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EDITORIAL

ongratulations to Messrs. Vitavox. Not only do they produce high quality PA gear, they also sponsor a very enterprising competition for rock bands. Just before this issue of IM went to press, the finals of the 1979 Vitavox Live Sound Award were held at The Venue in London. Your humble editor was a member of the judging panel (he sat next to Tina Charles and hasn't stopped talking about it) and can vouch for the impressively high standard of the finalists. The winners were Paradox, a solid four-piece from Solihull, but the other bands were so good that they all deserve a mention: The Zips from Glasgow, Plain Characters from London and Speed Limit from Alcester, Warwicks. Well done, lads, especially the lucky winners, who receive £1,500-worth of equipment and a day of studio time as their prize, And well done Vitavox for all the effort and energy that goes into organising a nationwide competition. It's nice to see a company that makes money out of music putting something back into it. Other manufacturers. please note.



Parados







Vol. 5 No. 6 JUNE 1979 (UK) JULY 1979 (USA)

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Old v. New

I have just read the May issue of IM and was particularly interested in the interviews with Steve Stills and Paul Weller. If anything reflects the difference between good British New Wave and self-indulgent old American superstars then it was these two interviews.

It really makes me sick to read about Stills' huge guitar collection, the majority of which just sit at home gathering dust, and hearing him drop all the obligatory superstar names - "Jimi, Eric, etc." I admit that he's made some good records, but honestly has he done anything even vaguely exciting over the last five years?

On the other hand it was great to hear Paul Weller talking about how important image is and admitting that he first bought a Rickenbacker because it looked good. Sure, he may end up like Steve Stills in another 10 years, but for now his music is raw and exciting. Isn't that what rock 'n' roll is supposed to be about, not a trip down memory lane with a geriatric guitarist?

My one criticism of an otherwise excellent magazine is that Paul Weller was not on the cover instead of Stills. After all, British is still best.

David Whittle, Newton-le-Willows, Merseyside.

Flash

I am a relative newcomer to IM, having read only the last 18 issues. As you can see, I'm hooked.

Although I haven't many complaints, I would like to make two. One is the lack of info on FX, such as theatrical pyrotechnics (flash powders, smoke and flare effects) and units for detonating them. Stage effects do a lot for bands. We, that is, Gil-Galad. have been using effects such as these since we started and if used sparingly and correctly they can make a gig,

My second complaint is that since I've read IM I've not seen anything about John Birch guitars, which I would like to know more about. I'm the proud owner of a JB Stereo guitar.

Alan Crichton, Loughborough,

Leics.

More pyrotechnics, more John Birch. OK, Next?

More Christians

In a recent Studio of the Month article you travelled to ICC Studios in Eastbourne and mentioned the fact that the Christian music scene has its own record labels, stars, festivals, etc. I was pleased to see that ICC were reviewed favourably, but why not some Christian albums and/or interviews with Christian artists, eg Andrae Crouch, Larry Norman (Cliff Richard does some of his songs and I'll admit that Cliff gets We welcome your comments and criticisms. Write to: Letters, International Musician, Grosvenor House, 141-143 Drury Lane, London WC2B 5TE.

reviewed), Barry McGuire, Michael Omartian, etc. These and many others have good albums on sale in Christian bookshops throughout the land and



from a Christian mag to my attention: According to Melody Maker journalist Brian Case, the reason that the paper does not regularly review Christian rock albums is that they fear it would cause their circulation to nose-dive!

Are we that frightening? If they're worth listening to, they must be worth reviewing, so why not give a few a

> Paul Naylor, Hampton. Middlesex.

Let me in!

A funny thing happened to me on the way to the studio. This is in fact a cleverly disguised plea for help.

OK, so everyone that isn't or hasn't been wants to be a recording engineer. The man with sound control of what he's doing, no less. I'm no exception. Trouble is, I found out a bit late, like, after 26 wonderful years on this planet.

So, armed with qualifications worth the colour of a piece of string, and having read all the relevant info in IM and understood at least five per cent of it, I write off to 99 per cent (yeah, I'm good at arithmetic) of the London studios and sit back awaiting the offers of a lifetime, little realising the expense of a written reply, let alone of cost of a stamp nowadays, still the postman's happy. I get an average of two a week for three weeks (yes - that's six unless you're trish, in which case it's one less than a seven pound note).

Oh, I almost forgot to mention, they were all refusals from a beautifully typed "Dear Sir, etc., etc., yours formally" (CBS) to a lovely compliments slip (I mean that sincerely, folks) "Dear Colin, thanks a bunch, try APRS" (Redwood). APRS write and say "Vacancies? Never heard of 'em!"

And then it happens, a golden phone call, an interview, one week's notice - goodbye microfilm bureau. see you service record, so long big fat paycheck, here comes the good life, long hours and pauper's pay but man, oh man, get on that magical mixing tour and don't look back.

Yesterday I signed on.

One of two redundancies from a firm that hands out cheques issued by The Bank of Dunlop.

Who d'yer get in touch with? "Well the way I see it, Frank" is if somebody would just open that control room door I shall walk through it gratis if necessary (no kidding) just for the opportunity of getting my hands on some of that gleaming machinery.

Anybody wanna play at being God? Colin Hammond, Forest Gate, London E7.

Good books

As an amateur guitar maker, who hopes to turn professional in a couple of years, I would like to bring to the attention of all interested parties an excellent book I've discovered at my local library. It's called Guitars, Music, History, Construction and Players. It's by Tom and Mary Anne >>

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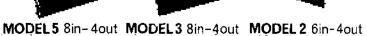


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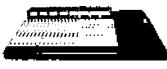




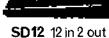








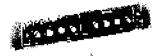




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Letters

Evans and published by Paddington Press Ltd. It traces the history of most types of guitars and gives some eye-opening insights into modern factory construction techniques accompanied by loads of photos of the CF-Martin and Gibson factories, as well as the methods used in hand construction, old and new. The book is very comprehensive with over 470 pages and 600 photos and I feel well worth the price which is a bit expensive at £10.95. Another good book which deals with construction is The Complete Guitar Repair by Hideo Kamimoto (Oak Publications). I just don't know how much this book costs now as I bought it a couple of years ago and the price on the cover is \$6.95 but inflation has probably got in there somewhere so its probably more expensive now.

Now for my last point. I had the opportunity of visiting Stephen Delft at his workshop a couple of months back (I hope I didn't disturb him too much) and he asked me if I could think of anything to improve the mag. Well, on reflection, I think that a few more constructional articles would be welcome and some more of Delft's A few of the Workshop series, addresses of the more obscure wood and specialist hand and power tool suppliers would be most welcome. I hope you can find enough space to fit this lot in one of your editions and any comments from readers and experts alike would be appreciated. Keep up the good work.

John Hoadley, East Ham, London E6.

Canadian capers

Later this year I will be visiting Vancouver, Canada for a holiday, and would like to bring back some type of guitar, probably electric. The reason for this letter is to ask where I can get information that will be helpful to me on this, covering such items as what prices are charged for the usual Gibsons/Fenders, etc. in the pawn shops, how to pack the guitar for air transit, customs procedures and duties, taxes and any paperwork involved. At present I know virtually nothing about these areas, and would be very grateful for any advice that your readers could give me.

David Dailey, Stockport, Cheshire.

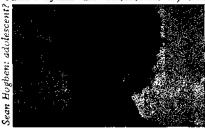
Critic slammed

As a bit of a songwriter myself and an ardent fan of Supertramp, my hackles were raised when I read Sean Hogben's write-up on the new Breakfast in America album (IM May). I would dearly like to know just what sort of lyrics Mr. Hogben wants to hear.

It puzzles (and annoys) me no end

when I hear the endless criticisms of lyrics that people spew forth, ie banal, meaningless, adolescent, etc. What are song lyrics for anyway? Even the "strongest" of lyrics can only ever have a limited meaning to the listener. Take for instance someone like Billy Joel who in my humble opinion writes excellent lyrics. His words are still meaningless drivel to someone who doesn't like Billy Joel records and a lot of those who do like him probably couldn't tell you what half the songs are about anyway - perhaps Boney M can unlock the secrets of the universe for us, but we're all too blind to see it.

Surely it all depends on the opinion of the listener and as to whether he or she wants to get something out of the words or just treat them as a pretty rhyming scheme that fits the music. To come out with a statement that a band's lyrics are adolescent is, well,



meaningless. For all Mr. Hogbenknows, the lads in Supertramp might have torn their souls in two writing them . . .

Perhaps your esteemed critic would like to publish an example of some "ideal" lyrics and then we lesser mortals might be able to see where we are going wrong.

Anon, Bromley, Kent.

"I've got nothing to say, but it's okay, Good morning, Good morning" S.H.

Anniversary addendum

I am a guitar player/teacher and an avid reader of your magazine. I especially like your test columns where you review different instruments. Upon reading the review of the Les Paul Anniversary guitar by Stephen Delft in your Febuary issue. I would like to make a couple of comments about the guitar.

I recently played a Les Paul Anniversary model and, like Mr. Delft's test model, it had excellent feel, sound and sustain. However, there are a couple of things Mr. Delft didn't mention that I found, at least on the one I played.

(1) The volume controls had a very nice even taper from one extreme to the other, but the tone control's effect all took place between 0 and 3. I have found this true on several late model Les Pauls, but I hoped it would be corrected on this one, a higher calibre model. The problem practically renders the tone controls useless

because, between 0 and 3, the tone changes are very abrupt, since all the change takes place in such a small part of a complete rotation.

- (2) The knobs do not have pointers. I don't believe I am being "picky" here. I have a 1952 Les Paul complete with pointers and I find them very handy when presetting the pickup volumes for rhythm and lead, and for mentally recording a certain combination knob setting that I might wish to resume in a later part of a song. Why have a knob with 20 calibrations (ten units, each divided in half) and no pointers? Perhaps care has to be taken when installing pointers that they don't turn and mar the finish, but they used to do that on their cheap models, so why not on this one?
- (3) The first string on the guitar was "dangerously" close to the edge of the fingerboard. The least vibrato sent it over the edge. Perhaps this was just peculiar to the one I was playing and perhaps my vibrato technique is a little wide, but it was something I noticed.
- (4) The binding on this one looked very good and the finish was beautiful. Except for the things that I just mentioned, I fell totally in love with the guitar.

Ken Rambow,
Kalamazoo,
Mich.

Fashion conscious

I totally agree with Eamonn Percival in his review of the latest John Miles album. I, like him, cannot understand why John isn't as hugely successful as he should be.

I have all of his albums and each one is a tribute to the man's incredible talent, whether it be writing, singing or playing. His ability to write great songs in just about any style, eg Highfly, Music and Slow Down, is something of a rarity. However, his efforts do not seem to reap much critical acclaim.

Perhaps the reason for this is that John Miles has simply become unfashionable. But surely fashion is no substitute for talent, and there is still room for down to earth professionalism in music?

Mike Coombes, Cedar Court, Hastings.

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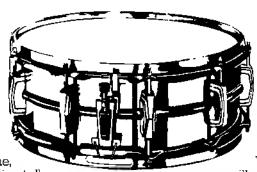
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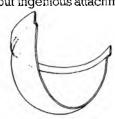
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> Mike Brooks: John King Music of Kingston-on-Thames.

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> Chick Woods and Eric Lindsay of Gig Sounds of Streatham.





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> Tom Ryan and Steve Wheate of Sound Centre - Coventry.

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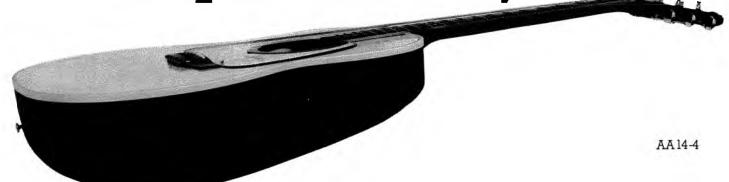
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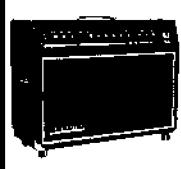


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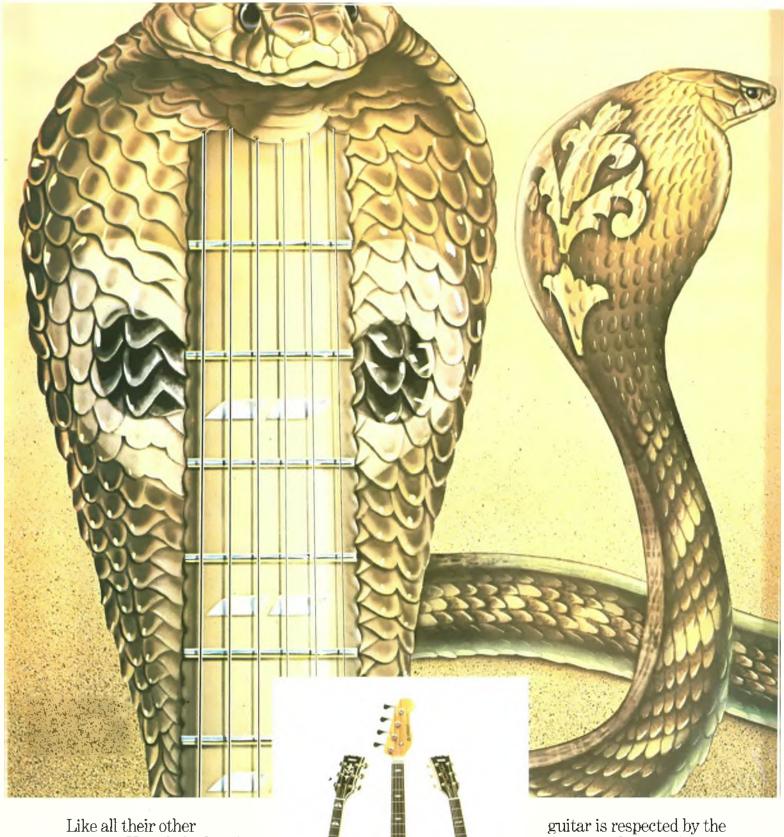


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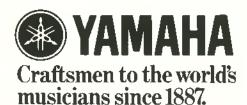
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What's happening in the music biz

Miniature marvel

A quick glance at the Rory Gallagher picture and you could be forgiven for thinking that our Rory is advertising a new brand of cigarettes. Not so, for he is showing off his latest piece of hardware, an amplifier which is just four inches tall and an inch wide.

The amp was designed and custom built for Rory by a West German electronics expert and presented to him by Chrysalis Records Hamburg. Powered by miniature batteries, the unit pumps out eight watts through two tiny twin speakers.

Rory is currently working on new material for a forthcoming album which should be available later this year.

Tractor Music

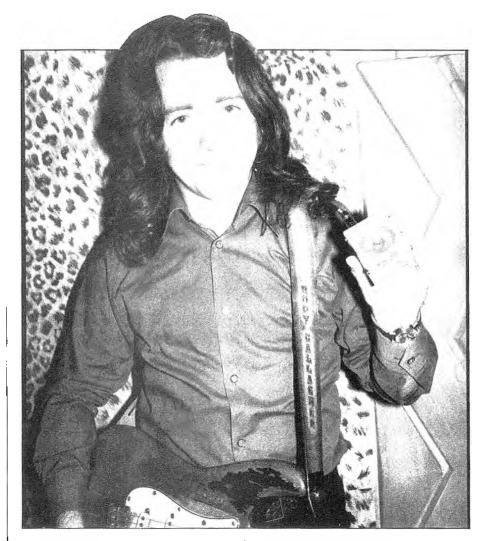
To prove that life does exist north of Watford, we hear tell of a highly successful PA company up in Rochdale, Lancashire by the name of Tractor Music, Tractor came into being two and a half years ago when roadie Christ Hewitt found himself with a load of PA equipment and no band

So with partner Dave Beickel he set up a PA hire and retail company which has become one of the biggest in the North of England, they do PAs up to 15k and have worked with the likes of Steve Hillage, the Buzzcocks and Steel Pulse recently, doing both indoor and outdoor concerts.

The system includes a Midas 12-channel stereo mixer with Crown, RSD and MM amps, Gauss and JBL bass cabinets, ATC mid range cabs and Electro-Voice and RCF horn drivers. Tractor also do small 100watt PA and disco systems, and specialise doing outdoor gigs providing everything from stages and generators to dressing rooms and security fences.

The Tractor Music retail shop in Kenion Street, which is off Drake Street in Rochdale, does even better business than the hire side. Here you will find all the top names in PA and backline gear - they are agents for MM and Allen and Heath - plus good quality secondhand gear.

The name of the game at Tractor is equipment to suit everyone's pocket without sacrificing quality. Whatever your field they're sure to dig something up for you at Tractor.



Burns book

Judging by recent correspondence the IM Letters columns, Burns guitars are much loved and greatly lamented instruments. It seems that the axes, which became famous in the hands of Hank B, have more than their fair share of fans both in this country and abroad

One such fan, Paul Day, allowed his enthusiasm to run riot and the result is a soon to be published book on Burns. This contains information on all Burns products from amplifiers and scratchplates to the complete range of guitars. Paul admits that it was a "labour of love", but has been staggered by the interest people have shown in these British masterpieces.

Copies of the book, which covers 100 A4 size pages, cost £3.50 and can be obtained from Paul Day at 19 Forde Road, Newton Abbot, Devon. P.S. Jim Burns, founder of the company, is back in business and should be producing instruments before the end of this year. Watch this space for details.

HGV

Once again we are happy to chart the progress of a band who we gave a helping hand to in these pages. HGV are a four-piece from Basildon in Essex who won the IM Recording Competition a year ago.

The band, who comprise Gary Beager (lead guitar/vocals), Steve Beager (bass/vocals), Bob Lane (guitar) and Mike Dowling (drums), sent their IM demo tape to John Peel who gave them a mention on his show and suggested they contact Rough Trade Records. In the meantime EMI Music Publishing became interested, and at the moment the lads are writing more material, doing a few local gigs and hoping for the big breakthrough.

Skinflicks

On the pub circuit in London at the moment, a five-piece band by the enticing name of Skinflicks are pleasing audiences with a collectively dirty mind. The unusual lyrics and original vocal talents of their songwriter Alan Jarry are powerfully projected by four experienced and talented musicians, Trevor Chard on lead guitar/ vocals, Terry Torpedo Stevens on Sax/ vocals, Neil McBain on drums and Vicente de la Cruz (honest) on bass/ vocals. Their music swings from the frenzy of Heavy Breathing, to the 'ard 'n 'eavy of If I looked like Robert Redford and the hypnotic emotion of Nightmare, without losing the Skinflicks trademark.

Like most bands starting out, they are finding the attention of agencies and record companies hard to attract, so if you can help, speak to Alan on 01-340 6676 (days) or Sharon 01-802 8688 (eves).



Tied in third place were Media from Watford and Toad the Wet Sprockett from Dunstable.

Sponsored by Voxtrot Music, a local music store, more than 30 bands fought through the heats and semifinals to the final which was judged by Jim Rodford of the Kinks and IM, Paul Greggs of Guys and Dolls, Dick Rubelle of Carlsbro and Winston Lee of RCA.

Said organiser Ian Harrison, "I'm very pleased with the way things have gone. Next year I hope to run a competition for the whole of Hertfordshire,"

Entertaining competitors and audience alike were successful local bands Street Boy and Street Bank, who are both recording at present.



for more than £1,000-worth of equipment.

The eventual winners were funk/ jazz band Thumper from Hemel Hempstead, who tied in first place with Watford's Lifeline. Thumper also picked up the prizes for the best bassist, guitarist and keyboardist, while Lifeline took prizes for best drummer and vocalist. Surprise of the evening was the prize for best original song which went to Anorexia, one of the few new wave

Commercial Success

Cigarettes may be harmful to your health, but for Lol Creme and Kevin Godley they have certainly been beneficial. The pair have received an award from the Designers and Art Directors' Association for the most outstanding use of music in the advertising media.

Kevin and Lol scooped the 1979 Silver Award for providing the music to a Benson and Hedges cinema commercial, which was an adapted segment of the prelude to The Wind, which appears on Side One of their triple album Consequences.

The music featured the Gizmo, which is now on sale in America and is at present being shipped to retail outlets in Britain and Europe.





Zildjians have been making cymbals for centuries. Their cast bronze cymbals are found the world over in the hands of those who must have quality and perfection of sound and strength. And, for years, people have been collecting Zildjian souvenirs . . .

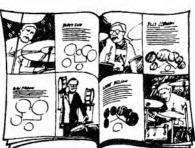
Bazaar is going to make it easier. Here is a selection of some of the very popular Zildjian mementoes, and some new ones.

1. Zildjian lighter by Zippo, U.S.A. The 'one-zip' wind proof lighter comes with the unique Zippo guarantee. Brushed stainless steel finish complete with Zildiian trademark engraved black and gold. £3.25 +18p P&P

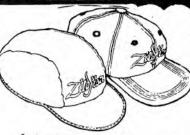
2. Zildjian steel tape measure. inches and centimeters, by 'Park Avenue' U.S.A. Gold metal with black Zildjian trademark. Complete with makers guarantee. £1.00 + 18p P&P



5. 'Ritepoint' retractable black felt marker. Red casing with black writing 'Avedis Zildjian Co.' 75p.+ 18p P&P



The Zildjian book of cymbal set of famous drummers. Printed in brilliant colours with action photos and cymbal set-up diagrams of rock, jazz, studio and big band poll winners. 50p+18p P&P



3. American sports cap of a very high quality, for all weather, for always. The Zildjian logo is machine embroidered in white writing on navy blue cap. £5.00 + 18p P&P

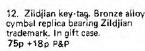
7. Zildjian all-purpose cotton drill cap— one size fits all. Yellow writing on black. £1.50 + 18p P&P



10. Satin banner. Contrasting white on black screen print. Billy Cobham, Buddy Rich or Louis Bellson. Hanging banner pole and tassels. Size 20" x 27". £2.00 +35p P&P



11. Deluxe cymbal bag, custom-made for Zildjian. Simulated leather with smart black handles and fittings. Zildjian trademark printed in gold. Double nylon stitched for long life. \$59.00+75p P&P



9. Zildjian all-purpose T-shirt, Size: small, medium and large. White trademark printed on black shirt. £2.75 +35p P&P

8. Zildjian baseball shirt, White with red % length arms and red neck band. Zildjian trademark in black. Sizes: small, medium and large. £3.50:+35p P&P

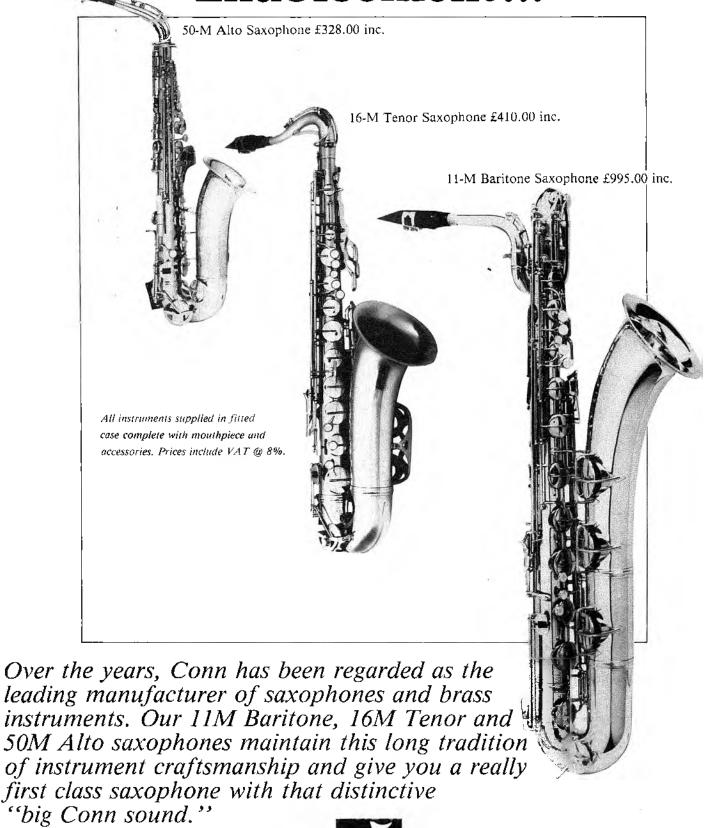
ZULDJIAN

13. Relax before your next big concert with this beautifully made pack of playing cards, decorated with the Zildjian name in bronze and black. 95p + 18p P&P



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INPUT CHANNELS. The 16 input channels each accept betaned or unbalanced inputs in the range -6008m to +1508m. Input impedance is greater than 5's clims opinium source impedance is 200 show. The separates provides ±1608 at 109Hz, ±1608 at 400Mz to 8PMz, continuously variable, ±1608 at 100Hz to 300Mz, continuously variable. They are spaced laber control for sends of 5 diabast (prefade) and Echo 1 and 2 (postfade). Routing to the 5 output groups is selected for town of 5 diabast (prefade) and Echo 1 and 2 (postfade). Routing to the 5 output groups is selected for four push further selection and in the channel selection for the selection of the channel of the four push selection and the channel selection for the channel could be selected to 100 to 100 to 100 to 100 months against a signal is the channel to be read on mater 3, and to be listed to 100 to 100 to 100 months against a signal is the channel to be 100 to 100 months against a signal in the channel or 100 to 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 to 100 months against a signal in the channel or 100 months against a signal in the channel or 100 months against a signal in the channel or 100 months against a si

OUTPUTS. The signs aurous groups, as selected from the individual channel routing, represents the high sends to the high track has intender. Each group has it two fades, followed by a line any with 1806 gain leading the line out southers on the back peans of the debt. The other name with 1806 gain leading the line out southers on the lack peans of the debt. The other name has two Etho Is iffects leades (i) if the follows cand (which may be used to drive a cover and or you to 10 pains of 600 date phones descript). (ii) And the Monitor (judgospaker) sends (no drive external power amps or 1 pains of 600 only phones).

NONITERING. A stereo loodspeaker mis is derived from the sight moniter channels situated directly above the group output fader. Each coancel may be selected to menter either fail group film out on the typicify packer farth from the tape recorder film signal preprince at the line in ocken at the back panel). The mater follow this subscript. A Feldback regard may see a server from each monitor themad. These facilities after the loodscalate max may be served from each monitor themad. It has facilities after the loodscalate max and the Feldback mix to be derived from eather tracky being seconded or track; alwaydy on tape. The loodscalate may slot be selected to be feld from the FFM system for channel facilities. In aftir mode, mater 8 as welcolad to read the level in the FFM thus, and from that level in the individual channels.

TRACK STATUS SWITCHES. Three switches have two positions:— (i) Record, in which the dark operates as previously Secrebed, in 18 family, when the playback returns from the 8 track recorder are in created through the channels 18 d. Duguan 1 and 2 are converted to from groups and are sent to the five track (sterno) time putputs on the back panel. A sterio lips recorder may be left connected to their outputs in order to record the final 4-mixed sterio program.

AUXILLARY FUNCTIONS 1 Echo Returns. These may be panned actobs construited add and even numbered pacts of output groups of the menters. 2. Distillator, When activated, the pillator every sit great that ill output groups for filling up purposes. The appail is a labet law distortion sharever. 3. Talkback. A back panel femalls spoket IXLRI is provided to accept a labet law inspection of the control and a conveniently placed button allows the sponding to talk to Foldback.

CONNECTIONS blic inputs are D3F (Ibmeler XLR) type, wired 1. Earth, 2. In Phasa, 3. Qui shap, the inputs are mone pack sockets, line durbout are mone jack sockets, either send and issurent are mone jack sockets, follows to word are steeled pack sockets for direct neephone connection, or D3M Imale KLR Words 1. Earth, 2. Signal incommission to a power amp or hasdphane distribution system, moniter outquits are via two Q3M*s wined 1. Earth, 2. Signal for generation to a strate, power amp, and a state pack tooked fair drarts meetinging on G00 onms by the abundman, mitback report to D3F wined 3. Earth, 3. Signal, power figure is wit a multiple connected and requires a positive and magnitus supply of 15 yotts (each capable of supplying at least 7.50mA) and an each connection.

EXTERNAL POWER SUPPLY. The power requirements of the mixer are supplied by an external power supply in order to avoid the possibility of induced numiform an institual trans-former. The unit supplied with the 16/6 will produce in excess of 1500mA and hence will support a number of additional input channels.

SPECIFICATIONS noute: — Maximum gain +60/9, minimum qain -15/8, haadroom +20/3 im, injout impadance greater than 5k ohms, optimum source impedance 200 chms. Equalisation — Trebbe ±16/8 at 18/4; and ±16/8 at 40/8 to 36/4; centimurudy vacinthile, best ±16/8 at 18/4 to 30/4 to 30/4 he (continuously vacinthile). Outputt—Case attention of ±16/8, adjournment less than 10 chms, minimum impedance 60/6 chms tercept Foldback ... 8 ohmsi, maximum cuput Ireal +20/40 m. Materia — 0 VII + 44/6 m. Lun impate — Press to *evil of +46/m will accept down to -16/8 m. The following applies from a mic outbut to a 11/6 august with eq. (1.5%), maximum input level before displaying +35/6 m. (1.5%) for the standard of the 16/4 files the standard hillest than 125/6 m. Signal to noise 10/6 ohmsi +16/4 effective noise bandwidth lest than 125/6 m. Signal to noise 10/6, line output faders down 50/6 m. (1.5%) for the present at 40/6 gain -36/4 g. (1.5%)

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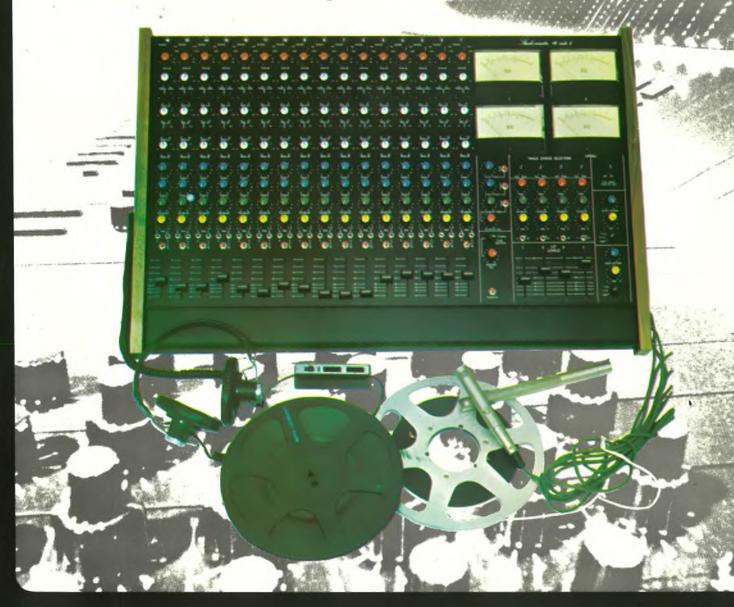
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TECHNICAL SPECIFICATIONS
INPUTS Electronically balance will active pun control, whicher 30dB pad on input. Maximum gain 15 B, headroom -zuußm, input impedance less than 5k onns, optimum source impedance for microphones = 200 ohms.

