145—180 ⁻
	Soundventure 24" F/gls.	449.07				KLIRA			N.109 N.74 + Case	40.16 54.81 76.20	D200 T250	33.33 42.59	GI.Cambl-Art.12str.	209.09 254.54		LES PAUL		
	Soundventure 24" F/gts.Setin	449.07				Westbury 310 Elec.	64.79 59.93		N.75 + Case N.76 + Case	76.20 87.59	D350	62.96	Fofklore Cts.Bal'dr.	209.09. 163.64		Recording Truimph bs.	369.44 348.15	220310
Į	Soundventure 24"	393.53	ARC		S/H	360 Bs. Blue Hill 6	68.19 58.78		KIMBARA ACQUISTIC		TERADA G306	37.75	Art.Elec. Country Elec.	.236.36 236.36		Custom De Luxé	379.63 308.33	210—280 180—260
- 1	Soundventure 24"	412.04	ELECT.SLD.BDY.	100 90	Q/11	Blue Hill 12 SM6 Solid	62.17 80.13		N.30 Flk. N.71 Jbo.	27.73 33.58	G307 G310	44.18 50.53	SHAFTES,WESTERNS			Sgnture. Sgnture.bs.	341.67 330.56	
]	Rock Kit 24"	333.33	Swede bs.	166.80 176.36		SM9 Solid SM19 Bs.	90.57 97.17		N.72 Jbo:12str. N.73 Jbo.	35.65 43.98	FW613 JW836	52.91. 97.06	Jbo.	97.26 114.57		Special:Ltd. Edit	277.31	
	Rock Kit 24" Serin Rock Kit 24"	347.22	F.200.N F.400.Nbs.	101.83 101.83		355 Bs. 149 Classic	75.86 27.61		N.107-Jbo.12str. N.109-Jbo.	46.06 48.10	KASUGA ELECTRIC (N		Jbo. Jbo.	130.03 147.30		GIBSON SOLID Cust. W/nt	360.19	
- 1	Wd-F/gls. Rock Kit 24"	333.33	F:100.B. SEMI-ACOUSTIC	65.78		GUYATONE STEEL			N.95 Jbo/cs. N.96 Jbo/cs.	87.64 87.64	SG360 PB420	97.22 95.37	Jbo. 6 str. Jbo.	163,67 29,44		Std.Cherry Sp. Cherry	249.07 227.31	
ı	Wd-F/gls Satin Rock Kit 24"	347.22	V.(N. Jirnmy D'Aquisto	122.20 P.O.A.		HG91 HG306	20.66 65.62		KIMBARA ELECTRIC		LG380 B SE460 S	97.22 99.07	12 str. Jbo.	36.82		L5-So/ft.ch. L6-Sb/k.	546.30 267.59	
-	F/gls. Rock Kit 24"	370.00	COUNTRY & WESTERN			HG188 C	85.71		N.114 S N.116 S	83.28 83.28	E8750 LG770 V	130.56 135.18	SIGMA D'ngi, Jbo.	51.39		L6-S d/f.blk. Marauder	193.51 184.25	
	F/gls. Satin Rock Kit 24"	393,52	H.45-6str.jbo. H.33-12str.jbo.	72.06 77.57		CMI Custom B	109.95		N.116 S N.117 S	83.28 03.28 83.28	SG1800 V LG2000 V	159.26 208.33	Grd.Conc.Flk. Grd.Conc.Flk.	42.73 56.36		MSA PEDAL STEEL		