EQUALISATION Trible 16dB at 10kHz mid 16db at 400H to 8kHz continuously margines, bass ±16dB at 5tHz to 300Hz con tinuously variable.

DOTPUTS All outputs have 10dB gain after their respective output level controls. Output impedance less than 10 ohms, minimum terminating impedance is 600 ohms with the exception of Foldback output when the minimum terminating impedance is 8 ohms, maximum output level +20dBm.

METERS O VU = +4dBm.

LINE INPUTS Line inputs re preset for an of -10dBm T may be very simply m for an input of

The following applies microphone in output with 1kHz distorti dBm less than .0 , 1kHz distor

20dBm less than .015%, maximum gain throughout mixer +70dB, maximum input level before clipping +35dBm, equivalent input noise (200 ohms input resistor, 16.7kHz 6dB/actave filter giving 20kHz noise bandwidth) less than -125dBm, signal to noise with line output fader down -90dB, line output fader nominal, channel faders down 88dB, one microphone channel at 40dB gain -84dB, four microphone channels at 40dB gain -80dB, sixteen microphone channels at 40dB gain -72dB.

OPTIONS & EXTRAS

ADD ON MIC CHANNELS Add on units of four mic channels are available want your existing mixer up to a maximum of twenty channels. You wish to pend beyond 20 channels the power mixer see he modified to power an additional 8

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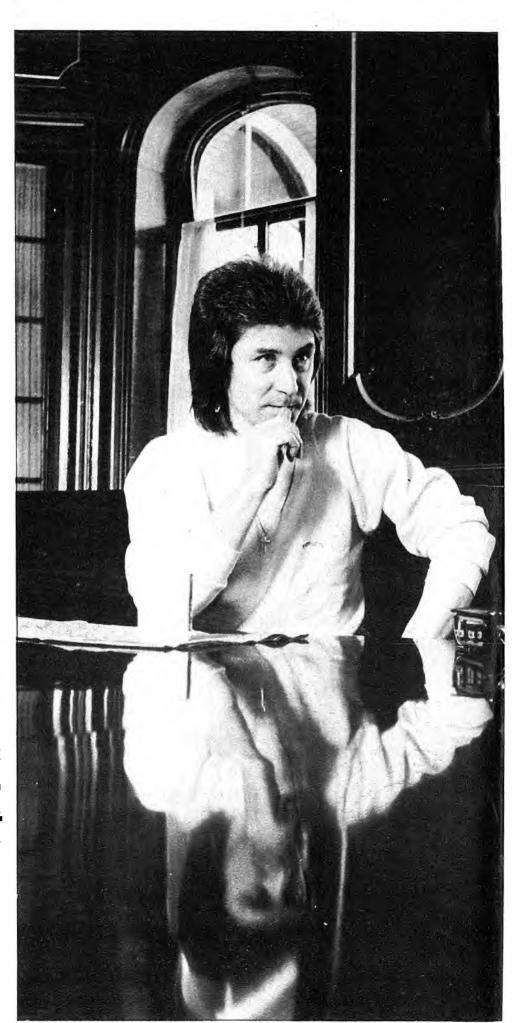
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THE NEW FACE IN THE WHO

Kenny Jones tells David Lawrenson 'I was just about ready to give up'

hen Kenny Jones got the call asking him to be the new Who drummer, his reply was not an immediate yes but, "I must go and have dinner." Kenny Jones isn't the type of bloke to be starsfruck.

"I don't know why I said that," he says, "but Bill Curbishley (the Who's manager) told me to think about it and call him back. So I thought about it for a day or so and then called him back and said, 'I'll come and see everyone.' I didn't say yes immediately. Then I met Pete one evening and we talked for about three hours, and that was it."

All this took place just before Christmas and without a rehearsal ("I never do auditions," he says). Now, five months later, Kenny was sitting in London's Rainbow theatre a few hours before his debut with the Who - and confessing to being terrified.

hard.

about half the time, and they're not, it's all worked out. All the accents have got to be in the right places, and they're quite weird accents. It's just a matter of trying to remember them. That's all I'm worried about; the rest of it - I've been there before."

Despite being terrified at the prospect of the gig and the realisation of the pressure he will be under, Kenny nevertheless seemed remarkably calm. What most people did not realise is that he had in fact played with the Who before and it was really like playing with old mates again.

"I'm looking forward to it. It's something completely new. I mean I've done loads of gigs like this with the Faces, the same place in fact. It's obviously different because it's the first night and I feel that everybody's going to be looking at me anyway. It will be the first time that they've



THE NEW FACE IN THE WHO

what I am and where I come from."

Still, Kenny had to learn the complete Who stage act of about 20 songs. A formidable task. The set caused him many sleepless nights, particularly three of the songs which are taped and necessitate Kenny with cans on playing along to them. The problem there is that everyone follows him, so if he goes out, then the whole band are out.

"Actually, I've never stuck to that old line about bass players and drummers. I play with everyone, I don't just play with the bass. I tend to work more with guitar and vocals than the bass. My foot just does it and that's it, I don't follow bass rhythms. John actually prefers to follow whatever I'm doing among all his other stuff. The rest of the time, I'm too involved in vocals, backing up Roger's things. I used to do it with Rod and Woodic and I've always been the same, even with the Small Faces.

"With the Who, it is a different way of playing for me because I was always straighter with the Faces. Now I've got to do all these accents and stuff like that. I prefer it, but it's just getting used to it until it comes out natural, till it flows. I haven't actually got to that stage yet, but it will happen. It just needs time to sink in.

"The tape numbers are very much like Keith, because the tape governs you to what you play and I lock tight on that. Apart from that, I play the way I normally play. Keith had this thing where he'd come down really low and then build up—all dynamics. I tend not to do dynamics, although I'm learning to do dynamics within the Who songs.

"Funnily enough, I've got complete freedom. I can do as many fills as anybody wants — but because of that, I don't. If I do all fill-ins and that, people are going to say, 'He can't do it as good as Keith.' So I've got to play straighter, and also the band want me to play straighter."

In making his debut with the Who, Kenny also featured a brand new Premier kit. He felt it was about time that he got a new kit anyway, and took delivery of it two weeks before the Rainbow gig. He still wasn't sure about the sizes of all his gear, so we asked Malcolm Ward of Premier to fill us in with the details.

The kit is a white Soundwave outfit. It has a 22" bass drum for stage work and a 20" for the studio. The toms are all double-headed specials and comprise 8x6, 10x8, 12x8, 13x9, 14x10, 15x12 and 16x16. Kenny also has a 25" Fibreglass-headed timp which he says is "nice to finish off on." The snare drum is a metal shell Premier 35 and he is using a mixture of Trilok stands and pedals.

Malcolm also told us an interesting story about the drums and Kenny's other great passion - horse riding. Apparently, Kenny wanted to have horse riding pictures on his drums, but couldn't figure out a way to do it properly. Then he happened to popinto a pub and ask for a pint of beer which they had on hand pumps. He noticed that the pumps were decorated with horsey motifs and found that they were in fact transfers. Kenny contacted the company, who agreed to supply a set of the transfers which are to be decorated and varnished on to the drums by Premier. Sounds like a certain Pictures of Lily kit which someone used to play in the Sixties!

Kenny said of the kit, "I told them to make it like my other one. Premier's wood is very good these days so I wanted a wooden kit, a nice quality one, and then told them to cover it in white plastic. I wanted a basic sort of kit with concert toms all the way round, but I don't use them all because when they're all up you can't see me behind the kit. The cymbals are Zildjian and Paiste and they're quite small. They don't carry like Keith's. He had great big ones that just splurge everywhere. I don't like the splurge, mine are short and sharp.

"I use the cheaper Premier hoops because they're more like Ludwig and you get a nicer rim shot. Also, Premier snare drums are great, there's no difference between Premier and Ludwig. With snare it always seemed as though you could hear the top, then there's nothing and then you hear the snare at the bottom, but I want to hear the crack all at once."

alk of drums inevitably leads to some of the other kits Kenny has had, and he still has fond memories of his first one. He had become interested in drums when he was 13 and bashed around on a friend's kit. When he and some friends decided to form a group, he opted to play drums and has been doing so ever since.

"The first kit [had was an Olympic with real pigskin on it — I wish I still had it. Then I started playing every morning at seven o'clock before I went to school, then I'd come home at lunchtime and play, and then play for hours in the evening. The people in the street where I lived really hated me! I'd been playing for about three months, then I sat in with a jazz band who was playing in a pub. Afterwards a guy behind the bar said his brother was looking for a drummer and said he would bring him down the following week.

"So the next week Ronnie Lane walked through the door looking like one of the Beatles, and we eventually formed a band called the Outcasts.

Later on I went with Ronnie to buy a guitar in a shop in East Ham. This little cocky geezer tried to sell him a guitar, and that was Steve Marriott. We got talking to him and had a laugh and invited him to the pub where we were playing. He started jamming about and eventually we got slung out of the pub. That night the three of us decided to form a group."

That group became the Small Faces who built up a tremendous following in London before making the charts with a succession of hits in the mid-Sixties. In the meantime Kenny changed his Olympic kit for a Trixon, which didn't last long, and finally settled on a silver glitter Ludwig, which he used up to and into the Faces.

"Then I walked into Drum City and saw a black kit there and bought that. It was a black Ludwig which originally belonged to the Shadows, and Mitch Mitchell when he was with Georgie Fame. That's the one I used all the way through the Faces, and I did the Ogden's Nut Gone Flake album with it. It's a great kit which I've still got at home, still with the same skins on it."

In his early days, Kenny was listening to Al Jackson, as well as the popular British drummers like Tony Meehan, Brian Bennett, Bobby Elliott and Charlie, but he rarely listens to any specific drummers these days. He is also completely self-taught, just using little tricks like tying wire round the end of his sticks to polish up his technique.

Kenny plays a lot of sessions, encompassing quite a wide variety of work. A good example is his recordings with Joan Armatrading, which called for a completely different style of drumming from his work with the Faces and the Who. But being a full-time member of the Who now means less time for sessions.

When he received the call to join the band, Kenny was embarking on a venture with producer Glyn Johns. The idea was to form a half-English, half-American band with an English rhythm section and a West Coast-type sound. Kenny explained, "We rehearsed for a week and it was really amazing, but there were a lot of personality problems. Then the Who called and that took care of that problem.

"Actually, I was just about ready to give up. I didn't care any more, because being famous means absolutely nothing to me. The difference is, when I and the Who and all the old ones started, they wanted to actually play their instruments and do it, not to be like somebody. Now a lot of kids model themselves on us, they buy a guitar to be just like that, which is a big difference — they want to be stars. It doesn't matter to me, I can give it up.

The more gigs

The more gigs we do, the more we're going to want to do'

I know I can play and no-one can take that away from me, so if I don't want to play, then I won't. I was quite content just riding horses."

With such an attitude, it is easy to see why it had to be a very special offer to tempt him back into the limelight with all the subsequent pressure and problems. But Kenny soon found that the job was just too good to pass up.

"When Bill Curbishley called me up, he said the Who had had a meeting and wanted me to join as an equal member. They were going to stay together permanently and I was to have a 25 per cent share. Since I joined everything has been great. The Who is the most together band I've ever known.

"The Small Faces were so untogether, so unco-operative for everything like recording, wanting to work weekends and through the night. This band give themselves breathing space and don't work weekends, which is marvellous. I'm in a band now which is absolutely what I always wanted to be in. I'm not just the drummer, and I don't feel out of place at all. The first time we actually played, it seemed like I'd been there all the time.

"I sympathise with Pete because I'm exactly the same — I don't want to go on long tours. What the Faces used to do was eight gigs in 10 days just in and out of America and that did work. But to go on the road and fuck your brain up, especially as you get older and you get more family commitments, you owe something to your family. So we try to fit tours and stuff like that around the kids' holidays, which is great."

However, since Kenny joined, the activity surrounding the Who seems to have increased even more and live gigs, which looked remote last year, have turned into a reality. The Rainbow gig was initially pencilled in as just a rehearsal for their appearance at the Cannes Film Festival, with no audience. That blossomed into a full-scale gig for the fans, and there is the promise of much more to come.

Kenny explained: "It's just snowballed, every stage seems to put you into another stage. We're doing two gigs at the Film Festival then probably two gigs in Paris, although that's not definite yet. Then hopefully we'll do a major gig in London, probably an open-air one. After that Roger starts filming, so while he's doing that we've got to do the film music. There's a lot of finishing off to do, and projects to be got out of the way before the Who really start. But I feel that the more gigs we do, the more we're going to want to do.

"We've got Madison Square Garden booked and that's all being done before Christmas, but I reckon next year will be the time for the Who as far, as gigs are concerned. Hopefully we'll be more ready for it. Between that time we've got to try and make a Who album and Pete wants to do his solo album but he's put that aside because the Who are happening now.

There's a lot of things on."

Apart from giving the band an added impetus to go back on the stage again, Kenny is also conscious of giving the Who a new sound and a new musical direction. "Basically, the new line-up will shine through with the new songs once we get into the studio. Some of the things we've been playing are absolutely amazing and that's where I see it all happening. We're doing all the old numbers, but eventually they'll become backup numbers and the new stuff will shine through.

"The funny thing is that because I play one way, I'm sure I must make everyone else play differently, so that in itself has shifted things over. It's a different band — it will be the new Who."



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THE KINKS **KOLLECTION**

The guitars of **Dave Davies** (and a few of brother Ray's) introduced by IM's bass ace Jim Rodford~ who is now, of course, a fulltime member of the Kinks.

hen discussing guitar collections, it would be hard to find more fascinating examples than those of Dave and Ray Davies. The Kinks were one of the bands who spearheaded the British rock invasion of the USA in the early Sixties. This exposed Dave and Ray to the then untapped treasure trove of very early top-make American guitars which were available at cheap prices in small town music and pawn shops, all over the States.

The rock'n'roll electric guitar as an instrument was still regarded as too recent a development, for early models to be thought of as antiques. Battered old Les Pauls, Flying Vs and maple-neck Strats could be picked up at silly prices, and the Kinks' constant touring at that time enabled them to take advantage of this situation. This was before dealers started to cotton on to the vast potential of the explosive demand around the world for early guitars.

Once they did, then the stories of big dealers touring the country, buying up all the old stock they could find, are true. Many early Fenders and Gibsons were bought from the cowboys who had maybe bought one on a whim, and finding it harder to play than they had imagined, stored it away almost untouched for years, and when approached were quite glad to get rid of it at any price.

Real "finds" and bargains are now of course almost non-existent, but Dave especially is always still on the lookout for interesting instruments and is a constant target for antique



guitar dealers in the USA, as I found out on our tours there last year.

My personal association with the Kinks goes back to 1964, when touring with them in another group on one of their earliest tours. I found them to be the most exciting and innovative new band around at that time. Ray's completely rebellious approach to songwriting and recording (with regard to commercialty) were at a complete tangent to the opinions of the record company and radio station hierarchies. Yet despite

this seemingly negative force, You really got me had scorched to Number One and an equally abrasive and explosive record, All Day and all of the Night, was roaring up the charts in pursuit.

Nothing quite like it had been heard before and around the country musicians especially felt a kind of liberation and elation at the success of these records. Indeed, even today, the hairs on the back of my neck stand on end when we perform the songs onstage.



Most active musicians of that period would agree that You really got me especially was the first truly aggressive heavy record. The simple, no-nonsense structure, plus the slap-you-in-the-face stop cords were fresh and exciting. But probably the single most innovative feature was Dave's guitar sound. Now I know it's been documented in countless-articles over the years how he achieved this completely revolutionary sound but, in my opinion, he has never been given the full credit he deserves for

conceiving controlled, intended distortion and sustain, as a means of expression from the rock'n'roll electric guitar. It really was the first time guitar had been heard this way, and the whole music industry was kicked up the arse by both the aggression of the performance of the song and this sound.

Watching them perform it night after night live, weeks after its release, and witnessing at first hand Dave's execution of the guitar solo, combining unexpected dexterity with the wild, exciting abandon he displayed on the recorded version, made a mockery of the ridiculous rumours that would later circulate regarding the identity of the soloist.

Even Pete Townshend had admitted in print that You really got me influenced him tremendously and in fact the stop cord structure and the guitar sound inspired him to write the Who's first hit, I can't explain.

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the musical team. Musically, the scope of the band is extremely wide, and satisfying, retaining all the old fire, aggression and raunchiness, plus the evocative melodic and social comment of Ray's songs. The resultant live show is in my experience, unparallelled in its depth and dynamics, with the added bonus, for me, of the onstage stimulus of Ray's incredible energy and showmanship, and Dave's vastly underrated, lyrical, yet sometimes brutally aggresive guitar playing. He still owns the tiny, old El-Pico amp with which he recorded You really got me, but unfortunately, could not find it in time for the photo session. Again unfortunately, there are many guitars of rare and valuable vintage that he had since swopped, lost or sold-but I'm sure all guitar collectors are guilty of this sacrilege sometimes.

I managed to collar both Dave and Ray for a brief chat about their guitars, while Ray was mixing our single Superman at the Konk Studio, club and office complex, which they own. All of Dave's collection are included in the photograph, with just a few of Ray's to the right of the picture.

1. Telecaster with back scratch plate

"That's about 1954. In actual fact, I had another one that I sold to my nephew, Phil Palmer, and that was around about the same age. I use this one a lot in the studio for rhythm work. I used it on Stormy Sky from the Sleepwalker album."

2. Gold top Les Paul

Remarks by Dave:

I think that's around 1960. I bought it in the States as well. I used to use it onstage a lot until quite recently. Until I got the Les Paul Artisan, in fact (11). I think it cost me about £400."

3. Les Paul Junior

"I've never used that onstage yet. I've rehearsed with it a lot. I got that in the States as well and it didn't cost much. I think it's about 1959-ish."

4. Black Tele on sofa:

"That's a new one. I got that to use with the Avatar guitar synth. It's a good one actually, which is strange because I don't think there are as many good new Teles as there were good old ones. I used that on Sleepwalker as well."

5. Ibanez:

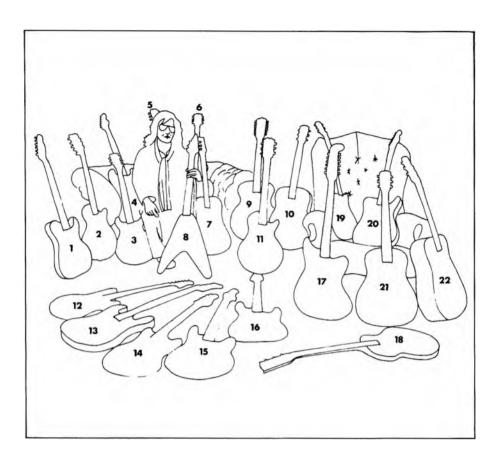
"That's the latest addition to the collection. I was really pleased with that, the pickups are very good, very different. I used that on Superman."

6 & 11 Gibson Artisans:

"This (6) is the one I use mostly on stage. It's slightly older than the one in the middle (11). I use them both on stage, for different tunings. Great guitar."

7. Gibson acoustic

"I use that a lot in the studio for overdubs. It's not particularly old, only about 14 years old."



8. Flying V-type Gibson

"It's slightly different shape from the Flying V because it was in fact a prototype V. The story behind was, I used to play a Guild custom built guitar and the airlines lost it on our first American tour in '64 or '65. In those days I used to only carry one guitar around and I had to get a replacement quick. I went into a store and they didn't have anything I liked. I saw this dusty old guitar case and I said What have you got in there? He said, Oh, that's just some silly old guitar. He got it out and I bought it for about 60 dollars."

9. Guild 12-string

"That one is quite old. It's a particularly nice one, a really good guitar. That's been on Muswell Hillbillies and all sorts of albums. I use it a lot."

10. Martin

"That's about 10 years old. Ray's got one as well but you can tell mine because it's much more knocked about."

12. Fender Stratocaster

"That's a 1954 Strat with a maple neck. A really nice one. I've used it a lot. I got that in New York. A guy came to a gig and he needed the money so I gave him a hundred dollars or something. I used it a lot on the Preservation album."

13. Maton bass

"That's quite a stange one actually. It reminded me of one of Ray's first stage guitars which was a Maton. It's a bit of a mystery because I don't remember where and when I got it."

14. Mustang bass (Jim uses as a spare.)

15. Music Man bass

"Andy Pyle used that on the last couple of albums."

16. Precision bass

"That's about eight years old."

17. Fender 12-string

"I got that from the old Macari shop in the Sixties. I particularly wanted it for a session the same day. That was a early B-side called I'm Not Like Everybody Else."

18. Gibson Custom L5

"That's reasonably new, about three years old. A particularly good one. I used it for a while onstage but it hasn't got quite the same sort of feel for stage work as the Artisans. It's more of as studio guitar, for the more refined things. Stephen Delft reviewed that a while back and was knocked out with it. There are a few modifiction on it, like different machine heads. I've done a few things like that on other guitars but I never got that deeply into it, like putting on DiMarzios or anything."

Ray and his guitars:

19. Gibson Melody Maker

"I bought that for 80 dollars in Manny's in New York a few years ago. It's a really old one."

20. Telecaster

"I got that in Selmers for £115 in 1969. It was originally sunburst."

21. Dobro

"I got that in Tottenham Court Road for £40. I think I used it on Lola."

22. Martin

"That's been on a lot of records. It's quite old."

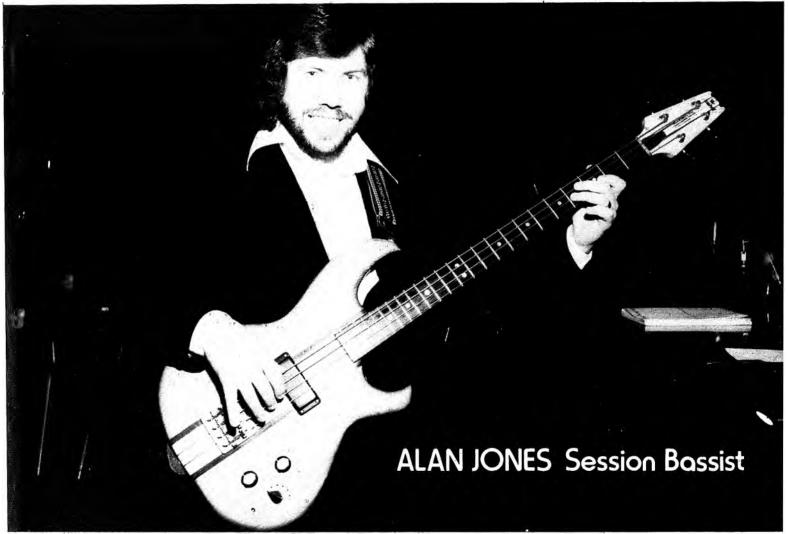
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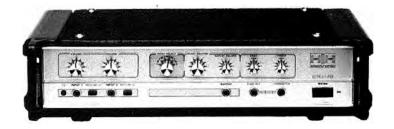
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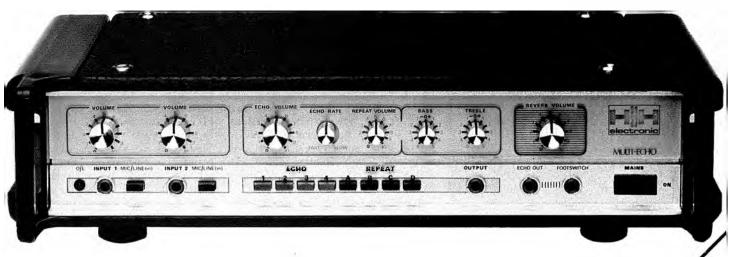
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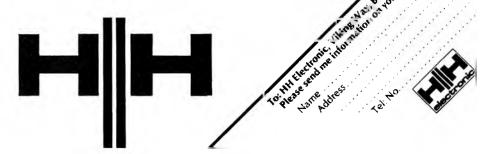
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ohnny Winter recently completed a European tour, his first since 1974, and gave his audience exactly what they wanted — a mixture of energetic rock 'n' roll and exquisite blues. In some ways he's very similar to Rory Gallgher, in that his first love is the blues and he's stuck to his guns throughout his career — no compromises with the man Winter.

Born in Beaumont, Texas, he was already playing clarinet by the time he was five. A couple of years later, he moved onto the ukulele until his hands got big enough for the guitar at the age of 11. Johnny and younger brother Edgar played in many bands together before Johnny ended up in a band in Houston's Act III club. He had long since decided his musical direction and had developed a reputation all over Texas. In 1968, a small article about him appeared in Rolling Stone and offers came flooding in. Albums like Second Winter, Johnny Winter And, Still Alive and Well and Saints and Sinners followed and Mr. Winter was big business.

Johnny also recently found success as a producer, notably with Muddy Waters. The latest Johnny Winter album, White, Hot and Blue, has just been released to coincide with the tour. It's been five years since Johnny last toured England. The main reason for this lengthy absence, it transpires, was soaring expenses.

"The costs were just amazing, man, fucking amazing! The first few times I came over here, we were using roadies from England and we ended up with real weird equipment and blown speakers and roadies that didn't know how to change strings. So I decided that even if it meant losing some money, I'd come over with my people and my equipment and make sure that they would be the best gigs that we could play. On the last tour we sold out just about everywhere. Then, a couple of months later when we got home and the American Express bills and all came in, my manager had cleared 25,000 dollars because he gets his off the top - and I lost 45,000 dollars! 45,000 dollars down the hole, man, and I was over here for two months, so you can see why it's taken five years to come over



Bobby Torello, Johnny W.

WINTER'S TALE

EAMONN PERCIVAL

This time around, Johnny's just using Bobby Torello on drums and Jon Paris on bass. Paris, in fact, led his own blues band in New York before teaming up with Link Wray and Robert Gordon immediately prior to joining Johnny. He also sings and doubles on harmonica and is described by Johnny as "just great!"

"The great thing about this guy," enthuses Winter, "is he plays excellent bass, he loves both blues and rock 'n' roll and he plays harp on a rack at the same time. I was wanting a harp player and a bass player and I've really got two for the price of one. We also swap around and he'll play guitar and I'll play bass and it's nice to have that variety. With a trio, you've got to work hard to make it interesting and with this band, it's so much easier. We've got so much freedom with the three of us, and the guys are such good musicians that they'll pick up anything real quick and so we do a lot of improvising and jamming."

Although Johnny has a passion for blues, his early influences were varied. Not least important of these influences was his father.

"Daddy liked a lot of jazz and big band music. The popular music of his time. He played sax and banjo and listened to people like Artie Shaw, Benny Goodman, Tommy Dorsey and that kind of stuff. That was the first music that Edgar and I heard when we were growing up. It wasn't that we suddenly decided to take music lessons and learn how to play things, it was just like walking and talking. Mommy and Daddy were always singing and playing something, we never thought of doing anything else. I was into all types of music. Like country music. There was no way you weren't into country in Beaumont. You couldn't get away from it. If you turned on the radio, you'd hear country, if you went to a club, you'd hear country. There was nowhere you could work in Texas if you didn't play country, apart from the black clubs."

The black clubs, in fact, were Johnny's own "school of music". He would play the white clubs to earn a living and play the black clubs for the joy of being able to play blues.

"Beaumont, Texas was a really strange place for music. It's about 40 minutes west of Louisiana. It's right down there in the south so you'd get a lot of Cajun music, Creole stuff. There were a lot of local bands that played the South Louisiana music and then, from New Orleans, we'd have that sound coming down which again was totally different. Then we'd have the straight hillbilly country plus



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the popular rock 'n' roll plus all the jazz stuff that Edgar would be playing. It was a case of which one of us could turn his record player up the loudest. I'd be playing Muddy Waters on mine and he'd be playing John Coltrane!"

After a brief flirtation with the ukulele, Johnny "messed around" with an old, warped classical guitar that belonged to his great grandmother. After six months of struggling with it, his persistence and determination won the day and his father bought him a Gibson 125.

"I really wanted to play the ukulele," Johnny laughed, "but Daddy kept telling me the only people who played it were Arthur Godfrey and Ukulele Ike and he didn't see much future in it!"

ohnny admits to having been somewhat of a slow learner with regard to blues guitar technique especially on his finger vibrato.

"When I first started, there wasn't anybody to watch. I was too young to get into the clubs and the only people that I could see playing were the guitar teachers in the music stores and they were mostly hillbilly players. guy who sold me my first guitar was a great player and he showed me Chet Atkins and Merle Travers stuff, which was what I wanted to play initially. That's also the reason I started using a thumbpick. And of course all those people used the big gigantic strings and I didn't know any better. When I first heard blues, I was trying to bend these real heavy strings and I couldn't figure out how they did it. Then, when I got my first Strat with the tremolo bar, I thought 'Wow, that's how they do it' but it still didn't sound right. I was also trying to play blues on the Strat with a wound third, my first string was probably a 0.16!

"We had this local radio station in Beaumont called KJET and there was a DJ called Clarence Garlow who was also a musician and he took time out to show me things. He'd take me to the black clubs and make sure nothing happened to me. He told me about putting a second string in place of a third and a first in place of a second and all that. I figured out the bending and everything but still the vibrato didn't sound right. There weren't many people around using vibrato. T-Bone Walker was typical of the Texas blues players and he didn't use

"What really made me want to use vibrato was Otis Rush, 'cos he had the most beautiful vibrato and I was sure he was using the tremolo bar! So, I got real good at using the bar, and a lot of people used to use it. It wasn't any kind of disgrace or anything, it

was just another accessory. But now, getting a good vibrato with the damn thing is a lot harder to me than using my fingers. I can't do it now. I used to be able to use the tremolo arm and get just as nice or even nicer vibrato, because I'd go down and up instead of just up. So it really was better, but when it became fashionable and cool to be a good guitar player, it depended a lot on your finger vibrato - and I thought it was really stupid but I was determined to learn it if that's what I had to do to be considered a good guitar player. I just took the fuckin' vibrato arm off my guitar and started from scratch. It didn't take nearly as long as I thought it would. That was in '67 or '69. Up until then, I was still using the tremolo arm."

Since he started playing, Johnny has been through many makes and models of guitar until 1970, when he settled on Gibson Firebirds. Since then, he's used nothing else. While his strings are fairly light (0.9 to 0.42), he favours quite a high action.

"I like real high action on my guitars, not just for slide either. I always played with a fairly high action before I started playing slide. It's really because when I've tried lower actions, I can never get my fingers under the string enough for bending. When I bend the third string, for instance, I always push it up towards me. Some people push down for bends but I can't do that. With my action, I push under the other strings.

"I've messed around trying to bend the opposite way but it just doesn't feel anywhere close to normal, for me. It felt horribly awkward. Some people say that guys who play like that have a better or different vibrato. Maybe it's easier if you started from scratch playing like that."