- 1	N.P.Phen. Rock Kit 24"	337.96	CLASSIC	77.07		Custom 4 Safisbury	122.76 109.95		N.118 S N.119 S	73.10 91.11	ZENTA ELECTRICS		D'ngt Cls.	68.20 69.75		CS-10 Side Kick	907.40 369.44	
- 1	N.P.Phen. Satin Powermate 22"	372.22	H.C.4 H.C.5	43.10 32.64		SG2 S SG10 B	42.05 41.06		N.120 S N.121	91.11 98.86	FT1 ME20 TS	22.22 36.11	Cls.	62.73		Red Barron	268.05	
	Wd-F/gls. Powermate 22"	293.52	DYNELECTRON	44.44		ST300	64,42		50.4440		ZENTA ELECTRIC (NEW		EKO C & W Rio Bravo	52.78		HOFNER HS4580d.c/wy.	121.06	İ
- 1	Wd-F/gls Setin Powermate 22"	309.26	273 274 bs.	151.67 151.67		HASHIMOTO CLASSIC G100	38.72		FRAMUS		EG501 EG502	21.76 24.07	Rio Bravo 12 str. Ranger	58.33 36.99		Congress Art. Elec. Stl.	50.92 59.49	
Ì	F/gls. Powermate 22"	242.59	285 bs.f/ls:	151.67		G190 G160 G200	44,18 51,41		CLASSIC 01010	50.92	EG511 HEG6001	24.54 31.48	Ranger Elec. Renger 12 str.	44.20 43.19		Std. Efec. Stl. HS-174	46.11 148.61	
	F/gis. Satin Powermate 22"	358.33	PEARL PF.200 file	41.31		G200 G250	57.79 68.68		01210 01510	69.44 137.96	HET5001 HES5000	31,48 32,41	Ranger 12 st.elec. Ranger filk.	48.31 27.04		HS-164 V Galaxie	80.09 124.07	
Į	N.P.Phen. Powermate 22"	314.81	PF.250/6 jbo. PF.250/12 jbo.	49.20 51.96					WESTERN 6 STRING		HEGB50004 HEP5002	36.10 40.74	Colorado fik. Stad. L fik.	15.47 15.19		BASS HS-185 Art.	95.37	
	N.P.Phen.Setin Image-Creator 22"	330.56 288.33	FT.165 jba.	54.13		J.T. COPPOCK			05011 Dix 6 05810 Falcon	66.66	KEAADI E		Navajo Navajo 12 str.	26.81 31.44		HS-182	95.37 95.41 104.16	
l	Image-Creator 22" Satin	273.15	DANA R,30 T/pc.	8.23				150-400	D/nght 05550 Falcon	118.51	KEMBLE		Sombrero 6 Sombrero 12	43.63 50.37		Bass Prof.	68.51	
ŀ		258.33	R.105 F.33 flk	10.67 18.56	i		163.89	150-400	Jumbo 05710 Nasv.	147.22	CLASSICS G.55	30.37	El Dorado 8 str.jbo. El Dorado 12	73.47 82.07		JUMBO FLATTOPS Western 6 str.	77.31	
Ī		273.15	SCDB.			NATIONAL DOBRO ·	263.68	180—400 150—400	D/nght .05910 Nashv.	180.55	G.65 G.90	33.82 36.44	El Gaucho Studio R-M	82.54 20.46		Western 12 str. Wst. Elec. Ac.	82.87 96.29	
	Image-Creator 22" F/els.	288.89	SCDBR L/scl.bs.	200.06 250.00 225.00			231.48 175.00	150-400	Jumbo WESTERN 12 STRING	205.00	G.120 G.150	41,46 46,36	ARIA C & W Shafi, Resonator	21,25		Blue Grass 6str. Blue Grass 12 str.	71.98 77.77	i
	Image-Creator 22" F/gls. Satin	302.78	\$/scl.bs.	225.00		HAWAIIAN	21.75		06011 Dix 12 06810 Falcon	76.36	G.180 G.220 G.280	55.86 68.01	ACOUSTIC	21.25		Arizona Beir. Arizona 12 str.	54.62 58.56	
	Dyna-Max 22" Dyna-Max 22" Satin	177.76 194.44	JOHN BIRCH			2390 Gtr. 2391 O/fit	42.61		D/nght	126.70	GC 3 H/made GC 6 H/made	83.61 100.00 144.54	Kansas 6 str. 16-11 6 str.	7.91 6.73		YAMAHA-FOLK	00.00	
ı	Thunder King 22"	205.56	SCD'JD. SCDR	240.00		ANTORIA CLASSICAL 361	30.09		SOLID BODY 10170 FS/74	78.70	GC 10 H/made	196.37	CLASSICS	V.70		FG 75 GFG 110	36.73 39.50	
Į	Setin 8 Brothers Concert	277.78	SCOL	230.00 220.00	90—130 95—145	RAZ	31.02		10200 5/155 11010 Nashv.	127.77	FOLK CG 76	35.73	SUZUKI			FG 150 FG 170	42.58 50.15	
	TT./Stands 8 Brothers Concert, TT./Stands	300.93	SCOP.DAO SCOP.DAO SCOP.DAO	203.70 350.00 350.00	95-145	ANTORIA CONCERT 2039	39.35		Sten. 11110 Nashv.	165.74	FG.76 FG.11 ON FG.150	39.51 42.58	3055 3065	59.07 22.70		JUMBO FLATTOPS		
	PROF. SNARE DRUMS		SCDB .	206.06 220.00	i	2840 2841	45.37 47.22		Stan.D/tx 11210 Nashv.	230.55	FG.160 Jumbo FG.170	49.04 50.16	3067 Mati. 3068	22.70 26.81 35.44		FG 150 FG 200	49.03 61.11	20—35
ı	Custom Metal 5"×14" Custom Brass5"×14"	27.78	SVL SVL-sh.sig.	200.00 220.00	125—160	2850 2851	39.81 49.07		Super D/lx 10980 Jan Akkerman	368.51 506.33	FG.200 N Jumbo FG.260 Jumbo	61.11 71.01	3069 3070 h/made	44.56 84.56		FG 280 12-str. FG 280	71.00 72.20	35-60
-	Custom Brass61/2"×14"	′ 50.93	SNCL SCOLX	200.06 230.00		2855 2858 slo.grd.	53.70 94.44		SOLID BODY BASSES		FG.280 Jumbo FG.300 N Jambo	72.20 95.80	3071 h/made	139.11		FG 300 FG 360 FG 580	95.79 101.85 123.79	35-60