Johnny recently switched to Music Man amps, after having used Fenders, Ampegs and Marshalls. He not only uses them but also officially endorses them.

"It's the first thing I've ever endorsed - guitars, amps, strings or anything. Muddy's guitarist turned me onto them. I'd been using Fenders and stuff and I'd wanted to try the Music Man amps out 'cos I figured if Leo made the originals, they would probably be better. Bob Margoulen had one with two 10" speakers that sounded great. He could use it anywhere, indoors, outdoors, anywhere, and it screamed. I bought a couple and just two months ago. Leo found out I was using them and offered me an endorsement deal. Up until then, I'd used Fenders early on and then, during the days of Johnny Winter And, we were playing larger places with usually rotten PA systems so I was

using a combination of Marshall and Ampeg. The Marshall had the real distorted sound and the Ampeg was a lot cleaner so it was a nice combination for using that power on stage. As soon as I realised that PA sets were good enough to not need that many amps on stage, I stopped. I use a Music Man 4x10 in the studio. It seems the one with two 12s is a little bit louder - I usually use it for rock 'n' roll because it has more of a midrange sound. The 4x10 has more bass and treble and less midrange, but it's a nice piercing treble so I usually use that for blues. I use them both on stage. I keep them both on and, if I'm not getting enough volume, I'll plug into the 2x12 but I usually start off with the 4x10."

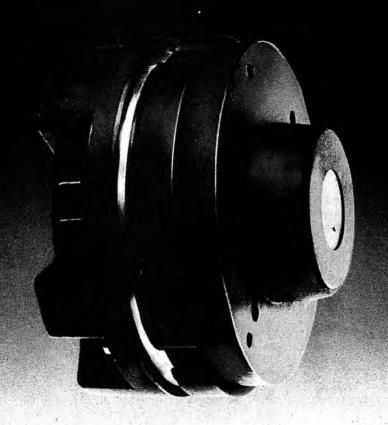
Johnny doesn't sit down and practise these days, unless it's for a tour — although it used to be an obsession with him.

"I used to just sit there and play and play every second when I wasn't doing something else that I had to do. Everybody was into sports back home and because of my eyesight, forget sports. I could never have been great at it. The only thing I could do was fight and bowl - and I still have time to do both of those! Playing guitar was the whole thing. Now, I really don't practise as such. If I hear something that I don't know how to do. then I'll get my guitar and try and figure it out. Or if I've been doing studio work and haven't been gigging to keep up my playing, then I'll go in before a tour and practise with the band. It's just like doing exercises. Even if I take off for a couple of months and haven't touched my guitar, after a couple of weeks of four hours a day, I'm pretty soon back to where I left off. I don't like to have to do that.

"What I really like is when I've played something that's surprised me. I love to do that. We usually make cassettes of all our gigs and when it usually happens is when you're listening back to them. I'll sit there and hear something and say 'God, did I play that? Listen, man, nobody's that good.' I'll just be amazed at myself. When I'm onstage though, I don't have time to sit there and think how cool I am. It's more like worrying about a mistake I made a couple of bars back. If I don't have some wine or something before I go on stage to tense down, I'll do that, I'll make a mistake. I'll play bad because, if I do something I don't like, I won't be able to get my mind off that and go on and play better. I'll be thinking to myself 'Why did you do that? That was stupid.' And when I'm thinking about that. I'll be doing more stupid mistakes that I don't like and pretty soon I'll get to where I hate what I'm doing."

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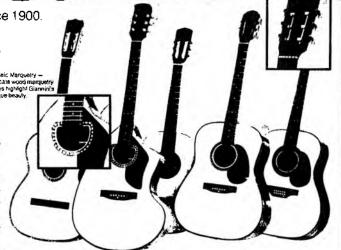
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If you first see one of these instruments hanging on the wall in a music shop, you could quite reasonably think that it had a very strange shape — which is why our sample has been photographed while being played by one of our captive guitarists. If you look carefully at the picture, all should be made clear. The audience thinks it sees an instrument which is gently rounded on both sides. The player looks happy because his/her knee fits into the dent in the treble side of the body and the instrument fits and balances like a standard, small bodied guitar.

This kind of pear- or onion-shaped instrument without a knee-cutaway would be difficult to play when sitting down. I have such instruments and there is always a tendency for the whole thing to slide sideways off the player's lap. It is possible to overcome this problem, but most experienced players think they already know how to hold an instrument and are not comfortable having to adjust to new ways. The knee cutaway solves the problem. It also has some acoustic function, in "stiffening" the treble side of the soundboard. It would be difficult to say whether playing comfort or acoustic design was the first consideration in selecting this particular shape; both contribute to the Craviola's distinctive character and the two functions are inseparable.

You can, of course, also play the instrument standing up, with the usual sort of guitar strap. It sounds and plays just the same, and the unusual shape will probably attract quite a bit of attention.

In addition to the obvious knee "cutaway" the body is also mildly cut away by the treble side of the neck joint to give better access to the higher frets. It is still possible to find some 12-string guitars in which the body joins the neck at the 12th fret. This rather limits what you can do with the top frets. More recently, there has been a move towards putting 14-fret necks on 12-string guitars, which gives them the same sort of access

as a standard six-string jumbo. The Craviola has a 14-fret neck and a cutaway body, giving easy access to beyond the high A fret while keeping your thumb at the back of the neck. With a bit of a stretch it is possible to reach the top 20th fret.

It is unusual to find any reasonably-priced 12string instrument which is playable at the top of the fingerboard. Those which are playable still usually require shifting the left-hand position and playing over the front of the body. With the Craviola you get a good action right up to the top of the fingerboard, and enough access that you can do something useful with it. At least, my sample has a good action right up to the top of the fingerboard. I would expect most other samples to be as good in this respect because of the particular design of the top end of the body. If you should be offered one which is not so good, decide whether you actually want to use the top frets, and if you do, then find a better example. As this instrument is fitted with an adjustable bridge, it is quite possible to try out its performance with your preferred sort of action, before purchase. Some adjustable bridges on acoustic guitars seem to be more trouble than they are worth. I can only say that the one on my sample appears to give no trouble at all. If you are likely to make many adjustments to the bridge height, two thin, smooth metal washers under the adjustment screws would save some wear on the bridge shoulders.

As the bridge has no separate adjustments for string length, my first move, before checking intonation, was to replace the high octave A string with a wound 17 or 18 thou string. To the best of my knowledge, all acoustic 12-string sets are based on compromise, but I have found that with relatively light 12-string sets, replacing the usual plain high A string with a very thin wound one improves the intonation on the A pair in the higher positions. The combination of intonation faults between a thick wound string and a relatively thick plain one is enough to make a fiveor six-string chord sound sour, and it becomes much worse as you go up the fingerboard. As this Craviola seems to be designed to encourage one to use the top of the fingerboard, it seemed sensible to adjust the stringing to suit this.

It seems quite likely that my review sample has had its strings changed at some time, so I don't know what set is usually fitted by the makers. However, many light 12-string sets have a plain octave A string, and you may find the modified stringing helpful. Incidentally, I use a nickelwound electric string for this, because very thin brass-wound strings tend to wear through quickly, and if you play in the usual 12-string styles, both strings in the A pair take quite a hammering.

After changing this A string, the intonation on this Craviola was perfect on the top pair, reasonable on the second pair, near-perfect on the third and fourth pairs, reasonable on the fifth pair and poor on the bottom pair. This is a creditworthy standard of performance for a 12-string instrument. If you want perfect tuning, you are expecting the near-impossible. The bottom pair illustrates perfectly one of the compromises involved in 12-string guitars and strings. At the octave fret, the thicker E string is sharp and the thinner octave string is flat. Without a very complicated bridge, there is no way they are both going to be in tune. Some of the best 12-string string sets are balanced to minimise this problem,



but such strings are expensive, and you are not likely to find them fitted as standard on moderately-priced instruments. (Possible exceptions may be the few cheaper 12-strings marketed by American companies which also happen to supply good guitar strings.)

This Craviola is easy to tune, stays in tune, and except for the bottom string pair, has tolerable intonation accuracy right up to the top of the fingerboard. If I had the time to find the right string types and gauges, I could also make a considerable improvement on the bottom pair. This is basically a good and accurate instrument. Its limitations are mainly those inherent in 12string guitars. Most people can learn to live with these quite happily. If you are willing to spend time and care and money on finding which strings best suit it and you, and replacing them when they become stale, its limitations will probably be rather less and it will sound and play better. If you have cloth ears, or if you play in a noisy restaurant, it may not be worth the extra trouble.

However and wherever you play, the machine heads on this instrument are rather basic in design, but they work. If you put a drop of oil on the gears every few months they will work better for longer. Twelve-string guitars have a reputation for being unreliable and untunable. Some of them are, and some have only become untunable because they have been neglected.

This is not strictly a guitar, but it feels the same and it plays the same way, and it looks as though it is going to be reliable if it is treated properly. It has an interesting sound which blends well with low voices. If you add bass guitar with a fairly rich and sustaining sound, the combination makes a good solid "acoustic" back fill for a small combo. Add vocal harmony to taste, and any solo instrument, from a Breton shawm to a Les Paul and a cranked-up AC 30.

I must say, in fairness, that this Craviola was not easy to play when it first arrived. I played it for a few minutes and found it unusually hard work. It sounded pleasant and responsive and the neck and fretting seemed quite reasonable. Even the action looked quite low and I refused to believe that it could possibly be as bad as it felt. The only thing I could find which seemed wrong was that the string slots in the nut were a bit higher than necessary. Out of curiosity, I did a rather hasty nut adjustment, in fact making only slight changes to most of the string slots. The improvement in playability was considerable, and quite out of proportion to the few minutes spent on the nut. After that, everyone wanted to play the review instrument, and it got so much playing that it also began to sound better. I am surprised that such a small adjustment should make such a big difference. The nut was not badly adjusted as supplied, but it would appear that Craviolas respond very well to the best possible care in setting up. If you want a quick check on an instrument's potential before purchase, one useful test is to try it for playability with a good strong capo at the first fret. If it works well like that, it can usually be adjusted to work well from the nut.

The neck on this sample is made from mahogany. It is straight and smoothly shaped at the back. It is a fairly solid neck, and has an equally solid looking double truss rod system inside it. This is probably why it remains straight with the pull of 12 strings on it. A very thin neck

can be nice to play, but a slightly thicker one which will stay straight is likely to be more use to you. I can't see this neck having any serious problems, and it seems to be a good compromise between comfort and strength. The fingerboard is well finished and neatly fretted. It looks rather like rosewood, but I have a suspicion that it is probably called something else. It appears to be a very hard and durable piece of timber and a good choice for a 12-string fingerboard. The bridge may be of the same timber, but it is difficult to be certain because it has been given an opaque black finish. The head on this sample is a simple but pleasant shape, and faced with an attractive dark wood. I have been asked by the importer to mention that some future deliveries of Craviolas may have decorative carved patterns on the head, similar to those on some Giannini classical guitars.

The body of this Craviola appears to be made from laminated wood. The back and sides are amazonas wood, a pale Brazilian hardwood. The front seems to be in three layers, with spruce on the outside and something else underneath. It sounds better than I would expect from a laminated soundboard of this type. The internal construction is a bit rough in places, but it seems to work, and I would rather have a straight neck than pretty struts. For this price, I don't think you can expect both.

Conclusion

This instrument is simple but generally well-made. Although the inside of my sample is not as good as the outside, it seems to be accurate where it needs to be accurate. It has a pleasant singing tone which carries well and will blend with voices and other instruments. If my sample is representative, at least the 12-string versions of the Craviola work much better if given very careful initial adjustments. Because of the excellent neck construction and the laminated wood body, this instrument should be quite robust and relatively unaffected by central heating or frequent changes of climate.

£135 is a very reasonable price for such a useful instrument. Apart from its own interesting character, I would suggest that it is difficult to find any 12-string with an easy action for this sort of price. If you want a 12-string instrument with a general emphasis towards the treble end, for a bright overall sound, you should certainly consider this one. There is also a six-string version of the Craviola, and I am told that other models in different price ranges may soon be available.

Stephen Delft

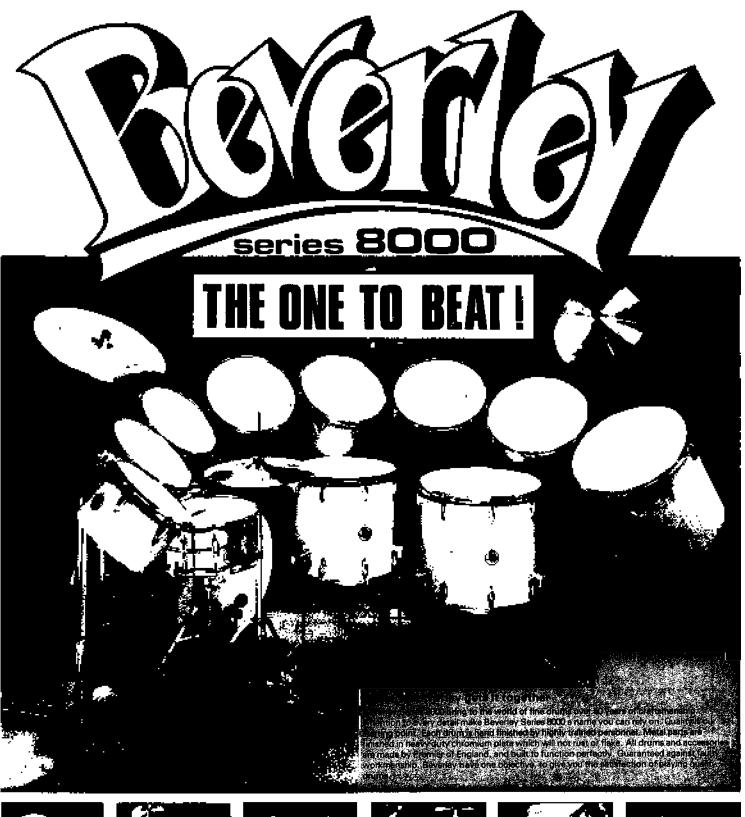
Stephen Delft is a maker and repairer of guitars and other instruments, and a member of the Institute of Musical Instrument Technology. He is also a more than capable performer on the guitar.

Measurements on Craviola 12-string

Scale length 630mm
String spacing at bridge 52mm
String spacing at nut 39mm
Fingerboard width at nut 46mm
Depth of neck at 1st fret 23mm
Depth of neck at 10th fret 26mm
Depth of neck at 12th fret 31mm
Heel begins at 11th/12th fret

Action as supplied: Looked OK but was almost unplayable near the nut. Action after adjustments to nut and bridge: 1.8mm treble/2.4mm bass Frets on fingerboard 20

Body joins at fret 14 but cutaway gives good access beyond this.





Outfit 8004



Outfit 8003 Outfit 8007 (not illustrated)



Outfit 8002



Outfit 8001 Outfit 8006 (not illustrated)



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Drumcheck

Premier Soundwave B4000 £628.40

Premier are without doubt the longest serving and best known drum manufacturers in Great Britain. Over the last two decades they have survived the challenge of drums with bullet-shaped and square nutboxes from Germany, American nutboxes of all shapes and sizes, home-built round nutboxes and more recently no nut-boxes at all. Recently, of course, their most serious competition must have been from the Japanese and as far as I can see they seem to have been capable of resisting them.

Premier now own a brand new factory complex in Leicester which was opened in 1975 and continues in the tradition of their original Della Porta company which began before the war in Berwick Street, London. This large factory is evidently the only one in the world which builds every part of its product on the premises without recourse to outside contractors. (I appreciate that Slingerland, too, make much the same claim, but their heads are made by Remo whereas Premier make their own.) Their drums are 100 per cent British and proud of it (Premier won the Queen's Award to Industry), and they export drums to every country of the civilised world and arguably some that aren't.

The Premier B4000 set has five drums, all

double-headed: a 22x14 bass drum, 13", 14" and 16" tom-toms and a 5½" metal shell snare drum. To complete it, they supply two Trilok cymbal stands, a Trilok hi-hat and side drum stand, a 252 foot pedal, a stool and sticks and brushes. The shells are all made from a 5mm birch ply and all have glue rings. This set is a newish departure for the company since it boasts single nut-boxes on all drums (until now only the floor-standing drums and the concert toms had single ended casings — I must admit to thinking those old head-to-head double-ended lugs interfered with the shell's vibrations since they tended to stress it all over).

Bass drum

The 22x14 bass drum has 20 T-shaped timpani type tuners with pressed steel claws, wooden hoops inlaid with plastic, a felt strip damper for each head and new style (for Premier) outrider type non-disappearing thick rod spurs with optional metal spikes or rubber tips. These locate into Premier's "O" ring insert cast block which also triples as tom-tom holder and leg retainer.

Soundwise, there's one thing I've always noticed about the Premier bass drum. It sounds pretty good in the studio with both heads on.



It hasn't a particularly warm sound but it more than compensates for this with its penetration. I prefer it single headed (but then I prefer any maker's bass drum this way) and to me it sounds like a particularly heavy wooden door slamming — this may not be everyone's (or anyone's) concept of a good sound but it's certainly mine.

I find these new T-shaped tensioners a welcome alternative to Premier's old L-shaped ones. (By the way, the new nut-boxes, claws and tensioners seem to have been borrowed from the old Beverley bass drum.)

Tom-toms

This Soundwave set has 13", 14" and 16" double headed tom-toms. The 13" mounted drum has six nut-boxes and tension screws per head and the 14" and 16" have eight each. (None of the nut-boxes are padded but if you were fastidious enough and had an evening to spare you could do the job yourself with some cotton wool or foam rubber - make sure you have the right tools for the removal job, though.) All the toms have sprung steel dampers under the batter heads, which work well. All toms have a good, deep penetrating round sound, for me enhanced by their triple flange hoops, and Premier have now standardised their tension screws: you can only buy the screwdriver slotted variety these days, although at one time it looked as though they might change completely to the American type square-headed ones. (Many of their snare drums have had these for the past four or five years,) I much prefer double-headed tom-toms for live work, so this kit is far more valid to me than, say, their 717

I once criticised Premier's Everplay Melanex heads because I found them not too resilient. Nowadays, though, their Plus heads are made from Mylar which is an American plastic film from Dupont which has roughly the same consistency as the Dupont film used by Remo. Also Premier produce a CS type head which has a black spot with a small hole in its centre. (I suppose you could call it a wide ring.) All these heads sound good and are a great improvement on the old Everplays. I don't honestly know about their lasting qualities, but I haven't heard any adverse comments on their longevity.

Snare drum

One of Premier's 35 metal shell snare drums comes with this set and I suppose it has been available for about three years now. It's much more American than any previous Premier drum, with 10 double-ended lugs, triple flange pressed steel hoops, a central shell-strengthening bead, cast adjustable-tension cam action strainer, 20-strand snares attached to their mechanism with string, adjustable internal under batter head operating damper and the aforementioned deep slotted tension screws.

A 5½" shell drum comes as standard and although this has a "breathy" sound due to its thinnish shell I would rather specify one of the 6½" models which have a little more "undertone" but with the same bite. The deeper drum (it's called a 36) is far more suitable for today's funky music, but this is not to denigrate the 35 which obviously has many other applications.

The metal drum is neatly finished inside with an inverse flange and a long graduated snare location area.

Accessories

Premier's Trilok stands have been available since late '76 and for those of you not familiar I'll describe them. They all have unique (at least when they were launched) U-section pressed steel legs and, along with all the other refinements to be found on the present generation of stands, they were the first to combine robustness with portability. Their power-to-weight ratio, which until now has been a somewhat disregarded consideration, is second to none.

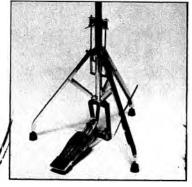
The stands have one drawback (for me). Normally when setting up a tripod-type stand one grabs two of its legs about half way down and pulls outwards. Unfortunately since the Trilok's legs are made of the U-section pressed steel there are two edges per leg with the potential to cut your hands. (The leg is made from 16 gauge steel or its metric equivalent.) If you were in a real hurry to set up (and get to the bar) you could damage your fingers. So the safest way to set up a Trilok is to grip the actual feet and pull outwards. All the stands have self-levelling floor glides and hidden inside these is a substantial sharp spike. To expose the spike it's only necessary to screw the rubber foot cone up a little.

Every stand has Premier's substantial Tbolts for height arrest and adjustment. These locate into large captive nuts held in place with a saddle, so that the adjustment bolts don't actually penetrate the tubes. The top of each stand's bottom tube is split to enable the wing bolt to exert pressure on half the circumference and force it against the tube inside it. The second stage of the cymbal stand has a split plastic insert at its top to take the wear and be replaced when, or if, necessary. A cast cymbal tilter is attached to the 5/8" top tube with an Allen screw so this too is conveniently adjustable. The legs themselves extend out 14" from the centre tube, the bottom tube (on all stands) is 11/4" OD and the second 1-1/8" OD. Its highest working height is 66".

Trilok's hi-hat stand has a cast one-piece footplate (to match the bass drum pedal's) and has a built-in adjustable toe stop. The tripod legs are like the cymbal stand's with the adjustable rubber or spiked levellers. Additionally there is a pair of adjustable sprung spurs ingeniously angled forward underneath the base framework.

The pull is via a plasticised industrial fibre strap (like the bass drum pedal's) which works well enough but I personally prefer the feel of a

non-flexible strap. Having said that, this is the first hi-hat I've played which felt exactly the same as the "kick" pedal. This could be quite a consideration, say, for a twin bass drum player who has to go from pedal to pedal with his left foot. This plastic strap is fixed back on to itself after it goes around the





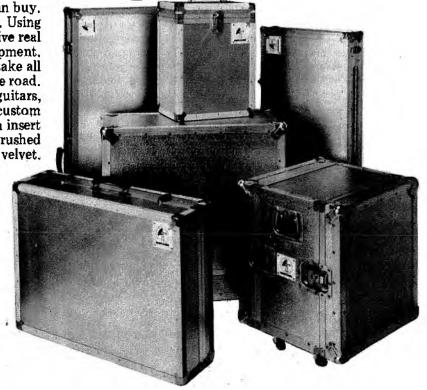
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Drumcheck

parallelogram linkage to the centre rod. Which will, of course, help it to wear longer. Also, the pull is adjustable in length beneath the footplate with a drum key operated screw. I haven't come across any other hi-hat with this feature.

The action uses a pair of expansion springs which are joined to the centre rod diametrically opposite each other and move up and down in slots. These springs are adjustable at the top of the base tube in a most convenient position. A plastic saddle locates two threaded rods which are joined to the springs and each rod has a pair of threaded, knurled washers which sit on each side of it. So, one tightens these washers above and below against the saddle (there's a spring washer sandwiched in between to make sure). If you want a harder action you tighten the top nut while unscrewing the bottom one. For easier playing, you adjust vice versa. Though the action goes from very loose to very tight with ease, it's impossible to do this while playing. You need two hands for the operation because if you turn the top nut the thread and the spring turn too. The top tube has a large plastic bottom cymbal seating cup which is adjustable in angle with a knurled nut. The top cymbal's clutch has been beefed up recently, I understand, which should make it ideal since the old one worked well enough. Anyway, this is a smooth, fast and easy to operate hi-hat pedal which complement's the 252 bass pedal very well.

The Trilok snare drum stand is innovative in many of its features. It has, of course, the U-section tripod legs with the floor levellers and spikes, the large wing bolts with the slotted tube ends and an unusual drum clamping mechanism and playing angle arrest. This is, like all good drum inventions, very simple. There's an omega-shaped clip which fastens around the top tube and can move up and down it freely. The open ends of the omega can be squashed together with a nut and wing bolt which tighten it around the tube. The wing bolt also retains a small pivot arm (about 3" long) which is loose-riveted to the cradle part of the stand. So the omega collar, once loosened, runs up and down the top tube and since it is attached to the cradle which is able to pivot it moves the cradle (and the drum) to the desired angle. To secure the angle one simply tightens the wing bolt.

The cradle itself has two fixed and one movable arm which can be adjusted for length and locked with a drum key operated screw. This arm has a dozen location holes in it so should accommodate all snare drums as well as 12", 13", 14" and 15" tom-toms. I don't know about a 16", though. The final pressure adjustment uses a wing bolt which pushes the moveable cam vertically through a captive nut until it presses hard against the drum. (These arms are sheathed in white rubber.)

The 252 bass drum pedal has become a favourite of mine. It has a single post and like the hi-hat an industrial plasticised fibre strap. The cast one-piece footboard has one adjustable and one fixed top stop and its actual angle to the bass drum head can be adjusted either to left or right for more comfortable playing. The whole unit is clamped to the drum hoop securely and can be tightened sensibly and

conveniently from the playing position. Nonslip rubber feet are positioned directly under both the hoop clamp and heel, and two adjustable forward-angled spurs are fixed to the pedal to immobilise it. It has an accelerator cam action, ½" needle bearing and a compression spring which is also adjustable from the playing position. The stroke of the felt beater is adjustable on a splined ratchet which has a large knurled knob.

The 252 has a positive, speedy action which I became used to in a very short time. The rod for the beater has been thickened a little which is not a bad thing since there's no longer any possibility of it whipping and bending with energetic playing. All in all, this pedal is unfussy, works well and has just the right amount of adjustment to enable the pedal to fit any player and not vice versa.

Premier's double tom-tom holder is something of a hybrid. It works well and is sensibly set a long way forward on the bass drum and allows really close tom-tom placement. The down tube stem of the holder is oval shaped and locates into a pressed steel block bolted to the bass drum shell. Two large wing bolts hold the height adjustment securely by pressing on each side of the oval tube which by its shape effectively stops the tom-toms from circling on this pivot around the bass drum. At the top of this tube is a T-shaped casting with a pair of substantial screw locked ratchet tilters which hold and contain two knurled "L" rods. These thick rods locate into spur-type blocks and are secured with a large wing bolt.

I used to criticise the double holder's receiver plate for being too large and felt it could perhaps adversely affect the sound of the drum. However, these days every manufacturer seems to have a "monster" fixture and it now seems completely acceptable.

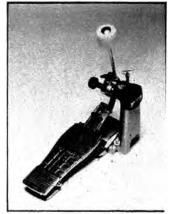
The Premier stool has been made stronger recently and nowadays it's unnecessary to have the saddle shape which contributed a little painfully to my career in its formative years. We now have the luxury of a thick, round foam-rubber squab. Evidently Premier invented the three-post stool and I must admit that I have found them up to now to be unstable—mind you, this new one seems a lot stronger and heavier. (I would have confidently expected Premier to have made a Trilok stool by now, but if they have I haven't seen it.)

Appearance

There doesn't seem to be any finish from Premier which I actually hate: they do all of the modern solid colours, like the Americans and the Japanese, as well as a handsome natural wood. Most of their polychromatic finishes are actually shrunk on to the wood after glue has been applied. I think my favourite at the moment is a sort of cream colour. Also there's a very mysterious, subtle dark red which is normally used by the company for their military drums. Premier, of course, also supply solid black and solid white duroplastics.

Nobody could dispute the quality, appearance and standard of the Premier chrome work. It really is top quality and must be the envy of the other manufacturers.

Henry Roberts



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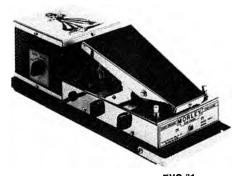
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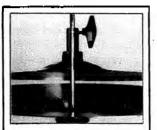
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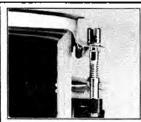
Prism clamping device for positive positioning of tom-tom legs and two dimensional bass drum spurs.



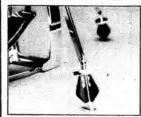
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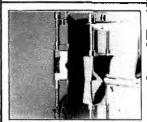




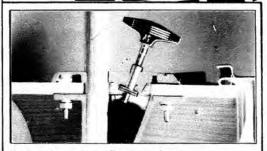
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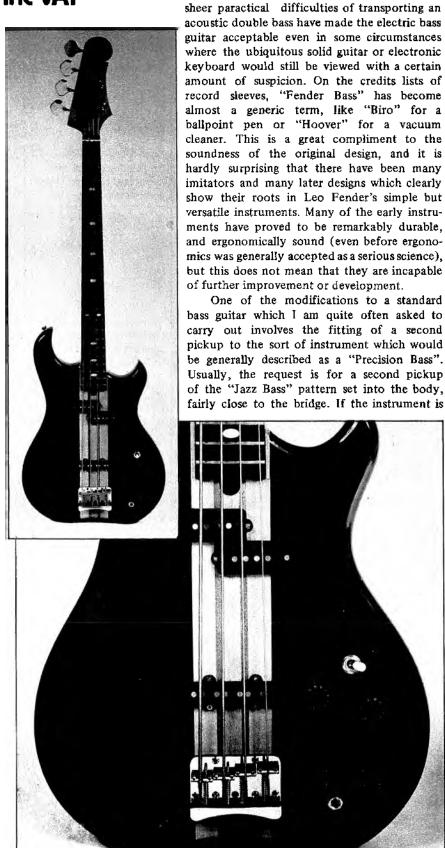
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Basscheck

Hohner Innovator £299.95 inc VAT



Solid-body bass guitars have been with us now for so long that it is difficult to imagine the modern music scene without

them. In my opinion this applies particularly to

the well-known Fender instruments and those

of other makes which follow the same general

pattern. Apart from questions of technique, the

a good one anyway, and the owner is willing to pay the relatively high cost of doing the job neatly and efficiently, this is in my opinion one of the few "improvements" which is really worth the trouble.

This Hohner bass first attracted my attention because it is fitted, as standard, with almost exactly this same pickup arrangement. There may be other production instruments which use the same combination of pickups. but they have not come to my attention. (If any manufacturer feels overlooked here, he is welcome to get in touch with me.) Until I hear anything to the contrary, let us say that the Hohner Innovator is probably the only bass you can buy off the shelf with a "Jazz Bass" style pickup and a "Precision Bass" style pickup. No. I don't think these pickups are exactly the same as any particular batch of Fendermade pickups and I refuse to be drawn into arguments about "better" or "worse". They are different pickups, on a different instrument, but the terms "Jazz" and "Precision" will give you a good idea of approximately what sound to expect. Beyond that point, it is up to your own ears and your own ideas of the sort of sound you want. What I will say is that, on this particular model of instrument, the generally solid construction combined with the voicing and positioning of its pickups, produces a good variety of very impressive sounds. I also think that the differing pickups allow more subtle variations than could easily be obtained from two similar pickups of either type. What was a useful modification on one make of instrument appears to be an equally useful standard system on another.