ŀ	MAXWIN DRUM OUTF Stage-705 22"	152.78		WWCO		F2671 Flimco.	94.44		12002 J/156.2 12510 Neshv.	85.18	FG. 360 Jumbo FG. 580	101.85 123.80	ALHAMBRA (SPANISH 3087	17.20 21.80		CLASSIC	123.79	
ļ		134,26 119,44	BOOSEY & HA	IWAES		TAMA 3561 S 3560 S	120.83 133.33		Stan. 12610 Nashv. Stan, D/lx	165.74 230.55	FG. 1500 H/made FG. 2000 H/made	318.18 362.13	3086 3089 3090	30.45 72.68		G 55 G 65	30.37 33.82	
	Studio/503 20"	73.15	ANGELICA CLASSICS 2841 small	10.18		3557 S	98.15 119.91		12980 Triumph Bass	239.81	FOLK & PICK UP FG. 110 E	49.09	STUDENT CLASSICS	72.00		G 90 G 120	36.44 41.46	
	MAXWIN SNARE DRUI 5"×14" 124/Cymbal 5½"×14"Metal	22.00 18.52	2642 2651	11.57 14.68 21.25		3550 P Grd.	86.11		SEMI-ACCOUSTIC 07301 5/120	200.92	FG. 160 E	60.00	3057 Dulcet- 3068 Constants	12.59 8.29		G 150 G 180	46.36 55.86	
ŀ	5%"×14" Wood 8 tension	16.67	2952 ANGELICA JUMBO &	21.25		3550 S Grd. concert	68.69		JAZZ		SEMI ACOUSTIC	78.17	1			G 220 G 280	68.00 83.63	
	6%"×14" Wood 6 tension.	14.35	12 STRING 2845	27.73		YAMAKI			03302 5/60 13503 AZ/10	137.03 362.96	SA. 30 SA. 60 SA. 90	175.60 221.21	ROSETTI			HAND-MADE CLASSI	cs	
	SIMMS-WATTS		2846 2848	31.44 24.54		.225 12 str.jbo. 220 12 str.jbo.	93.51 83.60		STEELS		SA. 75 Bass	183.84	EPIPHONE FT 145 E fk.	50.93		GC-3 GC-6	100.00 144.53	
	ASBA METAL		2849	28.95		215 12 str. bo. 120 6 str.jbo	75.46 81.02		14470 0/4 14670 FS/1000	69.44	SOLIDS SG, 30 SG, 35	77.35	FT 150 6 fk. FT 166 E 12 s.fk.	74.03 83.29	30—45	GC-10 SAXON CLASSICS	196.36	
	24×14 Bass 22×14 Bass	135.93 135.93	ANGELICA ELECTRIC · 2873	58.29		115 6 str.jba. 112 6 str.lk.	62.9 6 43.51		Single 14570 FS/2000	703.70	SG. 35 SG. 40 SG. 45	93.64 104.54	EC 20 cls. FT 130 E fk.	41.20 39.77	18-30	810	18.05 27.54	
	20×14 Bass 14×9 Tom	135.93 82.41	2874	69.44		ANTORIA			Double	924.07	t SG. 85	109.10 160.69	FT 135 E fk. EA 260 E bs.	67.55 87.96		813 814	30.46	
	13×9 Tom 16×16 Tom	82.41 130.00	LA MANCHA 2890	38.75		756 Herald 757 GLWstn.Std.	74.54 58.33		G.M.S. PICATO)	SB. 35 Bass SBL. 55	93.64 136.37 159.09	EA 250 E Elec. ET 278 Elec. ET 280 E Elec.	83.29 78.70 64.77		815 816	38.66 44.44	
	12×8 Tom GLASS	82.41	2891 2692	49.95 75.88 83.29		758 Gt.Wsin. Art.Jbo. 695 N'shvil. 6	103.70 40.28		ELECTRIC ES 77 Fine day	2 22	SBL, 75 ACOUSTIC ELEC.	109.09	L ET 275 Flac.	78.70 89.96		FOLK · B12	26.00	
ŀ	24×14 Bass 22×14 Bass	135.93 135.93	2893 DI GIORGIO	83.29		697 D'ngL 357 Fk.	69.44 37.96		E\$77 Fine gau. UL77 R'N.R.G. .77 L.G.	2.32 .247 2.47 2.78	AF. 11	136.36	ET 285 bs. ET 270 E Elec. FT 335 fk.	64.77 64.77		817 818	32.40 36.57	
Į	20x14 Bass 14x9 Tom	135.93 82.41	No 16 No 18	32.90 32.90		62 8'co Fk. 627 LI/h	32.87 47.22		P760 Med.G.	2.78	AE iā	200.33 263.02	FT 350 fk. FT 365 fk.	78.66 87.96		JUMBO PLATTOPS		
	13×9 Tom 16×16 Tom	92.41 130.00	No 28 No 36	41.20 62.00	İ	627 B'ca jbo. 627/12 B'cojbo.	40.74 46.15		ELECT,BASS. 735 L And Long	6.97	VOR MAIRAN		L FT 550 fk.	106.48 115.74		819 820	35.18 36.94	
	WOOD 14×14 Bass	135.93	No 30	48.60		79 Calif.fk. 629 Calif ibo.	34.72 47.22		735 M Rnd.Med. 736 L Ny.Long	6.97 6.97	MARTIN D-18	S/H 217.59	FT 570 BL fk.	62.03 97.22		821 822 12 str.	37.87 39.35	
	22×14 Bass 20×14 Bass	135.93 135.92	TAKEHARU GT 230A smail	49.00	1	629/12 Calif.jbo. 684/6 L I/h	53.70 53.70		736 M Ny. Med. 738 L Fit. Long	6.97 6.97	D-28 D-35	277.78 305.56 180—350	EC 24 cfs. EB 98 Bjo. o/1	56.94 116.74		823 624 825	38.79 53.70	
	13×9 Tom 12×8 Tom	82.40 ° 82.40	GT 308 small GT 86	49.00 32.30 37.00		684/6 Sup.jbo. 648/12Sup.jbo.	50.00 56.94		738 M Flt. Med.	6.97	D12-28 D16-NY	300.93 165—300 226.85 95—150	EM 50 Mando	50.93		BYD	58.10	
ļ	14×14 Tom 16×16 Tom	96.25 130.00	GT 120 GT 180	37.00 49.00		693 Gnt.Jm.d/J 696 Gnt.Jm.	52.78 50.00				D-41 + case OO-21 + case	509.26 305.56	1					
ļ									1		I					ļ		