The outline and general styling of the Innovator appear to owe a bit to Fender and a bit to Alembic and a bit to Japanese ingenuity. On paper, this could be a recipe for disaster, but in this case it has produced a pleasant-looking instrument which balances well and is easy to handle. It has the straightthrough neck construction which is beginning to appear in some of the better Japanese instruments, where the neck assembly extends under the pickups and the bridge and right through to the end of the body. The rest of the body outline is made up by two "wings" fixed on each side of the continuous centre section. As there is no neck joint and no body recess for a neck joint, this is in principle a more stable and more rigid form of construction - and there is of course no possibility of a loose neck joint. I believe this style of construction originated in the USA with such specialised companies as Alembic, and one of the conventions which has appeared is the idea of using light coloured wood for the neck and centre body section and contrasting, darker woods for the body "wings". This draws attention to the unusual neck/body construction, and it also allows the use of some very attractive exotic timbers which may be too scarce or too heavy to use for the whole instrument, or which may not be mechanically suitable for the central "neck".

On this Innovator bass the body side pieces are of a different timber from the maple and mahogany sandwich used in the centre section, but the colour contrast owes a great deal to sprayed-on brown colour and careful selective masking of the centre section and neck. I think this is probably the least attractive feature of the instrument. I would not raise any objection to the idea of decorating electric guitars in different colours, and in this case, the masking and colouring has been done very well, but the particular colour of brown used on the body parts has a slightly opaque appearance and greenish-brown cast which I find discouraging. I asked a young friend to try the review sample for a second opinion. He said "It plays better than it looks." He was referring to the brown colour, not to the overall design. Out of the mouths of babes and angels . . . Something should be done about the colour on the next production batch, but I also think it would be a pity if any one were put off trying this instrument just because of the colour of the varnish. It is not grotesque, it is not even bad, it is just a bit strange, and under stage lighting no-one is going to notice anyway.

The fingerboard on this sample appears to be rosewood, stained black, with attractive oval plastic pearl markers. The neck and fingerboard are approximately straight, with a slight "dip" near to where the neck thickens into the body centre section. It is quite common for bass guitars to have a slight bend close to the body joint and it does not seem to cause much trouble to the player, but I am a little concerned to find this on a new bass which does not have a neck/body joint in the usual way.

I am also concerned that it was necessary to request a second sample of this guitar. Our first sample arrived with two initialled "checked" labels, a curved neck and a very high action. When I attempted to adjust the neck truss rod, it turned round several times with only fingertip pressure on the adjustment key and then broke off with a faint muffled thud. At no time did it appear to have any affect on the neck curvature, even with the string tension backedoff. Obviously this was an unfortunate and probably faulty truss rod mechanism. Anyone can have a bad bit of steel occasionally: I had to scrap one batch myself - and dig a suspect truss rod out of a half finished neck. What puzzles me is how a bass guitar with an inspection label dated April could be in such a sad state only four weeks later. I did not see any obvious signs of transit damage. The truss rod in the second sample appears to be working properly and as I would feel embarrassed at writing off more than £300-worth of guitars in any one month, I have not tried any further adjustments.

Although it is not apparent from a reasonable distance, the access hole for truss rod adjustments, at the end of the fingerboard beyond the 20th fret, is not well finished. Perhaps a small cover plate or a moulded plastic bung could be arranged on future models. The

frets on this second sample have been finished quite low and with flat tops, but I found no difficulty playing the instrument with the excilent half-round strings supplied, and there were no obvious sharp fret ends.

The machine heads on both samples worked well. They are of similar construction to the well-known large-size American bass machines, but with the addition of torque adjustment screws and spring washers to take up production tolerances and even up the feel and stiffness between the four units. They are distinctly better finished than the usual Japanese machines of this type.

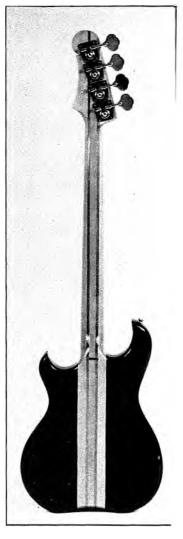
The electrical control system seems to be quite conventional, with a three-way selector switch and volume and tone controls for each pickup. When connected to my usual amp, the volume controls worked smoothly, but the tone controls acted more like rotary switches. (Little effect between 10 and 3 and then all the effective tone range compressed between 3 and 1.) This can usually be modified by fitting a different kind of tone control pot.

The bridge assembly is roughly based on the Fender bass principle, but it has a few more decorative curves and a few more sharp edges. The height adjustment screws are longer than really necessary on this instrument and tend to make holes in the side of the player's right hand if it is used for damping or allowed to rest on the bridge for support. I think shorter grub screws would be a good idea. While on the same topic, some of the magnet poles in the pickups have quite sharp edges. For some reason, the pole tips on the treble pickup have been chamfered, but those in the fingerboard-end pickup have not. In the American instruments, the poles do not project as far out of the plastic covers (sometimes not at all) and they usually have chamfered or blunted edges, at least on the older instruments. The colour of the varnish doesn't matter, the neck straightness you can check for yourself, but sharp edges on an instrument which is often played with fingers are a poor feature and one which could cause considerable ill-feeling.

Conclusion

A solidly-made and very good-sounding instrument fitted with high quality strings. Some of the small finish details not as good as the sound or playability. Sharp edges on pickups and bridge assembly require attention. It is unfortunate that some modern bass guitars suffer from dead spots on certain notes. This Hohner instrument seems to be remarkably free of such troubles. All notes are clean on my sample. The sustain is rather shorter on C sharp and D on the top string but it is not a serious problem and much less trouble here than a "dead" note on one of the lower strings. This instrument is similar in cost in Britain to discount-price American instruments, and well able to compete on the basis of individual preference.

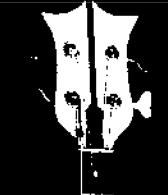
Stephen Delft



Measurements on Hohner Innovator Bass Ser. 800624

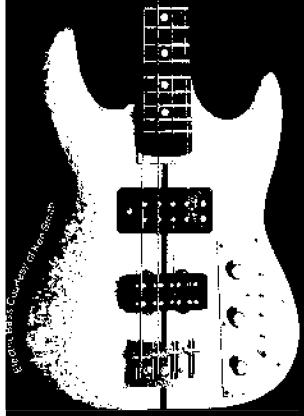
Scale length 850mm/33,5 inches String spacing at bridge 57mm String spacing at out 31mm Fingerboard width at out 41mm Action as supplied 2.8mm

ticble/3.0mm bass. At this supplied action, I found the instrument easy to play with no buzzes apparent through the amp.



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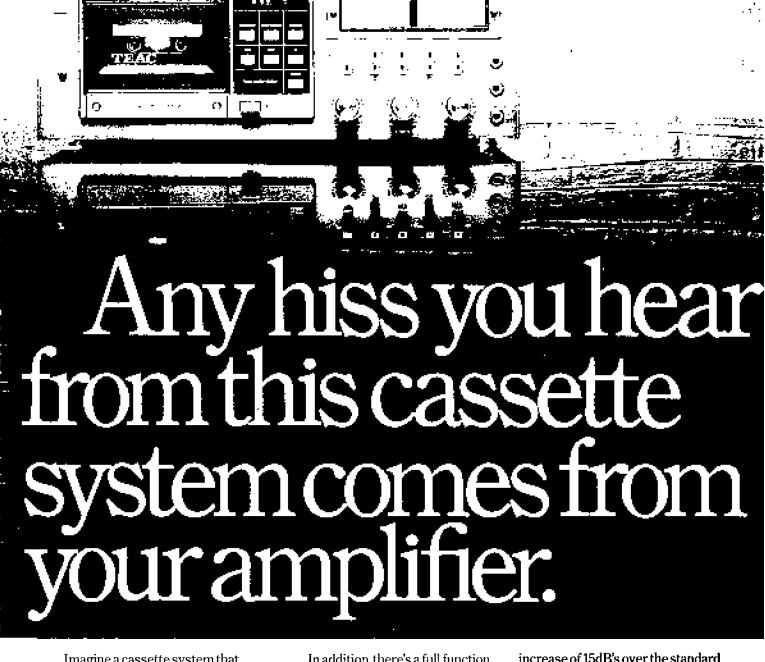
La Bella makes the widest range of bass strings on the market today: flat wound, round wound, quarter-round & semi-round. Gauges come in extra light to heavy; available from short scale to extra long scale.

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The A-800's Dolby circuits go a long way towards producing noise-free recordings. But for professional quality noise reduction, TEAC's exclusive dbx unit has to be heard to be believed.

Specially designed to sit snugly under the A-800 deck, the dbx works by compressing source material in the record mode and expanding the recorded sound during playback.

This effectively eliminates tape hiss and drastically increases the dynamic range that can be recorded—making a S/N ratio as high as 80dB possible. That's an

increase of 15dB's over the standard Dolby system.

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Soundcheck:1

Hill DX700 Power Slave Amp £387 inc VAT

anufactured in Britain at Hollingbourne, Kent, Malcolm Hill Associates' DX 700 ▲ stereo power slave amp belongs to the rare family of extremely compact and very high power output amplifiers. The claimed power ratings reach 700 watts per channel when using a two ohms speaker load impedance only. Single channel power ratings claimed for other impedances are 156 watts ref. 16 ohms load; 280 watts ref. 8 ohms load; 500 watts ref. 4 ohms load. The claimed power output available refers naturally to single channel operation but when both channels are driven, the outputs are slightly lower, simply because of a common non-stabilised power supply (most high power solid-state slave amps use this type of supply nowadays). In fact, the power drop during simultaneous channel operation is quite small i.e. about 14% ref, rated power output into two ohms load, owing to the ultra-low impedance of the toriodal power supply transformer.

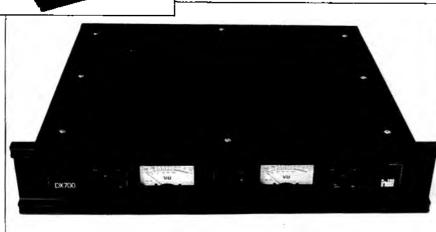
The amp comes with many different options for which one pays extra, so the basic unit price can be kept relatively low. According to the manufacturer, at rated output power these amplifiers represent more than 2 watts per £1. The following options are available: VU meters calibrated to full Bell specification, bridging switch for even higher power mono operations, balanced input transformers, thermostatically controlled fans for continuous high power operation, pre-set level controls with locking collar — no charge.

Construction

The vital statistics of the DX 700 slave amp are 482.6cm x 88.9cm x 16cm for the front panel and 431.8cm x 371.6cm x 88.9cm for the chassis (excluding the front panel), and a weight of approximately 16kg. These figures can be regarded as extremely compact bearing in mind about 1.3KW of rated power output. To give you an idea about the possibilities of each channel's power stage, the individual output device DX 1000 is rated at 20 amps (8MHz) and there are 10 such transistors per channel which give a total dissipation capability of 5000 watts. The system was designed for high reliability, as the total output dissipation capability is about six times greater than the rated output power. Naturally for such high power outputs, the relevant unit power consumption at 1.8 times the output power at maximum.

Mark Sawicki M.Sc. (Eng.) is a consultant in electronics who also designs and builds electronic equipment.

(1)



One of the most important features of any modern power amplifier is the protection system. The DX 700 is fully protected against short or open circuit loads, continuous operation into ultra-low impedances or short circuitry loads which may activate the internally built thermal cut-outs. The protection devices described so far are clever electronic gadgets but no full picture can be completed without mentioning the protection fuses — external 20mm 6.5A time delay type (mains); external 20mm 12.5A time delay type (outputs); internal 20mm 12.5A — 2 off (DC supply per channel) and internal 20mm 1A — 2 off (also DC supply).

All the DX 700 connectors are provided on the rear panel with XLR compatible three-pin female on the input side and male on the output side. In both cases, pin 1 is wired as earth and pins 2 and 3 provide in/out signals.

The maintenance/service access to the internal components is more than easy: simply remove the upper/lower plates fixed with posidrive screws. After removing the top plate, one sees both channels mounted around a massive black anodised heatsink carrying as said earlier 10 x T03 silicone power transistors. The central part is occupied by a large high efficiency toriodal power supply transformer wired internally for 110/120/220/240 volts 50/60Hz operations.

As far as the power output is concerned, it looks like the amplifier can work with practically any load between 16 and 2 ohms. In fact the output stage is capable of driving very high currents into impedances even as low as 0.5 ohms. Magic! My power measurements at onset of clipping indicate an excess of 600 watts RMS at the minimum recommended loads i.e. 2 ohms. The right channel is slightly more sensitive so consequently gives slightly more power at the output.

The THD and IMD measurements are low by any standards, as far as power slave amplifiers are concerned, and indicated the high standards of Hill's design office. The LED Error indicator which, as the manufacturer says, is triggered when the output voltage swing is limited (i.e. clips) by the power rail voltages, is calibrated about 8dB below the transient clipping.

Conclusion

The DX 700 is a highly advanced technical construction, using state of the art technology and delivering ultra high power levels. The price of £387 seems quite reasonable and the amp is unconditionally guaranteed for five years.

There are a few things which were completely new for me. One is the calibrated attenuator (∞ ; 3.5v; 2.5v; 1v), a small but useful feature, simply done but omitted by most other producers. Outside appearance is great, mainly because of the smart panel design and compact dimensions which have been achieved by use of modern and efficient components and the omission of cooling fans provided in the majority of similar power range amps.

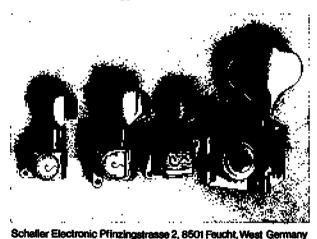
The electronic side looks and is reliable and the general manufacturing standard is reasonably high. Without making any comparisons, I would say that the DX 700 belongs to the group of most advanced stereo power amps in this class on the market today.

PARAMETER	RESULT	TEST CONDITION	COMMENTS
Specific power output 1KHz	Left Channel: 147.62W RMS 267.96W RMS 451.56W RMS 612.50W RMS Right Channel: 148.23W RMS 269.12W RMS 455.82W RMS 640.82W RMS	Onset of clipping into 16 ohms Onset of clipping into 8 ohms Onset of clipping into 4 ohms Onset of clipping into 2 ohms Onset of clipping into 16 ohms Onset of clipping into 8 ohms Onset of clipping into 8 ohms Onset of clipping into 4 ohms Onset of clipping into 2 ohms	Digital AC voltage measurements with accuracy of 1% rdg ± 5d: 1KHz Ref. 9Mohm/39.pF input impedance Dummy load: CGS HS series aluminium housed power resistors type HSC 300, tolerance 1%, arranged for 2, 4, 8, 16 ohm operation. Man. claims power output: @ 1% THD (1KHz) 170 watts/16 ohms 310 watts/ 8 ohms 530 watts/ 4 ohms 700 watts/ 2 ohms
L.E.D. "Error" Indicator Level	Left Channel: 99.0 W RMS 181.45W RMS 257.60W RMS 218.40W RMS Right Channel: 102.01W RMS 188.18W RMS 265.69W RMS 228.98W RMS	Ref. 39.8V RMS into 16 ohms 38.1V RMS into 8 ohms 32.1V RMS into 4 ohms 20.9V RMS into 2 ohms Ref. 40.4V RMS into 16 ohms 38.8V RMS into 8 ohms 32.6V RMS into 4 ohms 21.4V RMS into 2 ohms	L.E.D. is triggered when the output voltage swing is limited (ie "clips") by the power rail voltage, with instant attack, 1 sec. delay. Calibration of "Error" indicator is slightly different in both channels and approx. 8db below the transient clipping. One channel only tested each time.
Total harmonic distortions (THD%)	0.006% 0.006% 0.004% 0.003% 0.003% 0.003% 0.004%	@ 250W RMS @ 225W RMS @ 200W RMS @ 150W RMS @ 100W RMS @ 50W RMS @ 25W RMS	Quite low levels. DX 700 specification claims: less than 0.005% Ref. 200 watts 8 ohms/1KHz; less than 0.04%, Ref. 1 Watt-100 watt/20Hz- 20KHz/16 ohms; less than 0.04% Ref. 2 Watts-200 Watts/20Hz- 20KHz/8 ohms; less than 0.05% Ref. 4 Watts-400 Watts/20Hz- 20KHz/4 ohms. "Sound Technology" 1700B distortion measurement system used. Source Residual 0.0025% THD.
Intermodulation distortions (IMD)	Less than 0.01% Less than 0.02%	Ref. 0.01-200W RMS into 8 ohms Ref. 0.01-400W RMS into 4 ohms	Agrees with the manufacturer's test. Single channel only, SMPTE 60Hz/7KHz, 4:1
Frequency response	+0,1dB	Ref. 20Hz-20KHz	Very good
Input sensitivity for 250W RMS output level (44.72V RM)	Left Channel: 1.337V RMS Right Channel: 1.321V RMS	Ref. 1KHz/8 ohms dummy load Channel gain controls — max.	Satisfactory. Each channel attenuator pot is calibrated ∞ , 3.5v, 2.5v, 1v (continuously variable). Manufacturer claims 1 volt for rated output power.
Input impedance	Approx. 10 Kohms	1KH2	10K ohms decreasing to 9 Kohms at minimum attenuation.
Output impedance	Approx. 0.01 ahms	Ref. 20Hz-20KHz	Recommended load impedances are: 2, 4, 8, 16 ohms. If the amp is required to drive continuous high power into loads of 4 ohms or less, forced cooling should be applied.
Crosstalk	Better than -80dB	Ref. 20Hz-20KHz/8 ohms	Very good
Noise	Better than -100dB (-134dB typically).	Ref. DIN audio band weighting 20Hz- 20KHz into 200W/8 ohms	True RMS reading with ANM2 Radford noisemeter.
Slew rate	20v per microsecond		Fast and more than adequate for all standard applications.
Capacitance load test	ок	$2\mu F$ non-electrolytic capacitor and 2, 4, 8, 16 ohms dummy load	Acceptable
Open circuit stability test	OK	Dummy load removed. Both left/right gain controls on max.	Very good
Short circuit test	30 seconds	Full drive	DX 700 is fully protected against short/open circuit loads, continuous operations into uttra low impedances. Thermal cut-outs provided individually in both channels.

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Soundcheck:2

Studiomaster 16/8 mixing console £1,890 inc VAT

ecording Studio Design, of Dunstable, now add to their line with another special product - namely the Studiomaster 16 into 8 microphone mixing console. Its electronics incorporate many advanced features, including low impedance with electronically balanced inputs, a comprehensive EQ, track status switching, monitoring, etc. The 16/8 is derived from its smaller verison, the popular 16/4 which was reviewed on these pages in August '78. This mixing desk was specially designed to meet the operational standards of the increasingly popular eight-track recording system.

Construction

The 16 input channels of the Studiomaster console are emipped with identical controls and these are (top to bottom):

- 1 (0dB, 30dB) range switch with associated red LED indicator.
- Rotary channel gain potentiometer calibrated 15-60.
- Treble rotary control calibrated -16dB; 0; +16dB.
- Middle frequency range rotary control calibrated 0.4-8KH2.
- Middle rotary control calibrated -16dB; 0; +16dB.
- Bass frequency range rotary control calibrated 30-300Hz.
- Bass rotary control calibrated -16dB; 0; +16dB.
- Echo I level rotary control calibrated (0-10).
- 9 Echo 2 level rotary control calibrated (0-10).

- Bedfordshire, are already well established both in the States and in Europe, and
- 10 Foldback level rotary control calibrated 0 - 10.
- 11 Channel pan pot control calibrated L; 0; R.
- 12 Routing (to 8 output groups) push button switches, i.e. 1-2, 3-4, 5-6, 7-8.
- 13 Channel PFM selector switch.
- 14 67mm long channel fader potentiometer calibrated ∞ ; -50;-5; 0.

All function control knobs are colour coded - red for gain, grey/black for equalisation, blue for echoes, green for foldback and yellow for pan. Both the 16/4 and the 16/8 Studiomaster consoles have plenty of similar controls and features, but one of the few novelties noticed was a smart routing/PFM push button. When this switch is depressed, the button colour changes from black to orange; this colour indication is totally mechanical, without the usual internal lamps, LEDs etc. The channel PFM push button acts as channel prefade to PFM bus selector. This allows the signal in the channel to be read on meter 8 and as the manufacturer says "to be listened to 'solo' on the monitoring system."

The right hand side of the control fascia is occupied by eight output groups, as selected from individual channel routing and represents the eight "sends" to the eight-track recorder. Each group (one to eight) has its own 67mm long fader slide pot, followed by a line amplifier with approx 10dB gain which can be added to the 60dB of the channel gain, making a maximum gain through the whole mixer of +70dB. The 10dB gain line amp feeds the line out sockets on the rear panel. Other outputs are the two echo or effects "sends", the foldback send and the monitor sends. (The foldback send may be used to drive a power amp, for example, or up to 10 pairs of 600 ohms headphones if so required.)

On the monitoring side, a stereo loudspeaker mix is derived from the eight monitor channels situated directly above the group's output faders. Each of the 16 channels may be indepenently chosen to the monitor either to the group lineout or in the sync/playback return from the tape recorder. The foldback signal may also be derived from each monitor channel. These facilities are intended to allow the loudspeaker/ foldback mix to be derived from either tracks being recorded or tracks already on the tape. The track status switches on the 16/8 console perform exactly the same functions as in the 16/4 i.e. recording and remixing (for greater details see IM August 1978, pages 36 and 37).

Coming now to the auxiliary functions group of this mixer, these are: 1. echo returns; 2. lining up 1KHz sinusiodal oscillator; 3. talkback. The echo returns may be panned across consecutive odd or even numbered pairs of output groups or monitors. The oscillator when turned on sends a signal to all output groups for lining up applications. This signal is sinusoidal and a standard 1KHz frequency is used. Finally talkback - very straightforward in form and equipped with a female XLR socket designed to accept a low impedance microphone which together with its volume control and miniature push button control makes for simple stage/console communication. Visual monitoring of the 16/8's performance is realised via eight Componex VU meters calibrated to the usual -20; 0; +3, or on a lower scale 0-100%. All eight meters are internally illuminated.



Now a few details about the connections. First, all the in/out leads are from the rear of the console, thus the operator side is conveniently clear. All 16 microphone inputs are low impedance electronically balanced equipped with Neutrik female XLRs wired as follows: pin 1 earth, pin 2 - in phase, pin 3 - out phase. In case of a common type multicore input, a pair of standard 25-way RS connectors (channels 1-12 and 13-16) is provided. On the left side of the rear panel, the majority of fitted sockets are 1/4" jacks provided for line outputs (1-8), line inputs 1-8, echo 1/2 - sends/returns, line in/outs 1-2 and phones. This picture would not be complete without mentioning a specially provided six-pin power input connector which gives two rails of separate ± 15 volts DC, each capable of supplying at least 750mA and naturally their earth connections.

Conclusion

The power requirements of the mixer are supplied by an external power supply in order

to avoid the possibility of induced hum from an internal transformer. The power supply unit for the 16/8 console will produce an excess of 1.5 amps and hence will support a number of additional inputs if required.

Summing up the performance characteristics of the 16/8 console: with the high standard of workmanship and components, RSD can be proud of this new product. It is carefully designed and beautifully engineered for a first class professional appearance. I will repeat my comment as on the 16/4 console: it really could be worthwhile to incorporate slightly higher teak side pieces, enough to cover the highest level of operating controls, i.e. pots, switches, etc, and consequently protect them against accidental damage for example during transportation.

The 16/8 Studiomaster has its own superbly made aluminium flight case (made by Packhorse Case Co), seems to be extremely strong and is recommended for the touring soundman.

Mark Sawick

blied by an external power supply in order			Mark Sawicki
PARAMETER	RESULT	TEST CONDITION	COMMENTS
mut impedance	Greatur than Storks altims	Ref. 1KHz	Opitmum source impedance for dynamic microphones is approx, 200 ohms.
commel operating level	+449m (1.2V RMS)	Ref. 1 KNz	Nax output level is approx. 20dBm
laximum gain	+80d8 — Inputs +70d8 — through the whole system	Ref. 1KH2 into 600 ohms. Tone controls— flat	Manufacturer claims minimum gain at —15dB an ingadroom +20dBm
Kotsi harmonie listortions (T.H.D., %)	Better than 0.02% (0.015% — typically) Better than 0.018% (0.013% — typically)	@ +20dBits Ref. 1 KHz into 600 chm @ +4dBm /-	Very good. T.H.D. levels and character of this as console are virtually identical with 16/4 desk we reviewed in August 78. These figures are relevant to: a microphone input to a line-output with E.G.
- Challestion	±16dB ±16dB	Treble @ f08#z Middle @ 400Hz to 8KHz Bass @ 30Hz to 300Hz	Both middle (400Hz to 8KHz) and bass (30Hz to 300Hz) effective operating frequency bands are continuously variable in order to suit most E.O. requirements.
input late	research out	1KHz &	Williaccept downsto-approx. —10dBm.
Equivalent input noise	Less than -120dBm (typically -126dBm)	Input termination is 200 ohms	20KHz effective noise bandwidth (16.7KHz @ 6dB/octave filter)
eval/naks; atto	84dB 80dB 72dB	Line output faders down Line output fader normal shannel faders down One microphone channel at 40d8 Four microphone channels at 40d8 16 microphone channels at 40d8	Althest identical with the Studion aster's specifications. The power requirements of the mixer are supplied by an external power supply latorder to avoid the possibility of induced hum from an internal transformer.
naput implication	pessettan 10 ohms :	1KHz	ion inclum recommended matching impedance is 600 ohms.
(U meters	0 V U. ∓ +4d8m	Calibrated on -20; 0; +3 VU instrument scale, Ref. 1KHz	All eight VU meters are accurately balanced and professionally scaled.
lutti input priority	Satisfactory on actual experiments	16-channekæstend varledere	Verygood.
leadphone output level	Approx. 0.5W RMS	Ref, 1KHzawith less than \$5% THD	Manufacturer claims 8 ohms min, impedance Ref. "foldback" o/p, 600 ohms min, impedance Ref. "monitor" o/p
ine-up omiliator	1)CHZ sinusoidal	Similarly as in 16/4 console. Line-up oscillator soliton states 18/2/2/shusoida signal to all groups.	Fresent in all output groups simultaneously for all fronts up purposes. A tradition of Studiomaster. Useful.
		Marie San	

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Mixing is a most important "non-musical" function, whether on the road or in the studio. If it's done wrong, the end result is disastrous no matter how good the music or musicians.

A mixer has to be easy to work with. This doesn't necessarily mean it has to be simple, but it does mean that the sound engineer should be able to work with the desk and not against it.

In a live situation the engineer must have a desk that is not temperamental. The faders should be sufficiently forgiving to excuse an accidental jog, and the output circuits sufficient overload capacity to ensure that in the enthusiasm of the finale, there is no distorted chaos. The patching facilities on a road desk are vitally important as faults can often develop in their interfacing and they must be easy to trace. Flexibility of operation is very important for travelling mixers and it goes without saying that robustness is an absolute must.

At Mick Johnson Music we have selected live mixing desks for their flexibility and strength. Whether you choose a Canary or RSD/Studiomaster desk for road use, we know that our selected desk will prove right for the job.

Recording desks — whether used in home studio situations or in a more professional installation, need different capabilities. They have to be quiet — and the Studiomasters and Canarys we've selected are just that — they must have really efficient EQ circuits and the metering has to be compatible with standard recording equipment.

In choosing these desks we are confident that they will record well. We've used both Studiomaster and Canary desks in recording situations and have no hesitation in making the recommendations that appear on these pages.

Mixer designers today think in envious terms of the tasks faced by engineers ten years ago. Until recently a mixer was designed for use in a studio, in controlled acoustic conditions. Today a mixer is likely to be used anywhere from an outdoor concert to a swimming baths hall. Against this background it will be realised that today's mixer must be a very flexible animal indeed and Studiomaster, of Northall, Bedfordshire, have developed a range of mixers far more sophisticated in their adaptability than even the biggest mixers of a decade ago.

The 16-4 mixer was specifical-Iv designed to be teamed with one of the many professional standard four-track tape recorders that still are the tool of home engineers and demo makers. Like the other Studiomaster mixers, the 12-2b and the 24-2b mixers and the RSD desks, the 16-4 mixer is of semi-modular construction, allowing groups of four channels to be added with minimum fuss. The 16 accepts either balanced or unbalanced inputs ranging from 60dbM to ± 15 dbM with input impedance greater than 5K ohms - but is best used with low impedance, 200 ohm micro-

Once the signal is in the mixer, via balanced cannon sockets or the optional 25 way multi-core cable, it travels through a 30db pad switch which can be used to cut unusually high inputs, then through a gain control that lights an LED 4dB below the clipping point. The equalisation on

Studiomaster input channels is one of their best features — 16db of treble boost or cut shelving at 10KHz, ±16db mid frequency control from 400Hz-8KHz,±16db bass frequency control from 300Hz to 30Hz. Both mid and bass equaliser bands have individual frequency controls.

There are separate level controls for sends to foldback (pre-fade). These can be routed to the four output channels by two, two-way routing switches. logically positioned below the post-fade echo sends and panpot. A PFM button allows the engineer to listen to and meter the signal in the channel without affecting the operation of the mixer. All these controls are colour-coded for simplicity of operation - red for gain, grey/black for EQ, blue for echo, green for foldback and yellow for pan.

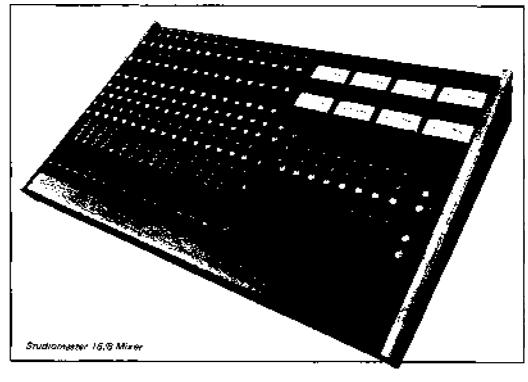
The four output channels, which can be selected by each input channel's routing, are the four sends to the tape recorder. Each channel has its own fader and a line amplifier with 10dB gain feeding the line out sockets. A switch selects record or remix function, send to monitor, send to foldback, or pan to monitor over the speaker mix. The channels can be selected to monitor either the group line out or the playback returns at the line in sockets. This allows the speaker mix and the foldback mix to be taken from either tracks being recorded or tracks previously recorded. Level in individual channels can be checked when the speakers are fed via the PFM switch when the reading comes up on meter four.

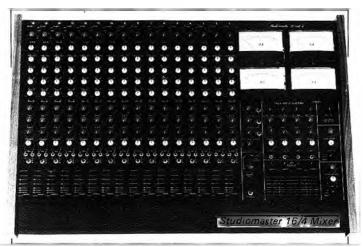
The same precision engineering can be done not only in the studio or at home — where the 16-4 really excels — but also at a live gig where acoustic unknowns can be "mixed around" and stage sound can be mixed to come through a PA system as you would put it on tape. The ideal equipment for this task is the Studiomaster 12-2 mixing console.