| SNARES 14-6 Wood 116,25 14-6 Metal 116 25 14-6 Gless 116.26 STANDS Hi-Hat Snare 24.07 CONGA / BONGO Tumbador Twin Congas 162,04 Ounto 91,07 Pedal 12,73 Bongos 53,61 ZILDJIAN CYMB 10° Crash 19,21 13° Hi-Hat 21,75 14° Hi-Hat 21,75 14° Hi-Hat 21,75 14° Hi-Hat 21,75 18° Hi-Hat 20,72 18° Crash/Ride 20° 46,25 22° 55,46 TOSCO CYMB. 14° Hi-Hat 17,55 18° Crash/Ride 21,25 22,28 SUMMERFIELD CYMBALS 034 14° 8,32 040 18° 12,95 045 18° 15,73 050 20° 19,44 155 22° 268 20° 29,59 4066 TOSCO CYMB. 14,81 15,74 16° 17,75 16° 17,75 16° 16,73 16° 16° 17,75 16° 16,73 16° 16° 17,75 16° 16,73 16° 16,73 16° 16° 17,75 16° 16,73 17,70 1805 Tame o/ft 14,181 181 181 181 181 181 181 181 181 181 | WT 100 jumbo | 698 MGt Wst.bs 71.76 698 Gt.Wst.bs 71.76 698 Gt.Wst.bs 61.57 698 E.Gt.Wst.Elec. 72.68 698 E.Gt.Wst.Elec. 72.68 2374 sem-Ac.td 72.70 1752 /45/mstr.bs 32.75 1752 /45/mstr.bs 33.35 176 1776 /7 mstr.bs 32.35 1776 J. mstr.bs 47.22 1795 /45/mstr.bs 47.22 1795 /45/mstr.bs 47.22 1296 Cpr.l/.Day bs 47.22 1296 Cpr.l/.Day bs 47.22 1296 Memphisctmd/1 12376 Dokel/ba bs 98.15 12375 Ash 118.98 12375 N Rock mn 99.81 18.98 2375 N Rock mn 99.74 2375 W Rock mn 99.74 2375 Rock mn 90.74 ACOUSTIC 727 (Ib. 2.37 P12 12 str. 3.89 CLASSIC T6 Grind, Nyl. 1.86 HOHNER ECONOMY 500 6.89 MUSIMA 1612 N 13.56 1612 S 13.24 RESONATA 730 class. 16.43 731 class. 13.14 RESONATA 730 class. 16.43 731 class. 22.73 MORIDAIRA 641 class. 20.83 842 class. 24.86 843 class. 24.86 843 class. 50.46 844 class. 50.46 845 class. 50.46 846 class. 50.46 847 Jbo. 41.67 846 Jbo. 47. 54.30 856 F303 Fk. 46.57 866 F303 Fk. 46.57 867 F303 Fk. 46.57 868 F303 Fk. 46.57 868 F303 Fk. 46.57 868 F303 Fk. 46.57 869 F303 Fk. 46.57 861 H300 24.95 H1150 24.95 H1150 24.95 H1150 24.95 H1150 Jbo. 31.94 H1151 Jbo. 31.94 H1152 Jbr. 31.94 H1152 Jbr. 31.94 H1152 Jbr. 31.94 H1153 Jbr. 31.94 H1154 Jbr. 31.94 H1155 Jbr. 31.94 H1155 Jbr. 31.94 H1155 Jbr. 31.94 H1150 Jbr. 31.94 H1150 Jbr. 31.94 H1150 Jbr. 31.94 H1150 Jbr. 31.94 H1150 Jbr. 31.94 H1150 Jbr. 31.94 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7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No. 7 No | EROS 9578 Elec 9578 Elec 9578 Elec 9578 Elec 9585 bs. 66 67 9586 bs. 96 67 9586 bs. 96 67 9586 bs. 96 67 9586 bs. 9353 ft. elec. 32.41 93550 ft./s ft. 32.41 93550 ft./s ft. 32.41 9356 ft./s ft. 32.95 9351 ft. 925 40.74 9356 ft./s ft. 32.96 9567 8/selec. 