Unlike the 16-4, with its remix facility on four outputs, the Studiomaster 12-2 is specifically designed for road work. What these mixers share are the same exacting standards of design and manufacture.

Cannon-type connectors or an optional multicore feeds this mixer, ideally with balanced line. impedance microphone low signals. A pad switch can cut unusually high inputs by 30dB and the gain control gives optimum signal-noise ratio, it can be linked to the meters through the PFM button for zero modulation. Three way equalisation is made pin-point accurate by separate cut-boost and frequency control switches for bass and mid ranges. while the treble can be cut or boosted 16dB at 10KHz with a shelving response.

The echo sends provide two separate mono mixes for external effects treatment; these sends are post-fade while the foldback send is pre-fade and thus unaffected by the channel faders. A panpot allows positioning of an instrument or woice in the stereo spectrum, a PFM button for zero





Vu modulation, Three-way fold-back master output is equalised

the same as the input channels and echo can be added to the

monitoring sound. The main output channels have full EQ allowing fine control over the PA sound, without reworking individual channel EQ.

Mick Johnson Music will soon be selling two more specialised mixers in the Studio master range. One of these consoles — the 20 — 8 — has been developed for the exacting task of mixing foldback signals for onstage monitoring, Twenty inputs allow every sound from lead vocals to hi-hat cymbals to be monitored and eight outputs provide adequate lines for wedges, side fills and drummer's monitors.

The other new mixer from the Northall, Bedfordshire acoustic think tank has been designed specifically as a studio installation.

The Studiomaster 16-8 mixer provides the equalisation, PFM and routing that is incorporated into the 16-4 Studiomaster desk but features eight outputs, obviously for recording with eight track tape machines. It is a beautifully designed and constructed unit made to the highest professional standards.

Studiomaster and RSD have always produced high quality mixers without compromise of materials or design. They now produce a diverse range of mixers that show obvious long consideration for the specific tasks they are designed for. On the road, Studio master and RSD have a high reputation. In the studio, their mixing units perform along with the best.

Heavyweight Canary

Canary is a name turning up with increasing frequency under sound engineers' desk lamps. Canary manufacture a wide range of mixing consoles at their southwest London factory, some designed for versatility and compactness, others are built exactly to their owners' specifications. Canary now make a ten channel sub-mixer that can be

plugged into either a 16-2 or 10-2 Canary mixer to extend these models up to 26 channels.

The 16-2 mixing console pictured below carries all the features that sound engineers require. The 16-2 has transformer-balanced inputs, an independent gain control and three band equalisation. There is a separate

foldback channel, AFL button and pen switch and the 16-2 uses Penny and Giles faders. Both output channels have three band equalisation to give the sound engineer complete control over output as well as input signals. Canary also make a 12-2 mixer that, because of its size and versatility, may soon become a standard piece of outperpade.

equipment.

Canary are not the sort of sound equipment manufacturers to rest on their laurels. Their latest releases are a series of rack mounted accessories, including two and three-way cross-over networks. They also make an ADT flanger that is compatible with any other mixing or sound reinforcement equipment.



Ampand Speaker Choice

Within this workshop manual you should be able to find all the components to build the highest quality professional PA system. The problem is how to choose.

A few years ago the only standard applied to a PA system was "wattage." Now we approach things a little more sensibly.

Sophistication is really the yardstick PAs are measured by. A 200 watt system with full EQ, three way electronic crossover, long throw bins and horns will prove itself very superior to a standard system pumping out 1,000 watts.

At Mick Johnson Music (and M.J.M. Ltd) we've had extensive experience of power amps built by RSD, PA:CE, Canary and Turner, We've learned that these amps can be relied upon TOTALLY. Reliability is an absolute must for power amps. It's possible to get by with a "down" situation on almost any other link, but power amps must run and go on running. Having achieved that - as these four manufacturers have - it's up to you to choose the specification and price that's suitable for you.

Loudspeakers can contribute considerably to a PA system's performance. We are delighted to offer you the ATC range of drivers. We're proud to say these loudspeakers are British and that they've shown many American manufacturers the way to go. ATC speakers have now become a standard component in many professional PA systems and hire company rigs.

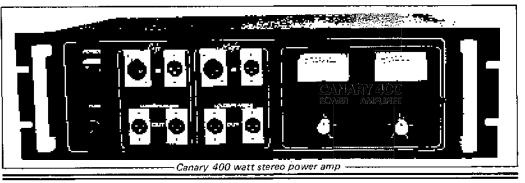
The choice of compression drivers and horns depends on power requirements, the degree of treble penetration required and which type of crossover will be employed. In selling both Renkus-Heinz and Emilar units we offer drivers capable of meeting the most exacting requirements.

RSD Amps

Want power amplifiers built for the road? See RSD. In this highly competitive area of sound reinforcement RSD have both the spees and the looks to sway the most fussy of tour bosses. The RSD 800B Stereo Power Amplifier is one of those units that looks out of place anywhere else but stage-side. This amp will deliver 220 watts per channel into an 8 ohm resistance, it has an excellent

signal to noise ratio, crosstalk is better than 60dB below 200 watts into 8 ohms. The 800B has cutout switches for short circuits and overheating, the latter operated thermally. However, a 250 volt cooling fan makes an overheated RSD amp a rare commodity.

Canary, apart from building mixers, also boast a solid performer in the power amplifier field. Their 400 watt Stereo power amp is also completely short and open circuit protected. These amps can be used to run any frequency group, they are separated completely so one side can run high frequency and the other bass. There is no chance of damage to high frequency speakers or distortion to overall PA sound.



Turner

Manufacturers of high performance audio components often stake-out a small area of the market and strive to produce equipment with unbeatable specifications. A handful prosper and build reputations with ultradependable components — Turner is one of them.

Turner began building high power stereo amplifiers eight years ago, as soon as the reputation of their A series studio monitor amps spread, engineers all over the UK scrambled for them. During that eight years of continual design and manufacturing refinement, a new series of no-compromise power amps emerged and has since nearly taken over the rough and tumble world of concert PA amplification — these are the Turner B series amps, the B302 and B502.

A very large proportion of sound reinforcement hire companies in the UK use Turner power amps, enough to convince anyone that they are considered hard working, no-nonsense units that can be relied upon to deliver the watts in the worst of conditions. Their very high standard of reliability and economy makes them sound engineers' first choice for both studio and PA applications.

The direct coupled circuitry, designed and developed by Turner, uses 30 discrete transistors, 16 diodes, 2 zeners and bridge rectifier in a design that has virtually unmeasurable distortion, wide response and high stability. The input stages comprise of low noise differential transistors of dual construction to provide low DC drift over a wide range of temperatures. Constant current sinks are used in all input stages to prevent chain destruction. Series connected Turner power transistors are used for the final output.

The output stage of these amps is quasi-symmetrical — the driver output stages are independent of the bias circuit — making the output stage not temperature-tolerance critical. The power progression of the triple output stage has eliminated the chain destruction of driver and output transistors that occurs in double

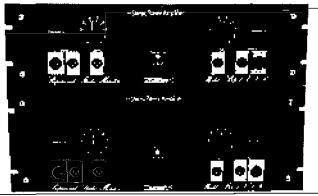
output designs and minimised the low impedance-loading effects on the output, which would otherwise come back to the input stages and increase distortion.

The main chassis is thermally connected to a heatsink system, allowing high frequency overloads and steady state conditions without overheating. If overheating does occur, thermal cutouts remove power from the amp until the temperature comes down to a safe level. The heavy duty mains transformer is of unique Turner design, a high current bridge rectifier and high capacity electrolytics allow considerable energy storage in the amp's circuitry, ensuring a wide power bandwidth and distortion free transient response.

Both the Turner 8302 and 8502 can be ordered with additional XLR socket on the front panel.

ASS horns

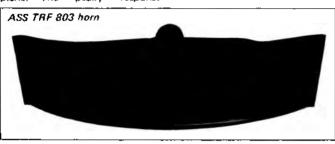
ASS radial horns, although newcomers to the horn market, are already renowned for their high performance. Mick Johnson supplies a variety of these horns



but they all display the same characteristics. The horns are made from a fibreglass derivative which has proven to be extremely non-resonant. The fibreglass materials used have made it possible to produce horns with a flare rate best able to give smooth response through a dispersion of 100 degrees in the horizontal plane and 50 degrees in the vertical plane. The "peaky" response

generally associated with horns has been eiliminated making these units ideal for mid and high frequency reproduction in both low and high-powered PA systems.

There are three different models of ASS horns, designated according to size. They are the TRF 570, the TRF 803 and the TRF 420. All these horns have alternative mounting facilities.



Emilar

Emilar are a highly respected name in the US audio component field and we are pleased to be able to provide one of their best compression drivers. The Emilar 175 frequency driver was designed to reproduce a frequency range of 500Hz to 5,000Hz with less than 0.5 per cent Total Harmonic Distortion at 100dB-SPL when coupled to an Emilar EH 800 horn. The Emilar 175 features an edge wound aluminium ribbon wire on the voice coil, which can be easily replaced in the field, and a heat treated aluminium diaphragm. These units are rated at 30 watts and are guarenteed for five years.

Also from Emilar are two high performance horns which are ideally matched with Emilar drivers. Both the EH 500 and EH 800 exponential horns have a unique shallow shape that makes them suitable for use in enclosures when space is limited. There is no perceptible distortion and no resonant ringing with these units. The horizontal sound beam remains constant throughout the middle and high frequency range. These horns can be "aimed", the Emilar units do not diffract horizontally or "spray" like some other horns.



ATC Speakers



Few loudspeakers arrive fresh on the market, out-perform their own specifications and lead the way in the highly competitive field of speaker design. The ATC speaker is one of those few.

Acoustic Transducer Company of London has made a powerful impact on the users of high performance sound equinment, the variety of applications ATC speakers are suited for and the manufacturer's faith in their product has made them turn up everywhere. Skilled design and massive construction are the first visual indications that ATC speakers have the ruggedness to perform in any professional application - within their frequency limits. A heavy-cast sixspoke frame capable of supporting a weight of many tons is coupled to the magnet structure by both bolts and epoxy resins, assuring absolute rigidity. The magnet is huge by competitive standards and the gap length is large to accommodate radical cone movements in low frequency work. The cone itself and its surround show ATC's great developments in speaker technology.

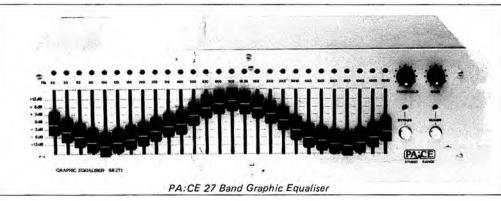
Heat dissipation has always been a problem with high performance speakers and ATC have used a combination of new alloys and adhesives, with hand craftsmanship, to overcome this. The voice coil is wound on a special high temperature bobbin using epoxy resins similar to those used in automotive brake pads, the whole assembly is cured at

170C. The edge-wound voice coil allows a narrow air gap that improves heat transfer to the magnet. Bass models use a special aluminium bobbin for maximum heat transfer. The rear housing is thermally coupled to the magnet and has heat dissipating fins — all metal parts are anodized black for heat shedding.

Each model in the PA-75 speaker series has a specially designed cone and peculiar fibre and resin content. It is selected to provide optimum frequency response and minimum distortion for the specific job for which the driver is intended. New resins have been developed for the ATC cones and on the standard models. the titanium alloy dust cap is thermally bonded to the voice coil, providing extended and smoother high end response, Where the voice coil terminates and is subject to strong flexing, it is treated with a second compound to prevent fatigue. The drivers come packaged with hardware for both front and rear mounting. They are fully tested at power levels above their rated frequency range, because of these demanding tests ATC offer a six year warranty covering both parts and labour.

Mick Johnson Music now supplies three different sizes of ATC speakers, a nine inch model in the PA 75 range and a 12 inch model in the same range. A new model, a 15 inch bass model called the PA 100, is now available.

Graphics and Crossovers



Studio graphic equalisation is one area of electronic design where limits of performance are continually being expanded. One of the leaders in "graphics" design are Patce Studio Equipment. Patce have produced a 27 band graphic EQ that fulfils all the requirements of studio engineers. The Patce SR 271 employs ultralinear gyrators and "current sourced filtering monitoring technique", factors which give the unit incredible performance and reliability.

PA=CE

The 27 bands provide third of an octave equalisation at the ISO standard frequencies, giving 12dB of cut or boost at calibrated intervals along the 60mm sliders. The signal level in each band is monit**or**ed continuously variable threshold LED circuits. A discreet preamplifier provides up to 40dB of gain and Total Harmonic Distortion is rated at less than 0.02 per cent. The Paice SR 271 has centre frequency accuracy better than five per cent, input impedance of IQKohms and output impedance of less than 50 ohms

Canary

Canary are always on hand with sensible equipment for professional use, the latest compliments to their range are a tenband per channel graphic equaliser, and three and two way active electronic crossovers.

Each of these three pieces of equipment were made to be used in either studio applications or with sound reinforcement units. The equaliser has two identical channels, each split into ten bands with centre frequencies of 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1KHz, 4KHz, 8KHz and 16KHz. Lift or cut of 12dB is available on each of these bands and the tuned frequency tolerance of each band is rated at ±10%. Two volume controls set overall signal level and EQ can be turned back to flat through separate rocker swtiches. Special anti-dust seals are fitted to each slider to protect the equaliser's circuitry. which is all printed on circuit boards for each channel. On the PCBs are non-active components as transistors, op-amp, resistors and capacitors. The power supply is internally protected by a 500mA Fast Blo fuse.

Circuitry and banding is logically chosen on these Canary units and Total Harmonic Distortion, at 0.07%, is very low. The unit operates with a 100Kohms input and 600ohm output impedance.

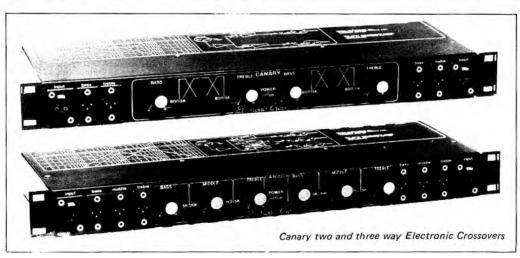
The Canary three-way electronic crossover acts in treble, middle and bass frequency ranges and was intended for use with multiple speaker PA systems. Active electronic filters and

frequency discriminators route the input signal through totally self-contained (i.e., with their own power supply) circuits. These circuits are on one small PCB, except for the mains transformer. The crossover points are 800Hz, 800Hz - 5KHz full range, and 1.2KHz — 5KHz for bass, middle and treble respectively. Roll off is approximately 12dB per octave. Total Harmonic Distortion is better than 0.07% and input sensitivity is 0dBm at the input impedance of 10Kohms.

Like the three-way active

crossover, the Canary two way crossover features PCB circuits and only differs in the absence of a middle channel. This unit is definitely not a budget item, it was designed to be used where signal separation of bass/treble is all that is needed for PA use.





EMS sound synthesis

The emergence of synthesizers as a stage instrument brought about a new age in modern music. Not only were a myriad of instrument sounds at the hands of a single player, if the synthesiser is polyphonic, all these sounds could be played at once by one musician. But how does this player effectively co-ordinate all those parts as if they were an orchestra? This ditemma was overcome by the inventors of the EMS Polysynthi.

The Polysynthi is not an ordinary synth, not even an ordinary polyphonic synth. The Polysynthi was designed from scratch to be the most rapidly and easity played polyphonic synth built.

A completely stable, easily funed oscillator bank covering nine octaves is the primary sound source. A four-octave standard keyboard with three simultaneous outputs — polyphonic, position dependent CV and pressure dependent CV-activates the oscillator bank. There are two voltage controlled LFO's with variable waveforms and the two ADSR's with LED indicators are triggerable from either VC LFO or from the key-

board. ADSR1 may be triggered from the envelope follower. An analogue delay line can provide echo, chorus, flanging and reverb effects.

The Polysynthi features LED indicators and colour coded source, control and treatment panels for rapid operation. The LED's indicate control voltage switching and the colour coded, logically layed out panel shows a wide range of easily patched, repeatable effects. An optional add-on polyphonic sequencer, using advanced microprocessor circuits, can edit and commit to memory ten minutes of polyphonic music.

As well as producing 49 simultaneous outputs through three alternative waveforms, the VCO bank has a range switch to move octaves produced from 1' to 32'. The VCO's can be tuned to other instruments and their circultry is drift free. Pitchbend is controlled by a centre sprung red coded knob or footpedal. Keyboard Memory determines infinite sustain or no sustain. The ADSR release is set to short automatically when keyboard memory is

White noise or an external input can be mixed with the oscillator bank before being sent through the filter. Balanced or unbalanced, line or microphone, high or low impedance inputs are accepted through the rear panel. If no external input is used, the Polysynthi can produce various effects with a VCO bank feedback signal.

The low-pass, switchable VCF is of the two or four pole voltage controlled type. ADSR and LFO voltage can be used to control it and ADSR I can sweep the filter frequency by any amount set on the "Direct Control" knob, Frequency can also be controlled by a footpedal. The VCA can be controlled in the same way, and a pedal can be used to control its amplitude.

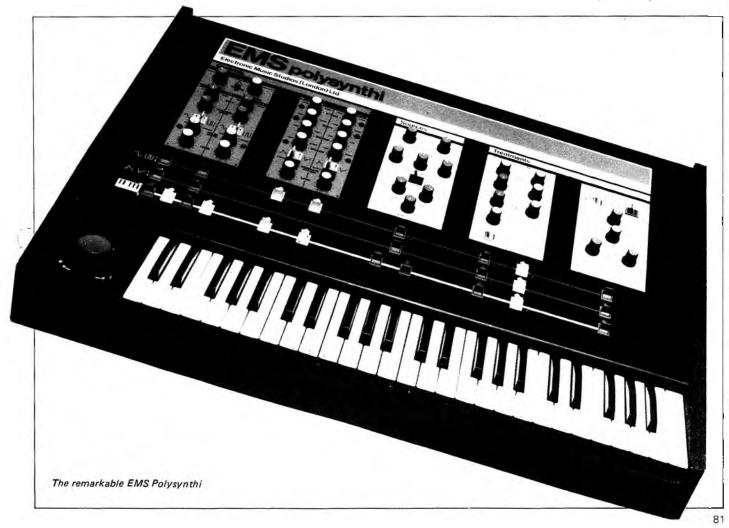
The Polysynthi's Analogue Delay Line uses an output voltage from the VCA, and, remixed with the original signal, gives a +4dB low impedance signal. Delay time of the various echo, reverb and chorus effects can be controlled by either ADSR, LFO or keyboard voltage. A switch selects long or short delay time ranges and another, chorus or Echo

Music synthesis is a new art, unfortunately many musicians haven't really begun to appreciate its possibilities. We're proud to offer the EMS Polysynthi because EMS synthesizers are leading the synthesizer world the way they have for the last seven years.

Many of today's top selling synth items were first commercially developed by EMS including the Vacoder and peg patch synthesizers. Now the Polysynthi reaches aut to the "state of the art" boundaries on synthesis.

mode. The 49-note C-C keyboard, as well as providing polyphonic information to the VCO's, produces two control voltages. One corresponds to the highest note played and the other is pressure proportional.

Jack sockets for output, input and three pedals are fitted to the Polysynthi back panel and can be switched for line or microphone. Provision is made for the fitting of the optional Sequencer.



GHS for UK



Mick Johnson Music, 277 Putney Bridge Road, London SW 15. Tel: 01-788-3491.

Mick Johnson Music has recently negotiated to supply the British market with GHS strings for a range of fretted instruments. Made in Battle Creek, Michigan, GHS Strings for banjo (stainless steel), mandolin (bright bronze), or classical guitar (nylon) have firmly established themselves amongst the players of these instruments. GHS make roundwound Boomer strings and Brite flats with a roundwound sound for bass guitar.

GHS also manufacture the "Gus" special range of nickel and bronze alloy sets for electric guitar and nickel bass string sets. A light bronze set and medium are also made for guitar. Specially chosen guages for rock players give electric guitarists extremely light guages of strings to choose from.



Strings, drum stools, mike stands, etc. are small things, yet all have a contribution to make which can be positive or negative.

At Mick Johnson Music we've taken as much time in selecting the small things in our catalogue as we have the larger items like mixers and synthesizers. The right strings transform a guitar. Mike stands that don't slip inspire confidence and drum stools that don't collapse save slipped discs!

In these pages you'll find a wide variety of small things that go to make up a musician's equipment. We're sure they all perform as intended and complete the service we try to offer as the "total" supplier of musicians' needs.

Ashworth

The players of acoustic instruments, especially acoustic guitars, have always had to surmount enormous problems to correctly amplify their instruments. It is now well recognised that transducers are the best way to avoid the many problems of microphones, particularly on stage.

The leader in this field is Ashworth, who introduced the AJ20 series in 1976, for the first time combining accurate frequency response with an output level sufficient for most normal amplifiers, precluding the use of pre-amplification.

The AJ21 transducers are remarkably versatile, though



mostly used for guitar amplification they can be used successfully with percussion, harmonicas, concertinas and bells. They are extremely convenient, small in size and can be applied anywhere with double-sided adhesive material. They will plug straight into any input impedance greater than 200 ohms, and their clean frequency response delays acoustic feedback at high volume. Lead noise is very low and output is high, a limiting resistor prevents possible overload of high impedance amps. Ashworth Transducers are distributed exclusively by Mick Johnson Music.

MJM

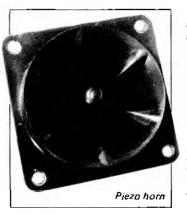
Johnson Music now Mick markets its own speakers! Made for MJM by Fane, these speakers are a well known high performance range. Twelve and 15 inch speakers are available for guitar, keyboard or PA speaker systems. They have optional metal centre domes for added brightness and attack for the middle and upper frequency ranges. There are four 12 inch speakers available, three 50 watt models and a 100 watt twin cone model for cab and disco use. A 15 inch bass speaker is also available.

Mick Johnson Music has its own manufacturing wing too! Sturdy and sparkling microphone stands are available exclusively through Mick Johnson Music in Putney. A deluxe and standard upright stand both share smooth, easy action and a solid base. A deluxe and standard boom model are also available, for that hard-to-

get-at cymbal or keyboardsman's larynx. A deluxe table stand for all you aspiring MD's has a heavy base that is felt-covered to protect

desk tops. There are two versions of our popular drum stool as well — they provide a seat as secure as





Possibly the most economic of all high frequency horn units available today are the mighty Piezo electric horns. These tiny, lightweight units handle enormous amounts of voltage because they employ a crystalline structure to produce a mechanical displacement. And the inherent characteristics of the crystal structure take the place of crossovers. They can be connected directly across your existing speaker system, providing the autput of your amplifier is within the rating of the Piezos

Let your E055 work for you



OSS can give you that special sound. This dramatic new range of sound effectors by Roland breaks new ground. All have rugged cast metal construction in strong attractive colours. The whole of the top is designed as a rubber covered "no miss" foot pedal with FET switching — absolutely no clicks. Every base is non-stip rubber covered. Each unit is battery or mains operated using a Boss AC 9v adaptor. An LED lets you know when you are on and indicates battery condition. Battery change using one coin slot screw. All this in units small enough to slip into your guitar case or tote bag.

OVERDRIVE puts back that "driven valve" sound 600 ohm load output impedance handles the "big" sound. Separate level and overdrive controls allow you to set your own sound colours.

COMPRESSION SUSTAINER offers real

penetrating sustain without distortion. A separate treble control allows you to expand the high notes. With the treble set fow this unit doubles as a limiter.

TOUCH WAH is far more than just another wah-wah box. Automatically triggered by the strength of the signal — guitar string or keyboard — with variable sensitivity. Controllable peak gives full tonal variation and a simple trigger switch allows you to vary the effect sequence from hard to mellow or mellow to hard. Particularly effective with bass guitar.

GRAPHIC — one of the smallest full function equalisers ever designed. Total control over 6 octave bands from 100Hz to 3.2KHz with a ±15dB range. Slide controls with click stop zero settings offer the player total control.

PHASER — better than the others. Rate can be varied from slow to super fast together with variable depth. Phase shift ranges over an

incredible 720° in 4 shifts while the LFO speed can be controlled from 100ms to a full 16 seconds

DISTORTION SUSTAINER—an advanced unit featuring simultaneous control of distortion and sustain with a separate tone control. Distortion ranges from a barely audible soft to extremely hard.

SPECTRUM — particularly useful with bass guitars emphasises any tone spectrum you want from 500Hz through to 5KHz. Separate tone and balance controls.

NOISE GATE (Not shown). There comes a time when any chain of electronic equipment will pick up unwanted noise. Even with the Boss FET circuitry, the connecting cables will produce some noise. The Noise Gate is the ultimate answer, working as a trap, shutting while you're not playing and opening the minute you start to play.

Brodr Jorgensen (UK) Ltd., Great West Trading Estate, 983 Great West Road, Brentford, Middx. TW8 9DN. Tel: 01-568 4578. Please send me details of the Boss effects units. Lenclose 35p to cover Postage and Packaging.

ENCOUNTER THE SOUND OF ELKA



Keyboardcheck

Wurlitzer 200A electric piano £713.25 inc VAT

'f someone says "Wurlitzer" to you, what do you think of? Mighty conglomerations of organ pipes? Does your mind wander through the ornate caverns of some long lost neo-baroque picture palace? Or do you merely conjure up an image of one of the more obscure types of Bavarian sausage? If so, read on, for an education awaits you. The Wurlitzer I'm writing of can actually be carried under one arm, is one of the two classic electric pianos at present in captivity and, as far as I know, is largely inedible.

The Wurly has been around for a few years now during which time the makers (from Illinois) haven't changed a lot in terms of specs. Not for them the fripperies of complicated EQ set-ups, variable vibrato, extended keyboards, stereo, etc. etc. No, the sound's the thing - the Wurlitzer sound, brighter and more percussive than the Rhodes, less sophisticated, more homely and just right for a lot of rock and roll. The sound has a "pingy" edge to it which can cut through most textures. This emphasis on percussive quality also means that it tends to be slightly less expressive (in the lyrical sense) than the Rhodes. In sharp percussive chords, although there's plenty of attack, somehow there's also a certain fullness lacking. And the tone of the bass end certainly isn't in the same class — but it still has character down there, unlike a lot of electric keyboards which just degenerate into bland anonymity as you reach the nether regions. Anyway, before this review turns into a comparative test (which it isn't supposed to be) let's look at the specifications of the instrument.

The compass is just over five octaves - A two octaves and a third below middle C to C three octaves above. A description of the controls is necessarily brief because there are only two (plus a pilot light) on the front panel and none anywhere else. These are volume (onoff) and vibrato. This last controls the amount of vibrato but not the speed, which is set fast. Perhaps this vib speed is a sound clicke that you

speed on the Rhodes sounds wrong to my ears, whereas on the Wurlitzer it sounds just right. If you're thinking that's a subjective opinion you're dead right. It's just that the vib does go hand in glove with the sound.

The sound is mechanically produced, ie wool-covered hardwood hammers strike steel tone bars and the resulting vibrations are picked up by electro-magnetic pickups. Because a traditional type of action is used, the Wurly is touch-sensitive - and in a wholly predictable way. The action is fairly light but chunky enough to give you something to get your hands around in a satisfying manner. course, should any part of the action be damaged it may easily be replaced, though you'd have to be pounding it quite heftily before you got into that kind of situation. Wurlitzer even mention that the keybed (sic) is of five-ply construction for sturdiness - presumably to ensure that your hand won't carry on through to the floor in the event of your playing a particularly loud chord. Continuing along the theme of durability, they have cemented the wool tone hammers with waterproof glue - this means that they should last for years even if your band is touring a lot in North Borneo.

get accustomed to because a vib set at that

The built-in amp is powerful enough for the twin speakers (one on each side facing you) and ideal for playing at home, though if noise - or rather, silence - is at a premium there's a headphone socket under the keyboard. But to get the best out of the instrument you must hook it up to good clean amplification. That's when it really starts to sound like a genuine rock & roll electric keyboard . . . why do I keep thinking of Little Feat as I write this article?

The sustaining pedal, connected by flexible cable, is a solid looking piece of machinery and ergonomic as well, in that it won't shift around or get kicked out of the way (it's too heavy for that). Somehow your foot becomes part of it. It's difficult to explain but it does inspire confidence. The legs are chrome-plated, they screw in and out easily enough and two of them may be adjusted for height.

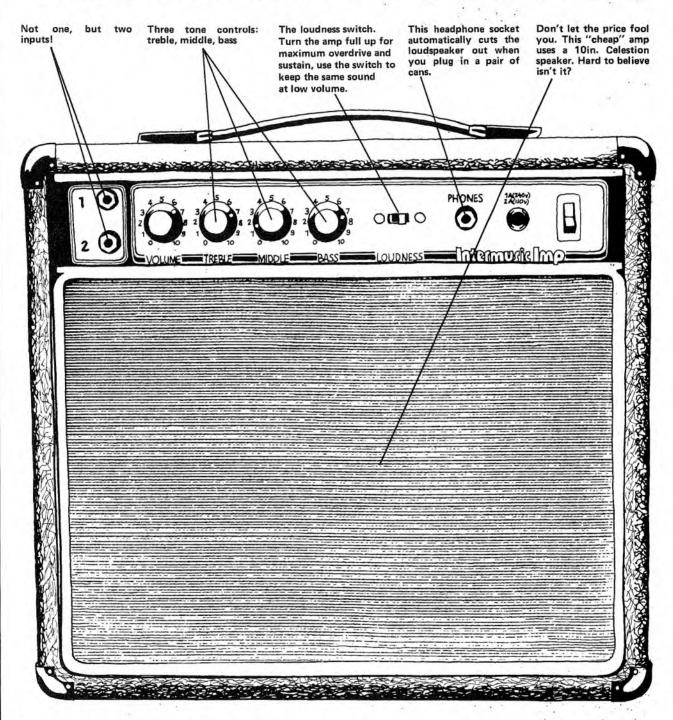
Which brings us to the appearance of the thing. Well, the black vinyl finish is excellent and easy to keep clean. The music stand is OK if you like that kind of thing - but the piano does look a bit quaint and it isn't going to be easy to stack, what with connections under the keyboard, the curved top, and the sustaining pedal connected underneath. Yes, of course these are all surmountable problems but it's a pity they weren't thought about a bit more in the first place.

Choice? Disregarding any other competitors (and there are a few interesting Japanese ones) it's the Rhodes and the Wurlitzer that lead the field in electric pianos at the moment. decision between the two is largely a matter of what the individual player feels about the sound he's making - isn't it always? And Wurlitzer would probably feel that it's hardly fair to compare their instrument to the Rhodes since it costs (and weighs) far less. And that really is the final point: for a minimal amount of money you're buying yourself a well-tried, well-proven and very popular quality keyboard.