61.11 EROS MK II SOLIDS 9711 6/s 9712 6/s 9712 6/s 9712 6/s 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9713 bs. 46.25 9864 Cls. 10.18 9564 Cls. 10.8 9564 Cls. 10.8 9564 Cls. 32.96 9564 Cls. 32.96 9560 Cls. 32.96 9560 Cls. 32.96 9560 Cls. 32.96 9560 Cls. 34.72 9560 Tk. 41.67 ROSETTI RAVER Elec. 30.23 Raver Elec. 30.23 Raver bs. 23.15 TATRA 9198 Cls. 20.36 H-Spt.Nyl 11.31 H-Spt.Stl. 10.38 LANDOLA 9700/23 Cls. 13.84 9701/71 ft. 31.76 9702/76 Jbo. 28.94 9703/72 Lg. Jbo. 37.73 9704/73 1Z/s 41.34 KOYOTO K9768 Jbo. 28.94 9703/72 Lg. Jbo. 37.73 9704/73 1Z/s 41.34 KOYOTO K9768 Jbo. 28.94 9703/72 Lg. Jbo. 37.73 9704/73 1Z/s 41.34 KOYOTO K9768 Ft. 28.19 19767 Cls. 24.07 K9768 Ft. 28.19 19767 Cls. 24.07 K9768 Ft. 28.19 19767 Cls. 30.46 19770 Cls. 40.98 PEREZ CLASSIC. 956.33 H-Sper Freetless 13.55 H-Spt.Nyl 10.5—150 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 150 LS. 1 | SOLID 830 Elec. 50.92 831 Elec. 50.92 831 Elec. 50.92 SIMMS-WATTS DYNELECTRON 273 119.35 274 Bs. 119.35 274 Bs. 119.35 285 Bs. L/Is. 119.35 SUMMERFIELD BANEZ & CMARICLAS. 304 23.14 300 25.46 361 30.09 362 32.97 363 35.64 38.42 370 43.94 17AK.2 47 66 H.TAMURA H/MD.COND H.TAMURA H/MD.COND H.TAMURA H/MD.COND M25 89.35 M30 106.48 M30 106.48 M40 129.62 M50 152.77 M.TAMURAH/MD.CONC. P7DO 194.44 P800 231.48 P800 231.49 P800 347.22 KOHNO H/MD.CONC. MK 10 347.22 KOHNO H/MD.CONC. MK 10 347.22 KOHNO H/MD.CONC. 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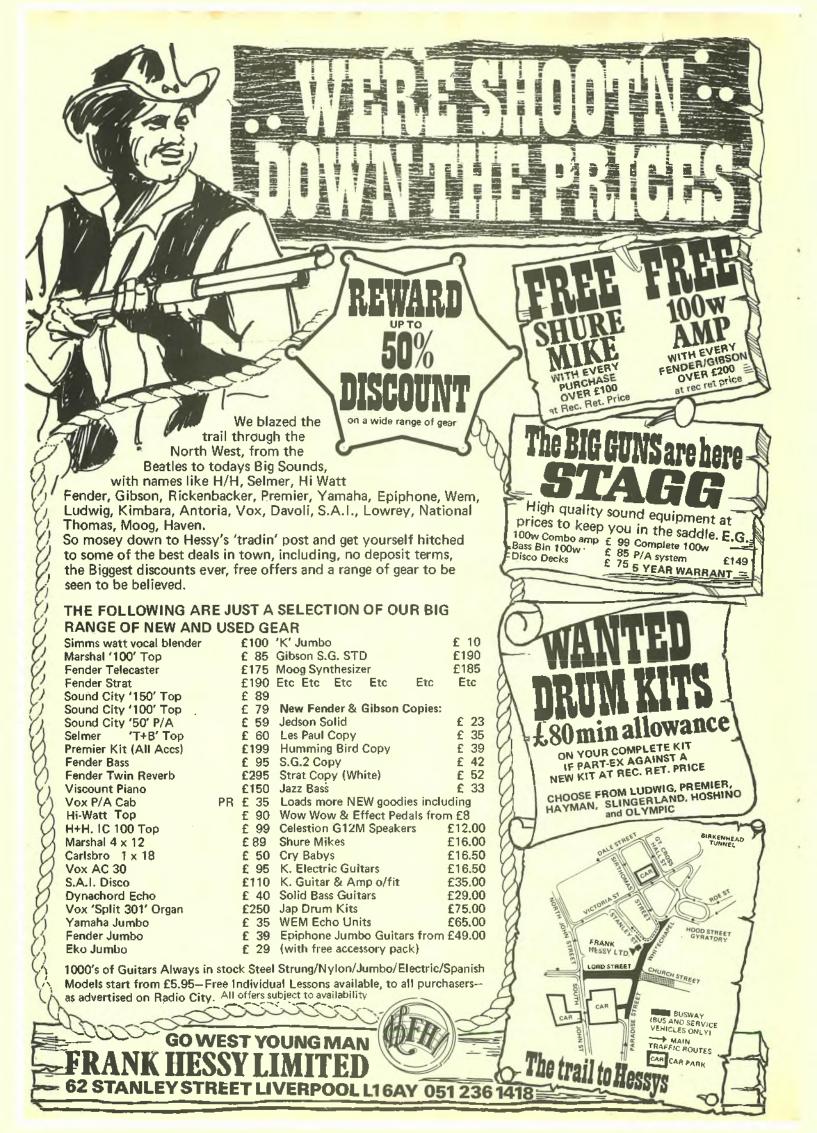
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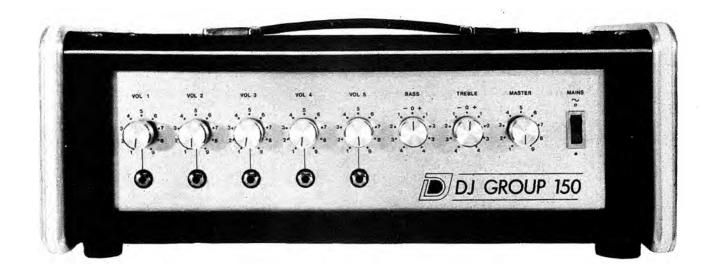
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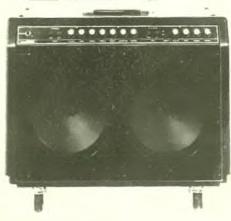
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