Tony Hymas is a keyboard player and composer with experience in rock, jazz and classical music. He has played with groups ranging from the lack Bruce Band to the London Symphony Orchestra, and recently toured with the band fronted by Jeff Beck and Stanley Clarke.

Tony Hymas

SEE HOW MUCH YOU GAN STILL BUY FOR £53



The Intermusic Imp is a 15 watt rehearsal amp which delivers like a stage amp. The same circuits used in producing the tone of the big Intermusics are used here, the only difference is the size and the price.

In a cynical world there's little enough to make you



believe in other people. But all this for just £53* must tell you a lot about the Intermusic team. By now you should have got the word about the fantastic Intermusic reliability. So for the studio, the routining session or the bedroom, Intermusic has it.

PA:CE Ltd., Kneesworth Street, Royston, Herts.

*Exclusive of VAT

In Brief

Canary 10~band stereo graphic EQ £113.40 inc.VAT

recent addition to the Canary range of professional audio products. As with others of their sound processing boxes, this one is designed for standard 19" rack mountings. It is equipped with two identical channels, each split into 10 bands with centre frequencies specified at: 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz and 16KHz. All the centre frequencies are defined with approximately ±10% of the tuned frequency tolerance and provide lift or cut at ±12dB at max in each section.

Each band's slider (approx. 70mm long) is protected from the outside by a special anti-dust plastic seal with individual bands calibrated at: 0dB, ±2db, ±4dB, ±5dB, ±8dB, ±10dB and ±12dB. The overall signal level is controlled individually in both left/right channels by a pair of volume rotary pots calibrated 0 to 10 and mounted at the top central part of the control panel. At any time during operation, EQ can be turned back to the flat position by means of a small rocker switch provided again separately in both channels.

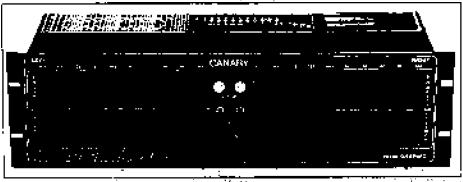
Careful artwork layout completes the front panel — black matt painted with all markings in white and standard Canary yellow colours.

Internally, each channel has its own PCB carrying 10 BC169C transistors, one 741 op-amp and quite a few other non-active electronic components, i.e. resistors and capacitors. The power supply is protected by an internal 500mA Fast Blo fuse link, and is a non-stabilised type providing two symmetrical rails at ± 20 VDC smoothed by a large double 2000 μ F/40V DC Erie electrolytic capacitor.

The rear panel carries a three-pin Euroconnector mains socket, both left/right input and output ¼" jacks (marked "From Mixer" and "To Amp" respectively). Both input and output levels operate nominally at 0dBm with an input impedance of 100 kohms — unbalanced and approximately 600 ohms at the output. The Total Harmonic Distortion claimed should be better than 0.07% with corresponding noise figure being about -70dBm.

The overall frequency response is $\pm 0.5 dB$ Ref. 20Hz to 20KHz, which is not too bad for PA systems.

Summary of Characteristics of Canary Graphic EQ Number of bands: 10 x 10 stereo Input sensitivity: 0dBm (100k unbalanced)



Output sensitivity: 0dBm (600 ohms unbalanced) Max. Output level:

+15dBm Noise:

-70dBm

Distortion:

Better than 0.07% (each section)

Frequency response: $20Hz-20KHz \pm 0.5dB$ Section lift and cut:

-12dB

Frequency centres:

31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz, 16KHz.

Canary three-way crossover £129.75, two-way £102.50

The Canary three-way crossover unit operates in three frequency band regions i.e. treble, middle and bass and is intended for use in multiple loud-speaker PA systems. All three channels employ active electronic filters of frequency discriminating paths for routing the treble, middle and bass frequencies to the particular power amplifiers and consequently the relevant speaker systems.

particular crossover is This designed for a 19" (48cm) rack mounting and ideally suits the three Canary (200 + 200 Watt) power amplifiers mounted in this rack The unit is extremely assembly. compact and the front panel is only 44mm high. All the controls are symmetrical for both channels: bass/ middle/treble pots and vertically mounted selector switches calibrated at 5KHz/20KHz and 1.2KHz/5KHz respectively. The connectors used are Neutrik XLRs, with 4" plastic jacks, and this crossover is totally selfcontained i.e. has its own power supply - the power on/off switch with one small red LED indicator completing the picture.

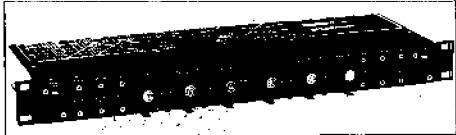
The electronics are very straightforward and built around a small single PCB which contains all the small circuit components, including the power supply unit, except for the mains transformer. The electronic filters are all active types and employ the popular 741 op-amps. Power supply is protected by an internal 500mA fuse which I think should have been assembled on the outside wall, while the main socket is the usual three-pin Euroconnector type, with the mains lead supplied as well.

The unit should be placed reasonably close to the mixer, convenient for soundmen, and it is nicely finished giving a good overall impression, with a high standard of components and a design that looks reliable. Soldering is neat and tidy. Despite the presence of part of the power supply mounted on the PCB, all high voltage parts are insulated from the filters and controls necessary from the performance side but primarily because of the safety factor involved.

The design of the two-way crossover attains the same high degree of quality as the three-way, and uses several of the same sub assemblies, e.g. Power Supply, PCB, etc.

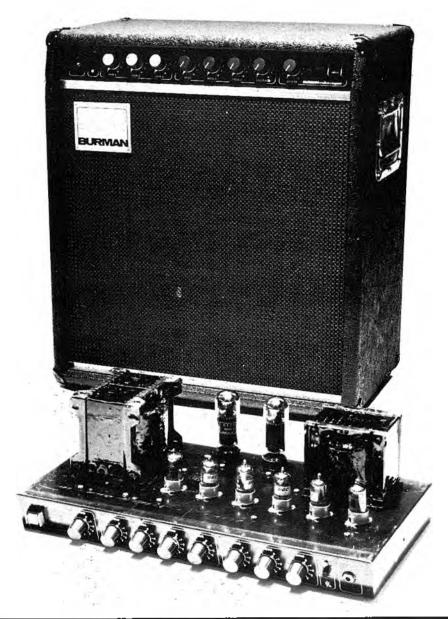
The quality of materials and workmanship meet the same high standard as the three-way crossover has, and so can be judged to be sensibly designed and reliable to operate. As for access, well this is positively easy, with just four Philips screws to deal with, but Canary claim that there are no user serviceable parts inside.

Mark Sawicki



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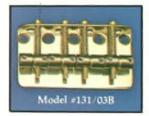
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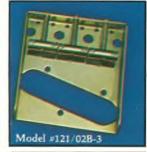


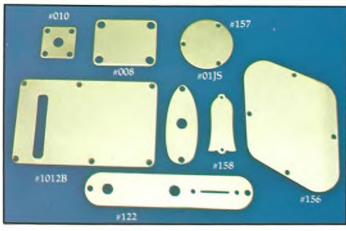














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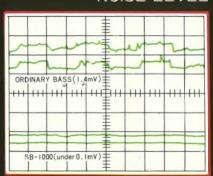
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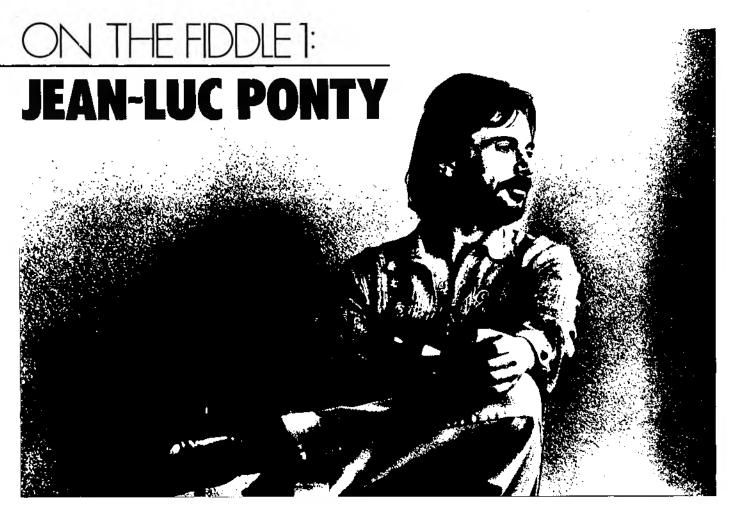
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he number of French rock stars on the international music scene are few and far between. And the number of rock violinists can be counted on one very small hand. All of which makes Jean-Luc Ponty a rarity, because he is both.

There can be no doubt that the appearance of the electric violin in the late Sixties added a new and exciting sound to an already exploding musical world. Ponty was one of the spearheads of that electric violin sound, particularly through his work with Frank Zappa on the Hot Rats album and later with John McLaughlin's Mahavishnu Orchestra. Today he fronts his own band and has become deeply involved in complex electronic music.

A far cry from his classical days in France when he was considered something of a child prodigy. However, from an early age he discovered an interest in jazz, which opened up a whole new world of music for Jean-Luc, particularly the aspect of improvisation.

It was while he was playing with jazz bands that the question of amplification occurred. "When I started jamming in clubs, I was a classical player basically so I would go along with my acoustic violin and have to play through the PA into a mike, and I'd get a stiff arm after five minutes. Also, I have always played with energy and the drummer was always getting excited behind me. First of all he would be playing with brushes, but very quickly he would

'My life has been adventuring with the sound of the violin'

grab the sticks and start cooking and I just couldn't make it.

"So out of necessity I went out to buy an amp and a De Armond pickup, which was made for violin but was very poor. It was just for the volume, just to be heard in a band with a drummer. Of course from a purist point of view I was reluctant. After all, I was influenced by my classical education and it was kind of a sacrilege to put a pickup on a violin.

"I found out very quickly that feedback was a problem, and another problem was that with a De Armond the sound was totally uneven. The lows were very fat and boomy which I liked because it somehow gave me the tone of a tenor sax, but it was too much sometimes. It didn't peak at the very high frequencies which the violin goes up to, so when I played very high notes on the E string it would just be acoustic.

"The first amp I had was only small, 40 or 60 watts, and the sound was rather screetchy. Also I found

that the people who sat at the first tables of the clubs I was playing were complaining. This was because I wanted to project my sound out into the club, so I directed the speaker towards the people. I didn't know anything about sound, and everyone was complaining that they had never heard anything so loud and piercing.

"I later became conscious of EQ and the tone control on the amplifier, so I developed a mellower tone. It was an electric sound which was a bit fatter than the traditional acoustic sound and I found it a help to integrate my sound into a jazz band."

Probably the biggest step in his career was the move to the US in 1969. Prior to this Jean-Luc had done virtually everything that was possible on the European music scene, including leading his own band and recording with numerous name artists like Stephane Grappelli and Stuff Smith.

Soon after arriving in the States, he acquired his first real electric violin which was to provide the jumping off point for his electronic excursions. "I met John Berry (of Barcus-Berry fame) in 1969 in California and he introduced me to one of his first electric violins. It was a revelation for me because for a long time electric violinists were lacking good equipment, it was real Mickey Mouse stuff.

"John Berry was the first man to create a serious good electric violin. All the electric violinists agree that they are still the best. I work closely with them and every time they come up with something new they like me

to go to the factory and try it and give my opinions about it.

"When I seriously started thinking about electronics, I said that since I have to deal with an electric violin, I will get the best out of it. Also I was tooking to develop a new sound, I'd already forgotten about trying to reproduce the pure classical sound of the violin. I didn't want that sound any more anyway, because I was getting a kick out of the new sound. It was fatter and more adaptable to rock or jazz or whatever contemporary sound

"I wanted to develop it more and more and this was becoming my identity, that electric violin sound—it was me. When it comes to volume, thanks to the quality of equipment, I can play as fat as a guitar and as loud as a guitar if I want to. Right now, I'm using amps like Crown, which is really hi-fi equipment, together with JBL speakers or Altec with horns, and although I never consider myself totally happy, the equipment I have now is the best I've ever had."

Jean-Luc's rise to fame in the rock world came through his work with two of the most talented and respected musicians in the US, Frank Zappa and John McLaughlin. His guest appearance on Zappa's Hot Rats album probably first brought him to the attention of the rock public and he later toured with Mothers' pianist George Duke.

During the early Seventies Ponty also assembled a band of his own, before going back to work with Zappa and later joining John McLaughlin's second version of the Mahavishnu Orchestra. The effects of working with two such major talents were obvious on the developing new world of Jean-Luc, although the demands of each were different.

"With Mahavishnu, what he wanted from me was very specific – he wanted a violin, an electric violin. Therefore I was not using too many different sounds, which I do now more with my band. It was pretty flexible though, I'd do a solo with an Echoplex for instance, and it was in the middle of a long suite, and he would let me go into that just on my own, totally free. He liked that and encouraged me to do it. Otherwise, what he wanted most of the time was a straight electric violin sound.

"Zappa was another story, a different situation where instrumental music and improvisation solos were not really the name of the game as much as Mahavishnu or my band. It was part of the show, but there were a lot of other things too, therefore I



had less room to play and experiment. However, Zappa was very encouraging towards experimentation with sounds, he was one of the first ones to get into new devices. He seemed very excited every time a musician would try something new.

'At that time it was really the beginning of experimentation for me and also the beginning of devices becoming available. I'm talking about the early Seventies when we started seeing a few devices in shops that were usable on stage. Until then, effects were mostly done in studios and it was not possible to reproduce them on stage most of the time. So my interest grew at the same time as the development of those devices. Now, every six months there are new things and that's helped me tremendously. I had the same interest in researching sounds before, but there was not as much available."

Every since his early screetchings sent French jazz club audiences running for cover, Jean-Luc has been very conscious of his live sound. There can be few more painful experiences than listening to an ailing violin, particularly an amplified one. Jean-Luc has had a fair amount of sound problems but now, he feels it's all down to a good sound engineer, good equipment and good musicians.

"You have to have entire confidence in your sound man, because you don't know what's happening in the house when you play on stage. It's entirely in his hands — or should I say his ears — therefore the choice of a sound man is very important. I have a great one on this tour and have had pretty good compliments everywhere we played. The volume is very controlled.

"Also, we have better equipment on stage this tour, and different musicians who understand better the discipline of volume. With the previous band two years ago, it was getting to a point where I couldn't control it. You can't do it without dynamics and this band is great for that."

Since concentrating on a solo career in 1974, Ponty has released five albums, Upon The Wings of Music, Aurora, Imaginary Voyage, Enigmatic Ocean and the latest, Cosmic Messenger (all on Atlantic). He admits that the music is hard to categorise and reflects his many influences.

"Even for me sometimes it's hard to analyse because I just let the inspiration come out, and that's the way I write my music. Once an album is finished, then sometimes I find where the inspiration has come from—if it has been more influenced by my classical background, jazz, or my experience with rock. Let's say that my music is in its own place a new music, a new form, issued from jazz and rock and my own classical experience.

"I'm not trying to produce modern classical music, but since I've learned or experimented in classical music, then ideas like the writing of a suite come from this classical background. From my jazz background, I still use some rhythm concepts for solo sections and improvisation. Basically the concept of my band is to be an instrumental band where there are arrangements and compositions to play. Sometimes they are very orchestrated, but it is usually half and half, the solos are open and the musicians are free to improvise.

"For example, the suite Imaginary Voyage is in four parts. Part one is totally written in a classical concept, I even wrote bass and drum parts. That lasts for two and a half minutes before going into part two which is extremely open, all I have is a bass riff pattern. I indicated to the drummer to give a kind of rock feel behind, and I have chord changes. It starts with a solo, so suddenly it's very open and very loose, then I don't say any more. I mean, I give a choice of a pattern to the bass player but he's free to elaborate on it.

"So it really depends on what I want to do, where I want to go with a piece, but even when there is a lot of structure, it always ends up somewhere on a very open section. It is a mixture of strict discipline and freedom."

During the time of the Jean-Luc Ponty Band, there have been several personnel changes. Often musicians >>>

V THE FIDDLE 2:

who appear on the album fail to make the touring line-up. This happens for a variety of reasons, but Ponty is quick to point out that the musicians are there to play his music and if they cannot follow the direction he is taking then replacement is inevitable. More often than not, availability is a big factor in deciding what musicians he employs in his band. For instance, he featured British guitarist Allan Holdsworth on the Enigmatic Ocean album, but wasn't able to include him in his touring band, or on subsequent recordings.

"After our European tour in 1977 I came back to LA and suddenly got the idea of having a second guitar player in the band. I had heard his playing on the Tony Williams album and I couldn't believe how much affinity I was hearing with his playing. His sound was exactly what I was looking for, the icing on the cake.

"The reason I called him was because I wrote a piece called Nostalgic Lady. While I was writing it, I was hearing him playing and improvising, I was hearing his sound. I never told him about this but after we'd finished recording he said to me, 'My best solo is in Nostalgic Lady', so I had guessed right about his affinity musically. He was not on the next album because I needed someone who was available for touring and Allan wasn't. For me albums and tours are linked together, so I don't always get the people I want."

Jean-Luc also points out that the individual members of his band are always free to opt out whenever they wish, to pursue other projects either with other bands or following a solo career. He explained, "Basically, I don't want to be stuck with musicians forever, like in a marriage, because we all draw in different directions at different times."

With all his experimentation in electronics, it would be quite easy to forget about playing acoustic violin. However, Jean-Luc has been careful not to neglect the instrument with which he began his musical career: "I don't use it on stage on this tour, but it's true that it is still part of

my sound.

"To me, my life has been adventuring with the sound of the violin and therefore I have a spectrum of many sounds, but that includes the old traditional music sound as well. My identity as a violinist today is my electric sound really, but I don't feel it replaces the acoustic sound. It's something new which exists in its own place now, but fortunately there is still the beauty of the acoustic violin."



Darryl with conductor David Atherton during rehearsals of the Concerto.

iolinist Darryl Way has been active on the rock scene in this country since the beginning of the decade, fronting two versions of Curved Air and his own band Wolf, and guesting on albums by the likes of Jethro Tull and Gong.

Now, after a two-year break from the rock machine - a time he used to practise intensely, re-evaluate his musical direction, and write a fulllength, classically based piece for orchestra - he's off and running again. Not only is his Concerto For Electric Violin (released on Island and to be played by the Royal Philharmonic Orchestra at the Festival Hall on July 18) going to deal a death-blow to the inflated claims and abilities of many symphonic rockers, but he also hopes that it will open up a new phase of his career, expanded to include activities as straight classical performer. improvising artist and writer of both fusion music and classical works.

So how did a drop-out from the Royal Academy of Music wind up becoming a member of the international mafia of contemporary violinists alongside Jean-Luc Ponty, L. Shankar and Jerry Goodman? And what sort of problems did he have to tackle in order to amplify a notori-

In symphonic writing, things are a bit more complicated...

ously sensitive instrument and adapt his technique to rock bands?

Darryl takes up the story: "When I left the College in 1969 I wasn't thinking about electric violin at all. I wound up playing folk music and improvising on Beatles tunes in pubs like The Cedars in West Kensington, I remember a Leonard Cohen song on which I sang and accompanied myself at the same time, which I find pretty hard to believe now! Then I heard people like the Nice playing what was basically classical rock, and the American West Coast band Spirit, who were very classically and jazz orientated, and I really wanted to play that kind of music. But to play that kind of music I had to amplify

the violin, so that was the next stage."

The next stage proved to be totally unexplored territory, because at the time Curved Air was formed in 1970, the only player Darryl was aware of on this side of the Atlantic was Rick Grech of Family and, later, Blind Faith. With no advice forthcoming, he had to make his own primitive solution to the problem: "I bought an old violin, took it to Orange and got them to put ordinary pickups on it, and I fitted steel strings, which most violins are strong enough to take -Russian classical players use them. We had to pack the thing with tissue paper and cotton wool to stop it feeding back and we survived with that situation until we went to America and discovered that Barcus-Berry made a pickup that was built into a violin bridge, which produces a very nice noise and no feedback at all, other than the sort I wanted.

"The beauty of it is that I don't have an electric violin, as it were" Darryl happens to disapprove strongly of solid electric violins and other brand name varieties, which he scathingly dismisses as being worse than school violins - "I have a bridge which I can put onto any violin I happen to be using, usually my best one, which I also practise on acoustically. It's a very good bridge, in fact it might even sound better than a normal one - and I've now got two which I guard with my life, because I don't think you can get them any more. Nowadays they only make the little bug pickup which you glue onto the side of the bridge - and that's bound to affect the sound, because it has a muting effect."

Darryl currently owns four violins: one French, one German, a startling perspex creation, and his best fiddle a modern Italian instrument: "It was made in Milan by Madaudo as recently as 1942, but all the teachers I have ever had have wanted to buy it off me; it's a beautiful violin. The perspex one was made for me when I was in the first Curved Air as a sort of gimmick. The father of the sound engineer spent a lot of time on it, although he'd never done anything like it before, and made a lovely job of it. It's possible to play an instrument like that in a rock context because the parameters of rock are wider, but when it comes to playing complicated music precisely it becomes unviolinistic, because it's not set up as well as an ordinary violin would be, and it's slightly difficult to play." So much for gimmicks . . . but Darryl gets a lot of mileage out of his effects pedals, especially on his concerto, of which more anon.

Improvisation, and the multitude of



approaches to this much misunderstood art, is another of Darryl's major preoccupations - brought into sharp focus as a result of his metamorphosis from straight musician to fusioner. He admits that in Curved Air he was "playing the notes", with very little improvisation: "The solo in Vivalidi was just a freakout - it wasn't until I left the band in 1972 and got my own band Wolf together that I realised here were certain parts of my style and technique that had to be developed, in other words, improvisation. Ever since then I've been trying to improve that side of my playing, looking into all the possibilities of the improvising arts."

The catalyst for this new awareness was Wolf guitarist John Etheridge, later to join Soft Machine: "It was a struggle to keep up with him during those two years. I'd been improvising off the wall since I was 16, but never in a particular format or sticking to certain rules. John mystified me because he could improvise over a chord structure in a different way to my style, which was classical. He did it in a bebop way" - heavily arpeggiated, working towards target notes via the semitone above or below - "and this use of chromatically altered notes intrigued me. I never actually got to grips with it. I understand it, but I never could feel it, and my approach to improvising now is based on ideas I learned from pianist Laurence Scott (ex-Isotope), the modal technique, which uses the strict scalar implication of a particular chord.

"I think one has to go forward. The whole modal thing is so obvious, but it is a matter for study and applying that study to practical situations when you are playing. Wolf was a practical situation, but at that time it was a question of trying to hack it without

really knowing what I was doing."

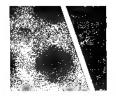
On his return to the second Curved Air, which lasted from 1974 to 1976, Darryl still found he was using an extension of his classical licks and scales, increasingly affected by the blues "I've always used the pentatonic scale" — eg EGABDE — "but the altered pentatonic, with a minor and major third, got more use because the band's guitarist was Mick Jacques, a strong blues player, and I was learning that style from him.

"Although my playing had changed, it has only really developed in the last two and a half years that I've not been playing in bands — because they are such a shuttered and closed world, and when you get involved in playing a combination of four or five other people's ideas, there's very little time to solidify your ideas musically.

"I spent that time practising because I hadn't done so to any large extent since I'd been involved with rock music. The first thing was to regain my technique, then develop that. It was hard work" - predominantly based on scale, arpeggio and bowing exercises in the violinist's Bible, written by Sevcick - "but it has paid off. To be able to handle the concerto, to get up in front of an orchestra and handle it as a soloist, I couldn't have done that two years ago. I didn't listen to much rock in that time, mainly classical music, but I went to the occasional concert: Johnny Mac, Weather Report, and David Sancious recently, who I liked."

As is always the way, the acquisition of new musical skills takes a while to find an outlet, but the insight into improvisation combined with the rediscovery of a powerful technique was to prove invaluable. "I always knew improvising was important, but never that important; but improvising is very important in composition. To be able to improvise melodically in your mind is very important to the actual development of musical ideas, but it's very lacking in straight musical education today - which I said to Melvyn Bragg in the South Bank Show TV interview in April. No-one realises that within certain rules and formats no matter what they are, whether jazz, Indian, rock or classical - you can improvise in any style you want. The cadenza on the album version of my concerto is improvised, and for that reason anyone else who plays it has to think of it as his own and use whatever material he's already played in the concerto to make something of it. Also, the first 50 bars of the slow movement is improvised over a matte orchestral arrangement - string gravy, as Laurence calls it - playing a 12-bar ▶

03



fact: more comes out of this tiny box because more went into it.

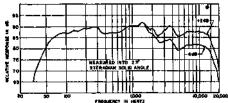
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sequence based on B minor and F# minor with a four-bar turnaround. That's a very easy sequence to improvise on, it's open to a lot of interpretation when you get into the harmonic minor and melodic minor scale implications, but on the album I tend to stick strictly to a pentatonic feel."

The album itself is a mainly synthesized recreation of the concerto, a piece that Darryl worked on every day between September 1976 and July 1977. "Developing the ability to write for orchestra was something else, because it was a mystery when I first started. I wanted to incorporate rock into my classical training, so I went the whole hog and decided to write a big piece with its roots in Bartok, Berg and Ravel. Obviously I had a good idea of what I wanted, but it was a learning process as well as a composing one. The technical process of orchestrating involves the ranges of the instruments, their possibilities and capabilities. I hadn't had to worry about that with rock bands, where you tend to think of things in chords, but in symphonic writing things are obviously a bit more complicated." Some understatement...

Ironically, the work was initially only recorded as a demo, because no record company would back such an apparently uncommercial project, partly because none of them had a staff member who could read the score and say whether it was any good or not ... so it was committed to tape in the hope that, if it was done well enough, it could be leased as the master tape if the business world gave the thumbs up to the finished project.

"It was recorded in five days virtually non-stop at the beginning of last year at Matrix, using 24 tracks. From the financial point of view we had to make a synthesised version, so Francis Monkman" - a member of the original Curved Air - "reproduced the sound of the orchestra before I added the first and second violins and violas to get a live feel. Then lan Mosely and I did the percussion. As there were so many overdubs we had to use a click track, but that was a lot less straightforward than a disco session, because tempos had to speed up and slow down while the bars were being counted off. Francis did that admirably, and he built it up from there. I wrote out all the parts by hand as well, that took three months solid work, because there are about 30 or 40 of them, 10 pages for each.

"After I dubbed on the strings, we used ADT on the mix to double them, added echo for warmth and mixed them into the synthesized strings. We mixed at Maison Rouge with Ron Black, the chief engineer and manager,

and I think it has a very authentic orchestral sound. My solo was pure intuition, each note a reaction to the sound of the part underneath, and it was the first take - also the first time I'd ever heard it with the matte of strings underneath," And the emotional fulfilment of that moment would only have been rivalled by the experience of hearing the Royal Philharmonic Orchestra steam into their parts, in rehearsal for the South Bank Show's excerpts from the work in April, recreating in real time the fruits of so many months' labour spent committing imaginary sounds to paper.

The concerto provides a useful insight into the subtle use of effects. for which the violin seems very well suited: "I use a Fender Twin Reverb amp, an Echoplex for basic delays and ADT now and then, and MXR flanger and an envelope filter - used with the flanger, the filter gives the violin a great sound for rock playing. I used to use fuzz a lot, but I find it's a bit outdated now - although fuzz and flange can make the violin sound like a saxophone. The Echoplex is also useful for solos like the one on the cadenza, where you play with yourself; and for the slow movement I used a longish delay to warm up the sound.

"Playing to sound is one beauty of electric violin, and playing with a full orchestra you can always have the violin loud enough to hear it. Having played acoustically for so long, to play to the sound was inspiring. Just as a classical player will play to the ambience of the Albert Hall or Festival Hall in a different way using attack and volume, with the electric you can play in an acoustically duff hall and add reverb and echo to play to your own sound.

"That's also the advantage of violin, you have total control over the attack and decay of the notes, it's much better than a synthesizer. Expressionwise, the ultimate is the voice, nothing more so, but the next in line is the violin. The guitar has great emotional appeal nowadays because it's used so much, but the violin can imitate the voice very closely."

The secret, apparently, is the use of phrasing and appropriate vibrato: "Combining the two, you can make something out of nothing. The Russian school of violin playing is the greatest: they are into studying the phrasing of different pieces, which is like a jazz approach, and they use all sorts of vibrato, not the permanent slight vibrato Western players use.

"I saw Igor Oistrakh recently, and he was using a vibrato on the lowest string like Hendrix would have used, very wide and slow, yet he had the ability to do anything he wanted at the appropriate place.

"On our scene, Jerry Goodman just makes a nice sound; Shankar and the Indian school use a different catalogue of phrasing effects, like slides and lots of non-vibrato playing; and Ponty imitates synthesizer and guitar very well, in addition to his non-vibrato playing — he's obviously thinking along the same lines, but I think you can go further. I'd use the untrained voice as a starting point. I wouldn't like to say what the future appeal of the violin will be, but it's an underused instrument.

"As far as other violinists on the road are concerned, Jean-Luc Ponty has no competition at all. There are others like Steve Kindler (Jan Hammer Group) and the Soft Machine's Rick Saunders, but the only person I've spoken to at length about musical problems is Jean-Luc, who I met in 1971 at the Zurich Jazz Festival when he had a little acoustic trio. We had a blow together in a bar after the concert, and ever since then we've had a good old yarn when he's been around.

"He turned me on to the idea of using viola tuning, which I used all the way from Curved Air at that point. through Wolf to the second Curved Air. Instead of GDAE, it's tuned CGDA, a fifth lower, so you use a violin but fit viola strings. I thought at the time it fitted in better with guitar tuning, which goes down to that low E, complemented its range and gave a meatier sound for accompaniment. But I wouldn't use it any more, because the viola hasn't that dynamic virtuoso capability, it's the violin tuning that gives it its carrying power, character and vibrant quality.

"We talked about improvising a lot. I remember asking him if he thought about each note he played, or whether it came out of the air. He came to the decision that he tends to fall back on phrases he knows and are well-worn. He's much more jazz-orientated, and now we're miles apart, because he's maintaining a band and I'm promoting the concerto. I think he's happy because he's doing what he wants to do, and being successful at it — he's selling quite a few albums, enough to keep him in cream buns, anyway.

"For my own part, the next thing is to get a recording contract, and I want to keep a band situation together because I enjoy playing in that idiom. I've got a library music commission, and I'd like to write another piece for orchestra, but this time adding more electronic instruments to beef it up a bit. I got a lot of inspiration from playing live with drum kit and electric bass with the orchestra" — Simon Phillips and John Giblin — "and it sounded better than I ever imagined it would."

And now that he's finding his own path, Darryl Way should soon be able to afford his fair share of cream buns too.



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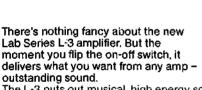
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reatures: OUTPUT CHANNELS — Master output rader, monitor output control, reverbielle-return control, nine band graphic equalizer ±18db, graphic EO switch (main/off/monitor), e segment light bar output display on master channel. Features: REAR PANEL — Master pre-amp output, monitor output, effects input (bypasses internal reverb), effects output, power amp input (disconnects master pre-amp), tape output mixed buss input, (2) speaker outputs for master channel, 200 Watts RMS into 4 Ohms at 1

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ENCLOSURES	Model	Model	Model	Model	Model
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Power Handling Capacity/Watts					
(Maximum Amplifier Output)	200	200	125	175	300
Nominal Impedance/Ohms	4	4	8	4	2
Enclosure Type	Sealed	Front Loaded Vented	Front Loaded	Front Loaded Horn	Tuned
	System	Baffle Tuned Reflex	Tuned Reflex	with Tuned Reliex	Combination Refle
	4-12" Spkrs	2-15" Spkrs	1-12" Spkr/Lows	2-15" Spkr/Lows	4-15" Spkrs
Speaker Complement			1-Horn/Mids	1-Horn & Onver/Mids	
•			2-Piezos/Highs	2-Piezos/Highs	
Overall Size/Inches (HxWxD)	26%x26%x15	43x26½x18	20x241/2x151/2	40x26½x16	50x261/2x20
Shipping Weight/Pounds	100	130	65	115	142

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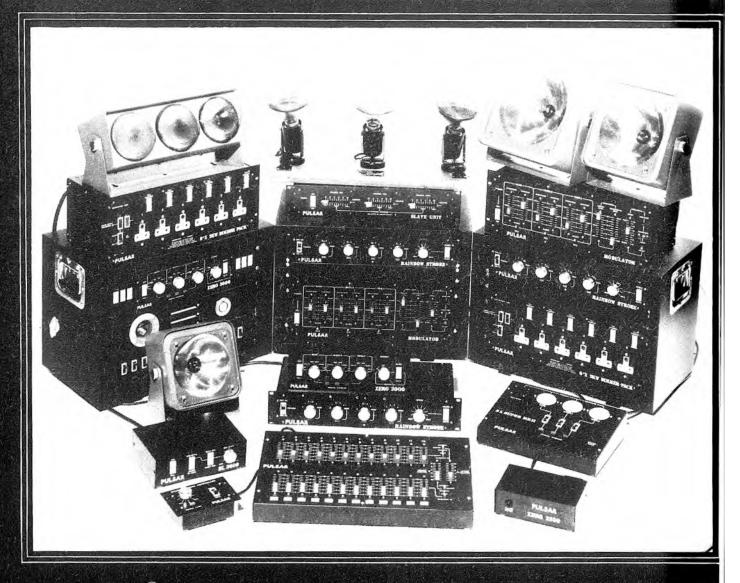
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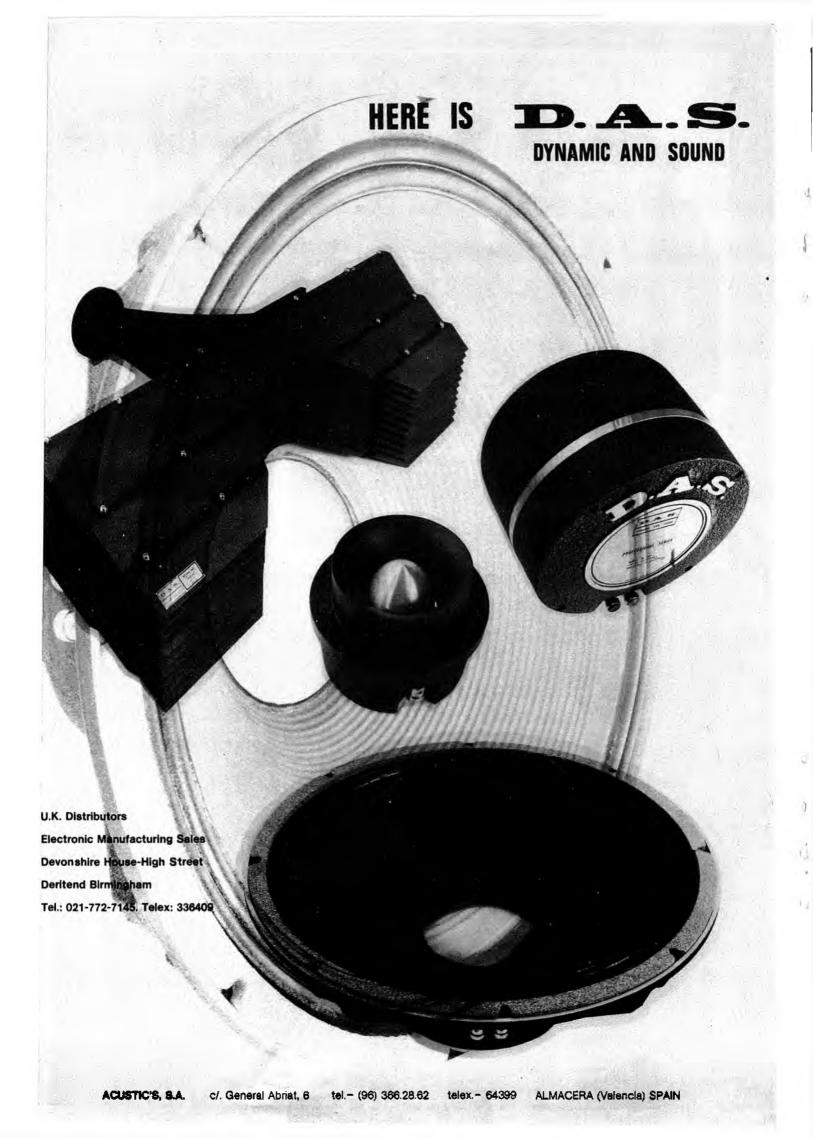
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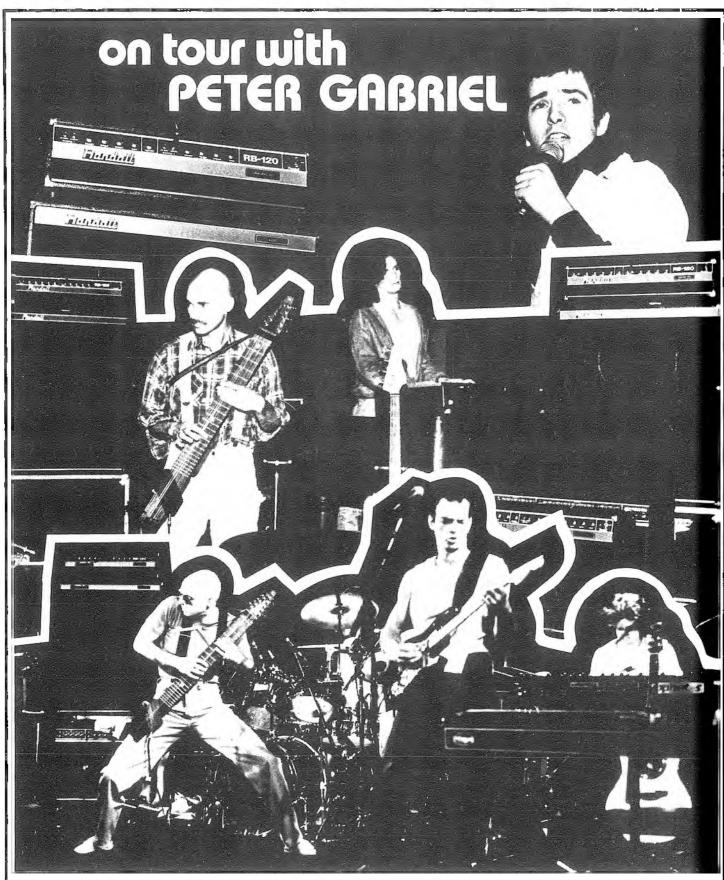
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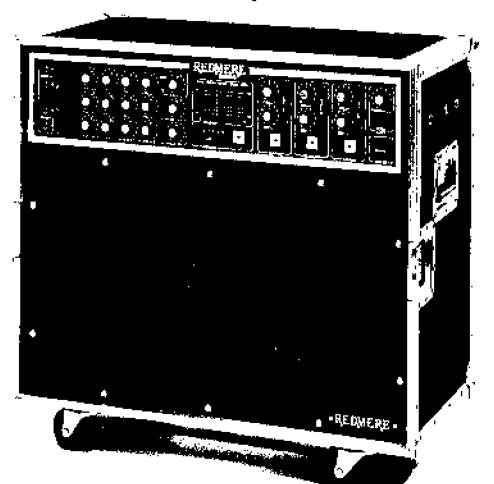
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Compare this price to other synths on the the new CP80 electric grand pianos usually in penny more over 12 months! £195 deposit and electric grand plano) and you've got yourself a bargain.

This month's on-going synthesizer buying situation seems to be dominated by Roland and Yamaha, but what about Moog, ARP, Oberheim, etc. I hear you ask? Well, the market is expanding so fast technologically that we can't possibly stock everything; what happens is that our stock changes all the time, but if something sticks then we look at it, see why it's not selling as fast as it should be and try to rectify the situation. That's why we're making a big deal about the Roland SH-7 and the Yamaha CS 30-L - at £699 and £585 respectively they are a bargain. We are not selling them at bargain prices because they are no good, but because their RRP is too high. If we don't like a product then you will normally find it being sold in the discontinued or shopsoiled parts of our ads in Melody Maker. We are not a eash and carry shop, but a large music shop offering very competitive prices and a full after-sales service. Our synthesizer deal is typical of our attitude to you, the buyer: if you buy any synthesizer under £500 with cash, then we will gladly allow the original purchase price, less 10%, against any upgrade synth purchase within 6 months. (The original synth must be returned with its manual and in its original box).

Although our main shop in Bond Street is large (we really are London's musical department store) our group gear shop in Maddox Street is tiny by comparison. We supply many leading bands with guitars, basses, amps, keyboards and effects from the group gear centre (we're sure Tom Robinson won't mind us using his name, for example). What is most important is that we offer an amazing choice of gear and a friendly service with it; we are extremely competitively priced and, once we get to know you, will always help keep your band on the road (ask Kandidate, Hi Tension or Light of the World and see how we helped them). That kind of deal will always be worth more than 'a few extra pounds off'.

Now you know the way that we do business, we hope you will ring us or come and see us. Watch out for our 24-page July sale catalogue in next month's International Musician and our half page sale price adverts in Melody Maker during July.

P.S. All the above prices will not be cheaper during our July sale, so buy now and beat the gueue! P.P.S. We have got Moog, ARP and Oberheim!



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1 Just compare the SH7's bender section, for example: it will increase or decrease depending on the sensitivity that you choose, the control voltage going to the two VCOs (pitch), VCF (tone colour) or VCA (loudness) or all three. Three position switches determine whether the bender directs these control voltages or routes the LFO to the VCOs (e.g. amount of vibrato), VCF or VCA. This gives the SH7 a pre-patched versatility for live performance that is unmatched.

2(The SH7's two VCOs can also be fattened up by mixing in other square waves at any footages from 32' to 2'. Couple the resulting sound with the SH7's two-voice capability and you've got one of the biggest, fattest sounds you've ever heard.

3 Don't forget that the SH7's keyboard circuitry is based on one volt/one octave and is therefore compatible with all ARP, Moog and Korg synthesizers (with their new interface unit). Control voltage and gate inputs and outputs are all provided for interfacing synths.

4 Portamerro can be switched to work only

4 Portamento can be switched to work only upwards, only downwards or in both directions. 5-Transpose switch close to bender control extends range of synth almost out of audible transposition in live performances.

The Roland SH-7 Duophonic Synthesizer —Bargain of the Year?

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PRICE £699 Although not very highly publicised, this system has a host of professional features that distinguish it from the competition.

6 Autobend facility with variable time and alternative polarity (swoop down or up to each mote automatically).

7 Ring modulator, white and pink noise, 2 complete ADSR envelopes, permanent hold over-ride feature on VCA.

8 External signal input allows many variations of external sound sources by directing them through the SH7's VCF, which can then be controlled by the envelope follower. Thus, guitars can be given a percussive rhythm effect, or you can achieve mute effects for brass by playing into a microphone plugged into the SH7.

9 The SH7 also incorporates a newly-developed frequency divider and waveform generator. This ensures stable and precise pitch.

10 Lastly, but not leastly, what does it actually sound like? Welf, everybody says the ARP Odyssey and the Minimoog are the old faithfuls, but when you compare their sounds and versatility with the SH7 you'll see that the synthesizer market has developed a long way since those instruments. (P.S. Why not compare the SH7 to the Multimoog or the Yamaha CS 30-1? We've got them all side by side, and at £699 you ain't going to get it cheaper anywhere else).



The Roland SH1 Synthesizer

- the compact synthesizer with full-size features!



In our opinion this is the best value, most versatile synth under £500. Stretch your budget a little and get a lot of professional features that distinguish, in our opinion, the SH1 from the Micromoog and ARP 'Axxe':

- Sub-oscillator adds 1 or 2 octaves below original pitch and tracks automatically with it. This produces and amazing fat sound for rock and jazz.
- Horizontal bender controls VCO pitch (+ 1 octave) and VCF.
- Over 8 octave range (32' to 2') with low, middle and high range instant transpose switch.
- Variable delay time on LFO modulation (delayed vibrato etc.)
- Sample and hold (random) of VCO, VCF and VCA.
 Autobend of VCO with variable depth and time.
- Trigger input allows control of SH1 with a rhythm box automatically.
- Headphone monitor output (low, medium or high).
- All Roland, Moog and ARP synthesizers now work on a 1 volt per octave principal and are thus interfaceable, Yamaha and Korg are not interfaceable with Roland equipment unless a special interface unit is purchased.
- The Roland SH1 comes complete with extremely informative manual that explains in detail the basis of music synthesis.

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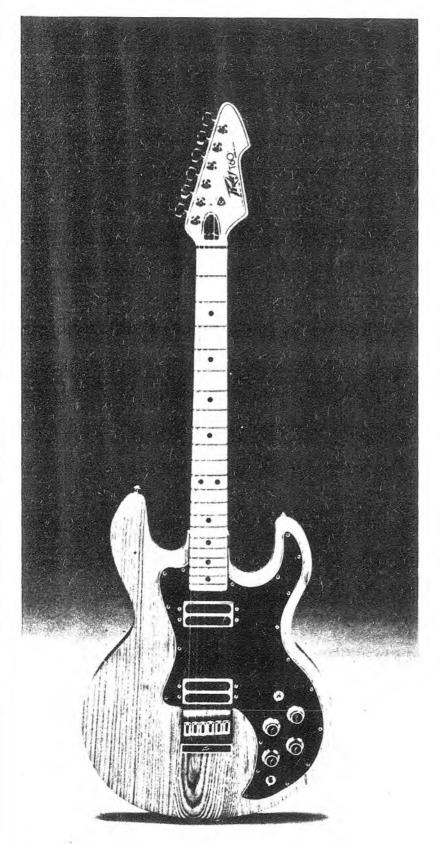
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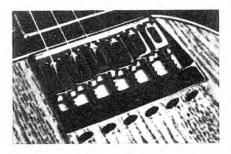


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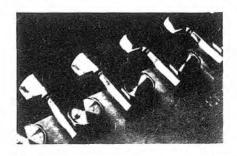
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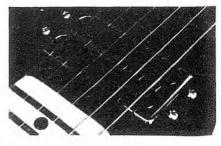








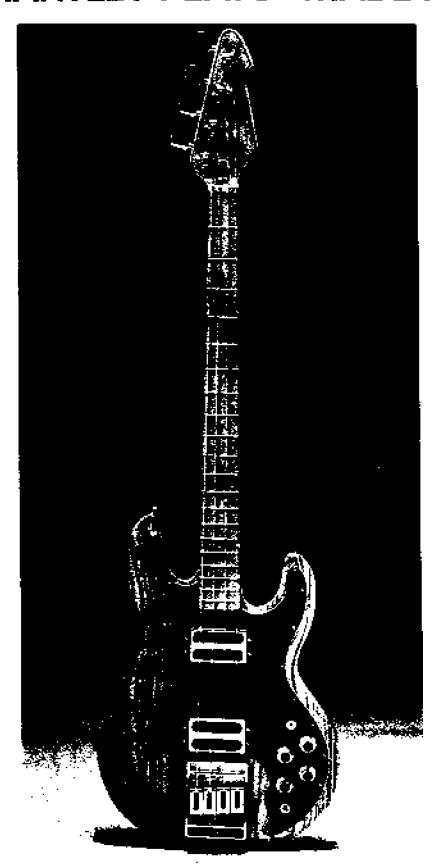




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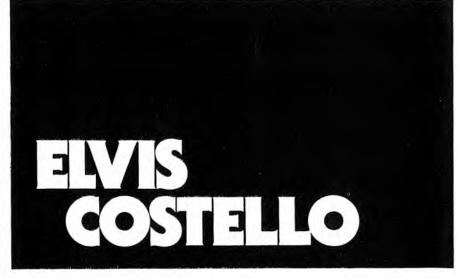
■ The Chrom Basic that we introduced you to last month is, as implies, our basic integrated system. With your needs in mind, we have designed a more sophisticated modular PA stack to allow the system to expand to virtually any size. As with the **Chrom Basic** System we offer a wide choice of components to enable a high powered expandable stack to be built to suit your particular requirements.

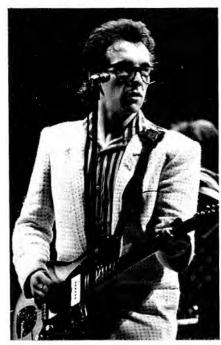
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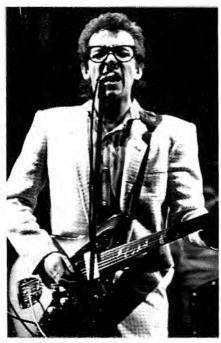
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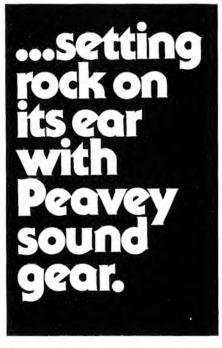
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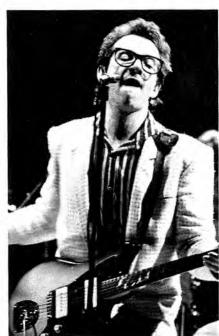






Elvis Costello performs and records with the Peavey VT Series Deuce.







Playing

ne of the most misunderstood areas of the guitar is sight reading. Many guitarists neglect this area because all they ever hear is how hard it is to do. However, nowadays most good players can sight read as well as other musicians. With the standard changing for guitar players, it's a good idea to improve your reading as much as possible. It's really not a deep dark mystery and with study and practice you can enhance your reading skills.

What is sight reading? It is the ability to execute on the spot, without prior study or practice, a musical piece. It is one thing to be able to read music, but it is something else to play a new piece of music on the first read through. Why is it so difficult to do this on the guitar? Let's examine the problems.

The major difficulty of guitar is the fact that the notes repeat themselves in different areas on the fingerboard. The open E on the first string, for instance, may be found in five different areas on five different strings. In the moment you first look at the note, you must decide where to play it and what finger to use. That may not sound like much, but to make a decision you must ask yourself the following questions. What notes are preceding? Are they high or low in pitch? What notes come after? Are they high or low? If a group of notes is fairly high in pitch, you should pick an area of the fingerboard where it is fairly comfortable to catch all the notes. Remember, however, under pressure you want to play as many notes as you can, but the right ones. So, if you have to jump around, that's fine. Noone said it had to look good, too. But, remember where you're coming from, and where you'll have to go. This will dictate where to play. You can train yourself to do this by taking familiar music and forcing yourself to play it all over the instrument. Gradually, force yourself to do that with unfamiliar music as well.

When you look at music for the first time, can you scan it and recognise familiar patterns? You will discover an excellent problem solver by being able to pick out things that you've played before. It could be a scalewise melody, chordal arpeggio, sequential motion or intervals of thirds, fourths, fifths, etc. By knowing what something is beforehand, it will tend to make the reading cycle a bit easier because you already know how to play it and what it will sound like.

Another problem of sight reading is being able to play the notes on the



guitar while executing the correct rhythm and phrasing. You must study hard to do this. Rhythm is one of the most basic qualities of music, and rhythmic notation is a very exacting science which you must be able to identify and interpret. A very thorough study of music notation is necessary for this and you should make an attempt to learn it from a competent teacher. Remember, you may be able to play every note on the guitar at will, but to make music you must be able to understand the language of music too. Many people have problems with the notes, what they are and where they are, or the rhythmic values of the music. Don't short-change yourself if you feel you're weak in one or both of these areas. Take strides to strengthen your skills.

In the cycle of sight reading, there is a chain of events which occur that you should be aware of. First of all, your eyes perceive the music, both the notes and rhythm, and the brain identifies them and sends messages to both left and right hands telling them where to play the music on the guitar and which string or strings to pluck. This takes time. Maybe just a fraction of a second. Pick out a piece you've played before and let's try something. Play the music and only look at the note being played at the time. Keep the tempo consistent and notice if you start to lag or even stop. What's You're upsetting the happening? cycle by not being ready to play the next note. Time is catching up with you. Try it again, only this time force yourself to look a note or two ahead. Now what do you notice? If you're doing it right, you will have less of a tendency to "goof" and be able to keep a fairly constant tempo. Why is that? What's happening is you're

taking up that little slack in time between looking at the note and playing it. You're looking at the very next thing you will be playing and by the time you play it you're working out the next note, where to play it, etc. Do you see how this works? Reading ahead is one of the most important aspects of sight reading. Also try to look at a group of notes, not just one at a time. If you have whole notes and half notes, you can read a whole bar ahead. If you have eighth and sixteenth notes, you can read one or two beats ahead.

Chordal reading presents challenges of its own. You may have anywhere from two-note to six-note chords to read. A good way to approach this is to read from the top note down since the last note you hear is the most important in most cases. So, if you have a six-note chord and you can get out only the top two or three notes, it will sound all right. This is not intended as a cop-out, you should try to play it, but if there's not time to work it out it's better to get out the top melody notes than a low blurp!

We've discussed only the fundamentals, but in future articles I will present specific examples of sight reading and how to execute them smoothly. Don't let slow reading deter you from missing out on an important skill. With some work you can become a better than average reader.

Mitch Holder

Mitch Holder is a guitarist with experience covering television, recording and touring. He is much in demand as a session player having worked with top name artists such as Barry Manilow, Barbra Streisand and Billy Davis. He is also the author of "Quadraphonic Fingering".

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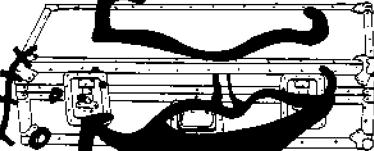


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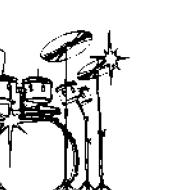


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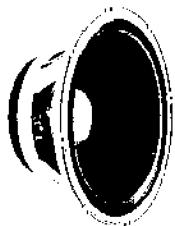
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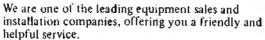
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James McGill

TURNTABLES

in any sound chain the quality of sound at source is the most important single determinant of performance - amplifier and loudspeakers can only make the most of the signals with which they are fed. The signals out of a pickup cartridge are of an order only of a few millivolts (one-thousandth of a volt) or even microvolts (one-millionth). The levels of unwanted interference actually breaking through to interfere with the musical reproduction need not be large -these are amplifted along with the signal. Even where the disturbances and inadequacies are not severe enough to result in an audibly distorted sound these are enough to tire a listener out as quicklý as clipping distortion in a transistor guitar amp,

In its simplest terms, a turntable system should turn at an exact rotational speed, keep external breakthrough interference to a minimum and produce itself as little as possible. It goes without saying that this is easier

There are two types of turntable drive of importance today to the domestic user. In a belt drive a fairly heavy platter is powered via a resilient belt from a high-revving motor. The platter of a direct-drive sits perpendicularly atop the drive shaft of a slow-revving motor. Neither approach has an inherent superiority - it all comes down to design and engineering.

Wow and flutter in turntable specifications refer to sporadic or cyclic variations in rotational speed which have the effect of changing the pitch of a note played. A more consistent speed error - inherent in the disc. down to the deck or due to mains fluctuations affecting a poorer design - will often go unnoticed if it's below something like 1 per cent of the rotational speed. Such errors are easily cured with a fine-speed control and stroboscopic markings around the platter rim. A musician may, in fact, not need any visual indication as he is more likely to be pitch-conscious. Wow is a random or cyclical error occuring less than 10 times a second particularly noticeable on sustained tones. Flutter describes a faster variation which is not heard but noticeable 134

as a "blurring" or coarsening of the sound

Most ears will detect wow and flutter only when this exceeds 0.25% of the rotational speed. A musically trained ear or someone otherwise with perfect pitch will however detect errors as small as o.1 per cent. The effect can induce "fatigue" in a listener - slow wow has been known to make individuals giddy. A musician finding instruments drifting in and out of pitch and wavering about the place is likely to lose his taste for listening earlier than the musically less acute, even where the listener cannot identify the problem.

An important effect which measurements rarely show up but which someone who works with music is liable to be susceptible to is the effect of dynamic wow which many poorer turntable designs exhibit. Heavier groove modulation on louder musical notes and passages impose a bigger frictional drag on the pickup and thus on the drive system. The momentary slowing blurs the initial transient which gives away how the instrument was struck or blown, rather than simply identifying a Fender from a Gibson. That initial transient also carries those vital cues which make up the unique timbre of the instrument. A brief "wowing" occurs as the motor recovers from the initial speed check.

Rock music is often loud and heavily rhythmic. Take the net effect of a well-miked drumkit at full stretch, with a powerful vocal or lead instrument in attendance, and you have a condition we have all known with poor playing gear. An important test before buying a deck is always to take a couple of very good recordings and listen to the deck. Susceptibilities differ among individuals and this is one of the factors that price should by rights reflect.

The forces working against the survival of that small signal coming out of your cartridge are many. These include sub-audible floor vibration, resonances in the shelf or surface on which the deck stands, acoustic transmission through the air from the speakers, natural material resonances in the plinth material, plus combination resonances of the chassis mass on its suspension

Each of these individual subtractions from a deck's potential will reduce its capability to resolve dynamic range in music - quieter sounds and important fine detail occurring simultaneously with the louder musical component.

Different turntable designs may apply a little brute force against short duration pitch innacuracies: a higher motor torque and/or a heavier platter with better inertial stability. A heftier motor will just plough past the variable drag imposed on the transport. This may not be an advantage if bought at the cost of undesirable stresses on the main bearing or of higher "rumble.". Once in motion, the momentum of a heavy platter will sustain a "flywheel" effect. To combat the higher inertia a more powerful motor might prove necessary. So we return to square one. It becomes a matter of considered compromise.

The addition of servo mechanisms, frequency generators, quartz reference oscillators and the like are very useful in that they often permit accurate long-term speed stability as well as the addition of pitch controls. These are never an end in themselves. Any form of feedback mechanism to boost the power drive when needed takes a finite time to react to transient load demands. None of these approaches in themselves address the problem of dynamic wow.

In order to offer an acceptable level of fidelity the rumble component needs suppression well below the average level of wanted signal. Sources of rumble might be a badly finished bearing spindle or a poor fit with the bush which allows the spindle to rattle about in motion. An unbalanced or resonant platter might be another

Technics SL1400

The suspended subchassis of this auto arm return direct drive is a "high loss" mineral loaded plastic. A digital frequency-synthesizer provides an impeccable quartz-lock rotational stability while a ±10% variable speed trim in 0.1% steps provide pinpoint pitch accuracy.

Thorens TD160

Close manufacturing tolerances and high quality bearings have made the 160 a standard of quality for many years. Belt-driven from an AC synchronous motor and featuring an "oversized" main bearing, one of the very best examples of sheer performance value at any price. Available with Thorens arm or as a motor unit with plinth and cover only. Discontinued with the introduction of a new range by the German manufacturer but production continued specifically for the UK distributor to meet a continuing large demand among hi-fi buffs, £90,

Dual CS604

Built along familiar lines of the plastic "autochanger", the comparisons are purely superficial. Dual place their design emphasis exactly where it counts: at the arm, motor, bearings and suspension. A floating sub-chassis semi-auto direct drive, each item in the Dual range appears to have been built to a standard rather than down to a price. Often packaged with a pickup cartridge of high-pedigree, £155.

Technics SL1000

Instant start up (zero to 33 1/3 in 0.25 sec.) and enough motor torque to

Technics SL1400

source. An insufficiently decoupled motor will transmit vibration through the turntable system back to the cartridge. Hum from various mains components and structural resonances are also lumped under the category of rumble.

The effects of resonance apply to any device which employs a transducer as one of its key elements - in this case the pickup. All materials have natural frequencies, a given pitch at which the material will "ring" uncontrollably and continue to resonate for a while after the initial excitation has died away. Each component in the turntable system - chassis, platter, plinth structure, pickup arm and suspension - has its fundamentally resonant modes. Added to these are coupling modes where two materials joined produce a secondary combination resonance - very critical when we consider the cartridge and pickup ann. The overall turntable system design not only attempts to tamp down the severity of any existing resonances but prevent such disturbances as exist from coinciding at any common point. In the absence of such

nics SL-1400MK2

care, colourations affecting the sound will usually be more severe. An extensive use of plastics unless this is acoustically quite "dead" can be a liability: there is, generally speaking, no real substitute for good old fashioned mass in turntable design (as with guitar engineering). So tap the plinth, flick the platter and rattle the cover. This is what may be described as a limited resource investigation — the pointed finger and cagey mentality of a cash customer. External indicators of engineering quality often give away what may lie behind the surface.

Suspension is important in turntable system design. An attempt by this means is made to screen the pickup from sources of interference within the system and from the external environment.

Cheaper decks (as well as a few expensive but basically unenlightened models) might employ a solid "one-piece" plinth suspended on four resilient feet. Such arrangements rarely provide immunity against shock and vibration though acceptable, possibly, in a less discriminating low budget design. Direct drive decks

provided with little or no decoupling between the motor and platter main bearing and using a solid plinth — this was all the fashion only a few years ago and still exists today —may introduce enought vibration to rob the cartridge of much of its detail resolu-

The use of a "floating" subchassis is, quite undeniably, instrumental in the performance of an overwhelming percentage of the better decks available. The idea here is that a single structure carries the platter and arm, which in turn suspends on springs of some sort away from the plinth assembly. Where effective the arrangement successfully decouples the disc/cartridge combination plus the arm from motor vibration and also from structural leakage arriving out of the external environment. Whatever its precise form, a suspension attempts to protect the delicate groove/cartridge interface.

Vibration effects might colour the sound. Subsonic shock effects—accidental jolts, the springy timbers of a suspended floor, your routine activities about the room and even the



whose air of professional simplicity fails to hide its obvious engineering superiority. Lavish execution of the EPA100 tone arm includes nitrogen hardening of a dual-layer titanium arm tube, a 20-ruby gimbal suspension at the pivots, variable and independent damping in vertical and lateral planes.

Bang & Olufsen B & O 1500

A prime example of the completely integrated design concept — a parallel evolution of deck mechanism, arm and cartridge as one systematic unit. The 1500 offers a stable DC servo motor, fully auto low mass arm and a superbly executed chassis decoupling using pre-stressed leaf springs. Packaged with cartridge for an inclusive £115 approx., the deck offers rare value. A conventionally flat absorbent mat may yield superior sound at the cost of an auto speed changeover for 7" 45s.

Michell Focus One

Attractive black acrylics motor/arm board on three-point coil spring suspension - but dispensing with the need for a plinth assembly altogether! Environmental isolation works on a principle of "mass rejection" - the base tends to deflect vibrations back down the springs rather than "storing" the energy. Secure disc-support against a thin suede mat suggests good damping of resonances in disc vinyl. Sound mechanical design and tight manufacturing tolerances provide reliable hallmarks of a top-flight device. "Single point" jewelled inverted unipivot arm with silicon fluid stabilisation offered as option. Availiable with arm £170 retail (approx.), £109 without arm.▶

The New Garrard Turntables for 1979

The Garrard DD130

A lot of hi-fi enthusiasts still prefer their turntables to be totally manual.

If this applies to you, and you also favour the direct drive principle, then the DD130 is probably the deck you'll most want to own.

Already highly acclaimed by the hi-fi press for its impressive level of performance, it now enjoys the extra sophistication of our latest pickup arm.

Its 8 pole, brushless DC motor supports a heavy die-cast, dynamically balanced platter directly on its shaft.

The result? Super-smooth revolutions with a rumble level down to -50dB DIN A, -70dB DIN B.

Also, to enable you to set your turntable speed with absolute accuracy, the deck carries a stroboscope on the edge of the turntable, with a pulsed light emitting diode (LED) for clear definition.

With such a well matched combination of creative engineering and impeccable styling, it's little wonder that the DD130 is already a firm hi-fi favourite.





The Garrard DD131

Nearly 70 years ago, when Garrard first started producing record players, the notion of a record deck as sophisticated as the new DD131 would have seemed as far-fetched as man setting foot on the moon.

The DD131 semi-automatic, and its fully-automatic sister model shown overleaf, are the first Garrard models to be driven by the entirely new, all-British direct drive Garrard motor.

Now, with the Time Integral Velocity Control* built into its circuits, it's difficult to imagine how pre-set speed control could be more accurate.

The most minute speed variations of the platter, regardless of

record loading, are identified and remedied almost before they occur.

The DD131 also uses the same ultra low-mass 'S' shaped pickup arm as the rest of our new range.

the rest of our new range.

This operates with the fully adjustable calibrated bins compensation (anti-skate), which eliminates those unwanted side forces which can colour sound reproduction, and with the semi-automatic mechanism which gently raises the arm from your record the moment it finishes playing, and returns it silently to its rest.

But the DD131 is not only technically superb, it's also superbly beautiful. Don't you agree?

* 🚯 Garnud TfV Control. Patent applied for

REF RW.C/1

The Garrard DD132

Here is Garrard's most expensive turntable.

All the features of the DD131 are present in this deck and, of course, one more. It's fully automatic.

One precise mechanism activates the pickup arm from rest, eases it delicately onto the edge of your record, and returns it silently as soon as the record finishes.

Naturally, there is a manual override for when you want to select individual LP tracks.

Then the viscous damped cueing device enables you to lower the arm softly and safely into the chosen groove of your record.

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Each component of the DD132 has been designed to work at optimum efficiency with each of the others.

Even the specially moulded, glass filled resin platform, apart from looking beautifully elegant, actually plays a significant part in resisting resonances.

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traffic outside may promote cartridge mis-tracking when its interfacing with the disc is less than utterly secure. In both cases the turntable system begins to act as a low-efficiency microphone, setting up a vicious circle of regeneration. Placing your pickup on a stationary disc and with the volume well advanced is a simple test for the effectiveness of deck isolation and rigidity of the turntable's perch when you walk about the room tapping objects near the desk.

Arm performance and its interrelationship with the pickup is in itself a lengthy dialogue to be entered later in this series. Dealing as we are with integrated turntable systems, rather than motor units and separate arms, each of the models recommended represents good motor performance coupled with a competent arm. Quality in execution of an arm and of a cartridge will affect the systems resolution of detail and "depth" in the musical programme, plus keeping colourations to a minimum. Where the conveniences of auto facilities are added these should go about their tasks without impeding freedom of the arm to travel. The compliance (springiness) in the pivotal hinge of a cartridge is arranged to match effective mass of the arm to produce a stable combination which is not easily unseated from the recorded groove. A good match reduces the susceptibility of the combination to shock and vibrational effects.

Mechanical considerations aside, cartridge choice is essentially as personal as the use of guitar strings. A cartridge should tonally match the loudspeakers at the other end of the sound chain. Both are in the category of transducers; mechanical energy into voltage and inverse (power into mechanical movement of speaker cones) conversion at the other end

One final consideration in the discussion is the coupling of a disc to the platter. Current thinking suggests the relatively flimsy vinyl disc produces friction-induced resonances as the stylus tip traces an irregular groove. Experimentation has shown that best results seem to occur where the disc is supported over a major area of its surface. Platter mats which provide only a minimal

disc support — that is to say, are in contact with the disc only over a small total area and leaving considerable air pockets below — allow the vinyl to "store" its resonant energy and continue to "ring" even after the initial excitation. Special high absorbency mats or plain flat materials provide a better damping of vinyl resonances by ensuring a closer coupling of disc to platter.

Many of the considerations applied to equipment design dwell in the realms of pure science or else rise into the airy elevations of theory. It may be true to suggest that musicians are basically practical as far as these sort of things go. The means applied to turntable design, the theories and engineering approach adopted, is ultimately far less relevant than the audible end result. Many of the problems encountered are within the easy capability of current design technology. The crunch comes with the consideration of economics and production technology - maintaining a tight enough quality control at the more crucial areas of a machine's performance, and doing it at a price.

Linn Sondek LP12

A visual austerity similar to the Technics SL1000 is shown in the LP12, which has long defended its enviable reputation of being just about the best sounding player available. A simple 16-pole synchronous motor drives via a belt the heavy die-cast platter dynamically balanced over a precision oil-filled bearing. Suspension is via sprung suspended subchassis. The deck takes careful set-up for optimum results but often quite without competition on sheer performance grounds. Currently priced at around £250, a purchaser would need also to buy one of the better pickup arms availiable with which to partner it.



Garrard DD130/131/132. Series of Turntables

Garrard's latest range of direct-drive decks bring home technology into a Jap-dominated area with a new cordless DC motor under servo control. Available on totally manual (DD130), semi auto (DD131) and fully auto (DD132). Each packaged with Shure M7S EDII cartridge.

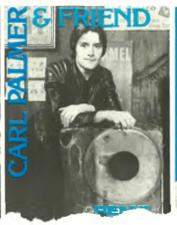
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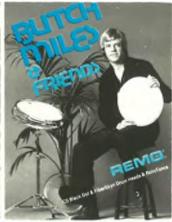
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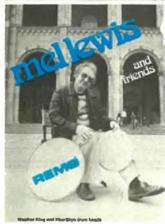
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Acoustic	210	0011	auto iotain
Research AR77XB	£85	belt	manual arm
Garrard GT20	£66	belt	manual arm
Micro Seiki MB10	£72	belt	manual arm
Philips AF677	£73	belt	auto-return
Pioneer PL514	£62	belt	auto-return
Sansui SR222P	£59	belt	manual arm
Technics SL220	£80	belt	auto-return
Thorens TD166/II	£80	belt	manual arm
Trio KD1033	£55	belt	manual arm
£100 - £130			
B & O 1500	6115	1. a1.	6-11 A
Connoisseur BD103	£115	belt	full auto
Dual CS504	£115	belt	auto-stop
Dual CS521	£100 £127	belt belt	manual arm full auto
Hitachi PS48	£100	direct	auto-return
JVC OLA2	£115	direct	auto-return
Pioneer PL518	£110	direct	auto-return
Rega Planar 2	£95	belt	manual arm
Sony PST20	£105	direct	full auto
Technics SL1800	£125	direct	manual
Thorens TD160C	£90	belt	manual arm
Thorens TD110	£110	belt	manual arm
Trio KD2055	£115	belt	auto-return
Sanyo TP1100 Mk2	£130	direct	auto-return
Garrard DD130	£100	direct	manual arm
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£140 — £300			
Dual CS604	£155	direct	auto-return
Dual CS621	£175	direct	full auto
Michell Focus One	£170	belt	manual arm
Technics SL1500 II	£230	direct	manual arm
Trio KD3070	£160	direct	full auto
Thorens TD126C Mk2	£170	belt	manual arm
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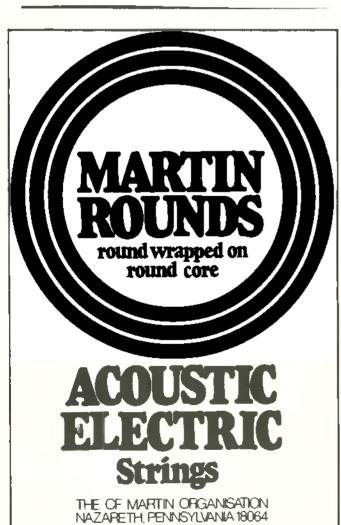
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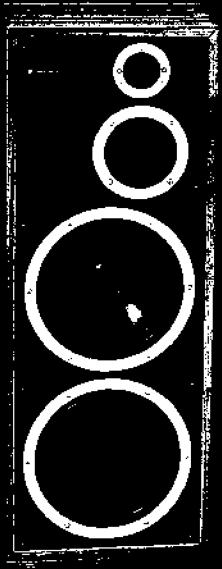
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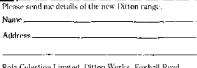
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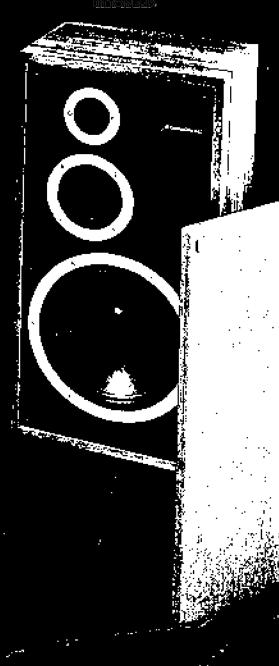
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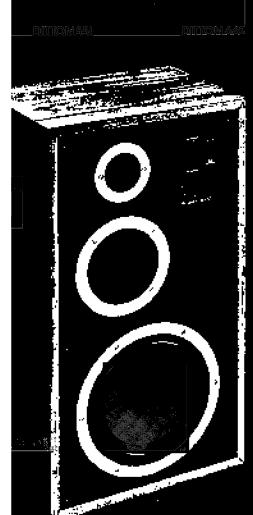
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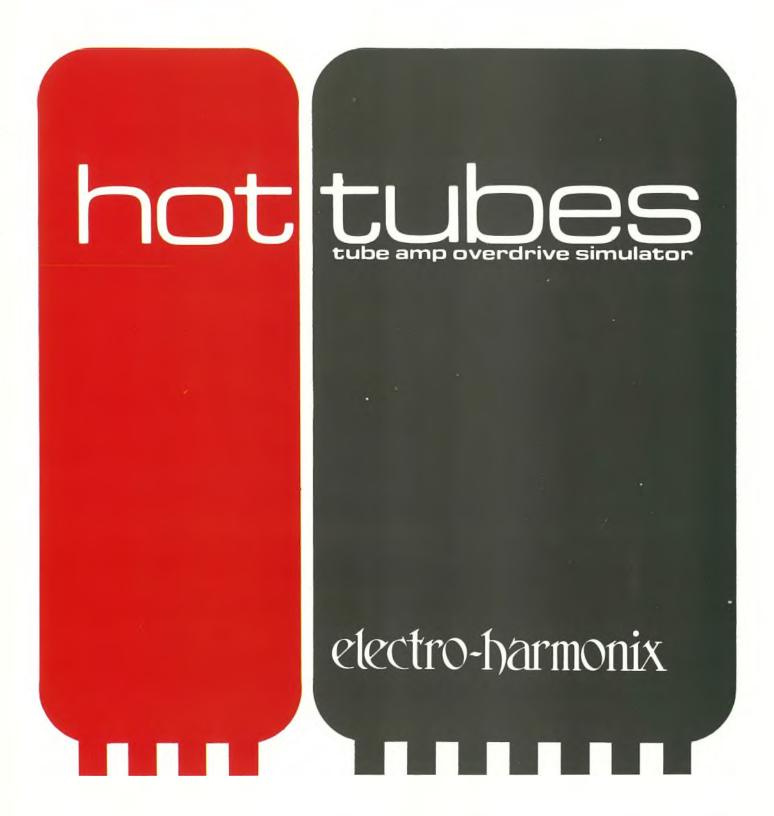




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Magritte began four years ago as a four-track playroom for proprietor Dan Priest and his musician mates. Along came Al Green and Red Bus and Bees Make Honey to make some demos. Bees bassist Barry Richardson liked the four-track recordings so much, the group booked a month of studio time, allowing Dan to lash out on a Scully 16 and a 16-track desk that once lived at Mayfair Studios. With that, Magritte was under way.

"I never really wanted to record other people — I still don't," Dan says. He says it like a man trying to pass off a passion for racing cars: Dan lives and breathes music and recording it. From its humble beginnings in his own home, Magritte has become a vibrant studio, busy with artists ranging from Mungo Jerry to the Neon Hearts. Dan and his fellow engineer and business partner Eric Hine are wholly responsible for the studio's solid word-of-mouth reputation.

The studio went 24-track in January last year, just after Eric joined Dan at the desk. Both are musicians themselves and they claim it simplifies the studio task greatly when they correctly interpret artists' wishes without the aid of a translator. Both do engineering ("we don't split the sessions, we co-produce and engineer because it's more fun with two") jointly run a production company called Resistance and a record label called Ritzy Records. They had their first release in Germany last month with a single by London warblers Ladylove.

Though Magritte is situated in Harmondsworth village at West Drayton, just near Heathrow and only a half an hour by car from central London, it could be in a rural backwater. The village is tiny and the



Victorian farmhouse that Magritte occupies in four acres of grounds is a rustic island in a suburban sea. Their working space makes studio time enjoyable. A large studio with bass and drum booths, hard and soft areas and a carefully tuned control toom ensure predictable recording conditions. Dan swears that the separation available is second to none, rough mixes put through their Lockwood/Tannoy monitoring system revealed a clear, defined sound that is very natural. They don't build houses like that any more.

Because they own the business, Priest and Hine make sure they are satisfied with every recording that comes out of Magritte. Their enthusiasm is boundless and they have been deeply involved in all recording projects done at Magritte. Alan Clarke swung his WEA deal on the strength of Magritte-recorded demos, Gary Benson did the same with Arista and the Lurkers made their hit *The Shadows* there. "This is a very lucky studio for a lot of musicians," said Dan.

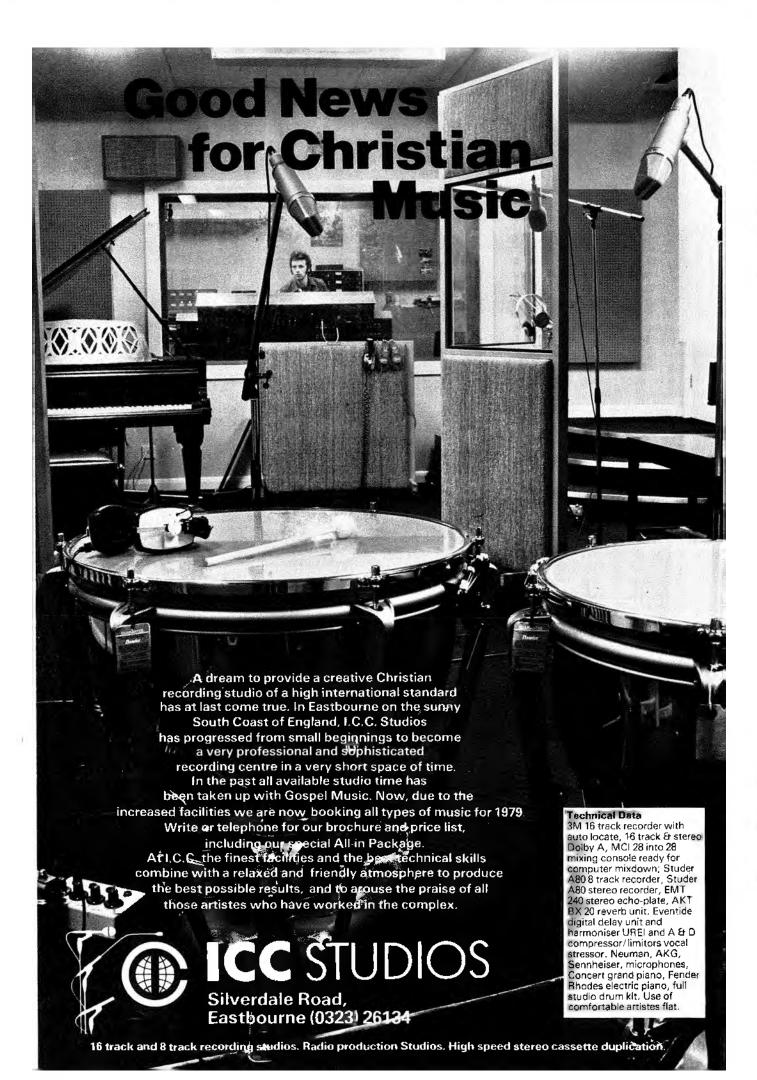
Magritte is well equipped. Dan and Eric work through a 36/24 Helios mixing console with parametric and

STUDIO OF THE MONTH bell EQ, a Lyrec 24/16 multitrack and the usual host of flanger / phaser / digital delay / harmoniser / compressor / limiter effects, as well as full noise reduction. They use an ATR102 Ampex phase linear two-track mastering machine and have master room reverb, Fairchild echo and Phillips PRO 20 and Revox tape machines for copying and effects. A Bosendorfer grand piano, Fender Rhodes 88 and a clavinet are available, along with various amps and cabs. The studio room can accommodate 12 musicians.

Apart from their prices, which at £30 an hour Dan claims are about half the usual price, special deals on accommodation at a charming Jacobean manor house the other side of Harmondsworth village make Magritte an attractive proposition. Six people are accommodated and recorded for £350 per day.

Work continues to flow through Magritte at a sensible pace. For instance, New Wavers like ATV find the Magritte atmosphere very conducive to work.

Dan and Eric have plenty to do with their production and recording work for half a dozen independent labels, and they are always anxious to play a bigger part in recording than just that of the engineers. "What you get here is total involvement," Dan says. "We want the music to go out as good as it can be."



RECORDING WORLD

APRS'79

Later this month, sound engineers, studio managers, technically-minded musos and everyone else interested in audio recording will be heading towards London WC2. Not to call in at IM's offices (though they'll be welcome if they do), but to visit the 12th Annual International Exhibition of the Association of Professional Recording Studios at the Connaught Rooms, Great Queen Street. APRS 79 has attracted exhibitors from all over the world, but IM's preview concentrates on the more interesting British manufacturers.

AKG Acoustics Limited

Particularly interesting for 1979 are the C535EB, a new condenser microphone with a cardioid polar response, the D222EB microphone, an up-dated design evolved from AKG's familiar D202, two new capsules for the CMS range, the CK22 and the CK4. Also of interest are two new FET stereo condenser microphones for studio use the C34 and the C422, the BXIO portable Reverberation Unit and of course AKG's wide range of Dynamic and Condenser microphones with specialist accessories together with headphones and stereo pick-up cartridges ranges

Alice (Stancoil) Limited

In attendance will be Ted Fletcher (Managing Director), John Andrews (Executive Director) and Eric Keene (Production Manager) who will be presenting several new products such as the 12-48 semi-modular 12 imput, 4 group mixer and the STM 8, a portable/transmission mixer with many new features, replacing the now discontinued STM 6.

Also on display will be an ALICE CUSTOM MODULAR console in 16-8-16 format, showing the ACM matrix routing and monitoring system, and examples of the smallest mixer in the ALICE range, the 828 portable stereo mixer.

Allen & Heath/Brenell Limited

AHB have their largest stand ever at this years APRS Exhibition which reflects their increasing presence in the recording world.

Pride of place will be given to SYNCON, an 'in line' mixing console designed for medium budget 16 and 24 track studios. AHB will also demonstrate their 8 track package system which is now almost a standard amongst smaller privately operated studios.

Sound reinforcement applications will be covered by the new SR Series of mixers which are designed specifically for theatre and concert work. Fully modular construction offers many options with a maximum capability of 40 inputs, 8 groups and 10 effect returns.

Additional features include talk back system, sweep frequency EQ, multicores and heavy duty flight cases. Atlantex Music Ltd

MXR Studio Products and the SESCOM range of Audio Interfacing Units will be featured on the ATLANTEX MUSIC LTD. stand for the first time at the APRS show.

The products being shown for the first time at any show in Britain from the MXR stable will be the Dual Fifteen Band and the 31 Band Graphic Equalisers

The Flanger-Doubler is an incredibly versatile device which produces a wide variety of delay effects. Retailing at £450 this unit which offers total creativity and reliability at a competitive price will no doubt interest many a visitor.

The MXR Digital Delay now probably the most popular Delay Line avail-

able will be on show, together with the MXR Stereo Phasing-Flanging rack and the ever popular Mini-Limiters.

Star attraction will be the brand new MXR Harmoniser; full demonstration facilities will be available.

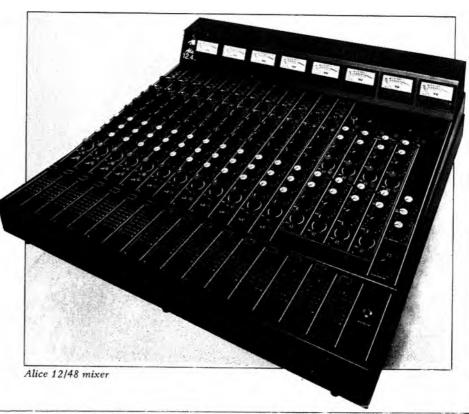
Atlaxtex Music will also be showing the SESCOM range of professional Audio Interfacing components. Visitors will be able to glance at the complete range of SESCOM DI boxes, In-line Transformers, MIC Splitters and Combiners, Audio Modules, Cable Testers, MIC Line Drives and Attenuators

Beyer Dynamic (GB) LTD.

As in previous years a full range of Beyer Dynamic microphones, headphones and accessories will be exhibited with the addition of several studio units from the Dynacord range of PA equipment. Launched at the show will be the MC 716 shot-gun microphone and the MC 717 long shot-gun.

A number of studio headphones will be on display including the DT 100 and DT 48, both of which have served studio requirements for years.

On the Dynacord side, exhibits will include the DRS 78 Digital Reverberation System.







Sunn Artists:

Chris Squire: "YES"

John Entwhistle: "THE WHO"

benhaus: ("BLOOD SWEAT & TEARS"

Neil Stubenhaus: \"GINO VANELLI"

Jammie Glassen: "JEAN LUC PONTY"

Jamme Glassen: "JEAN LUC PONTY"

Juaquin Lievano: "JEAN LUC PONTY"

Geddy Lee: "RUSH"

Tyrone Brown: "GROVER WASHINGTON JR."

Steve Buslowe: "MEATLOAF"

Pete Agnew: "NAZARETH"



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Cetec Audio

Amplifiers, Speaker Systems, Cartridge Racks, Console and mixers will be on display together with SPARTA Turntables and Accessories. Canford Audio

A newcomer to APRS, Canford Audio intends to have the following products on display.

The Automatic Cable Tester, a device for testing XLR and PO cables in the field or workshop particularly recommended to outside broadcast units, studios, audio engineers etc...

Also on display will be Studio 'Acoustic' tables, specially designed for radio studios, and of course the Speaker range. Canford Audio has been appointed sole UK distributor for the french 'Rondson' range of speakers which are particularly suited for broadcast editing cubicles, newsrooms and office 'ring-main' distribution systems.

Philip Drake Electronics Ltd.

Exhibits include a studio talkback system with control panels, allowing up to seven areas to communicate with up to six cameras. A smaller standard sytem for up to four areas and three cameras will also be on show.

A range of audio amplifier products and examples of Programme Commentator Units will also be presented.

Eardley Electronics Ltd.

This popular stand will present XLR type connectors and sockets from NEUTRIK of Switzerland, Potentiometers from PREH of West Germany, Switches from Marquardt of West Germany and from EARDLEY's associated company, GE Electronics, American High Technology Components.

Electro-Voice (UK) Ltd.

Electro-Voice will be showing a full range of studio and sound equipment, including their Professional Dynamic and Condenser Microphones, Monitor Speakers Systems, Component Speakers and a range of accessories.

The complete range of their new Stage System Cabinets will for the first time be on show in the UK. The largest of a family of three is the SI8-3 Stage Keyboard System designed for instruments which have wide frequency response requirements such as synthesizers and other keyboard instruments. Electronic Music Studios

APRS 79 is to include a presentation by EMS. They will be displaying three Vocoders, the large EMS Vocoder, the Vocoder 2000, and the new low-budger Vocoder 1000, as well as a range of studio rack mounting modules.

Harman (Audio) UK Ltd.

The display will include a selection of JBL loudspeakers. Of particular interest is the new 4301E broadcast monitor, which is identical to the 4301 but with an inbuilt 10 watt amplifier.

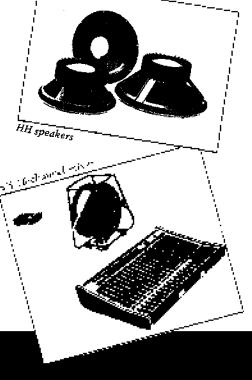
Several new products from the Teac/Tescam range will see the light of day for the first time at the show, including the A3440 four-channel simul-sync machine, the Tascam 35-2, a two-track mastering machine with inbuilt Dbx, and a new Dbx unit, the RX9, custom made to fit the requirements of the A3440.

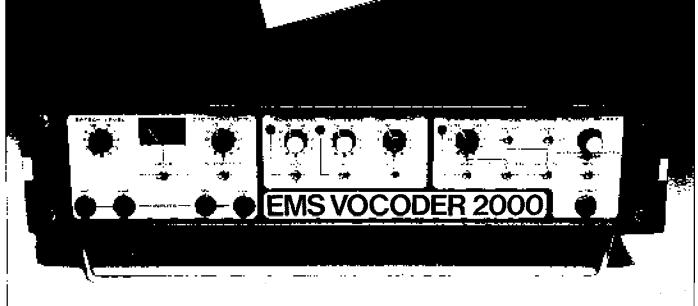
HH Electronic

HH Electronic has provided the professional user with reliable advanced technology for a decade. From the TAP range of single channel power amplifiers to the powerful \$500 D power amplifier to be found in most recording studios from The Manor to the new £1½ M Sony Corporation Studio in Tokyo. Today this British firm is Europe's major professional studio equipment manufacturer,

For the first time in the UK HH are exhibiting the MOS FET power amplifiers. With them will be the successful range of sound control mixers, the TPA and S500 D power amps and the exciting range of magnesium chassis mounted speakers from HH Acoustics which are now available to the open market.

In attendance on behalf of HH Electronic and HH Acoustics will be Mike Wilson (Industrial and HH Acoustic Sales Manager) and Guy Boxall (UK Sales Administration Manager).









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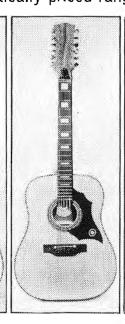
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Klark-Teknik Research Ltd.

As well as their well-established range of professional graphic EQs, K-T will be showing their DN70 digital time processor, which has three outputs, each variable up to 653mS. Frequency response of up to 15KHz is available on all delays. The new DN71 is a low-cost add-on sound effects generator to compliment the DN70. Also on show is the DN34 Analogue Time Processor and a stereo version, the DN36.

Lockwood

Lockwood Acoustic & Electronic Equipment will be exhibiting a range of their high quality monitoring loud-speakers, with some new additions. All Lockwood speakers are available with power amps, and all are available as free-standing or wall and ceiling mounting, by incorporating a standard mounting saddle.

ITA Industrial Tape Applications

ITA is exhibiting an exceptionally wide and important range of tape decks, mixers and ancillary equipment including some entirely new products of great interest. The stand is divided into three sections—1) ITAM products 2) OTARI products 3) Other products.

ITAM's will contain the world's most compact 16 track recorder, the ITAM 1610. Alongside you will find a new 20 x 8 mixer with full 16 track monitoring facilities, and a complete 16 track studio which can be set up for under £10,000. More familiar ITAM products on show will be the 806 8 track recorder on half inch tape, a 10 x 4 mixer and a smaller 8 x 2 mixer. Ancillary equipment include a graphic equalizer and a stereo compressor limiter.

Neve Electronic International Ltd

Neve claim that their new 8108 audio mixing console is the most important advance in console design in

the last two decades. The 8108, star of this year's Neve display, is based on the latest development in microprocessor and solid-state technology. It can be supplied with up to 56 input channels, each incorporating a fully parametric comprehensive EQ, filter, and up to 48-track outputs. The microprocessor-controlled signal routing is via a touch-sensitive central assignment panel, which includes entry an recall facilities to any of four integral memory stores. Complex console assignment patterns can be transferred from memory to console

at the touch of a button. Shure Electronics Ltd.

The Shure display of professional studio microphones, monitor speakers and microphone circuitry is joined this year by two new additions.

The SM81 cardiod condenser mike is rapidly becoming accepted as a standard in recording and broadcasting studios. It has a switchable low frequency response of flat, 6 or 18dB/octave roll-off and switchable 10dB capacitive attenuator. The other newcomer is the SM17 musical instrument microphone. A range of clips and accessories enable it to be mounted onto a violin tailpiece, an acoustic guitar and most brass and woodwind instruments.

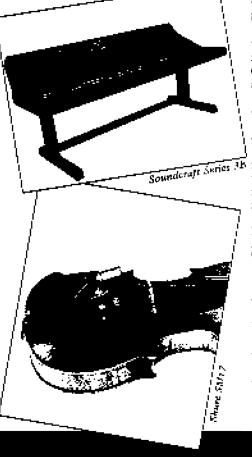
Soundcraft Electronics Ltd.

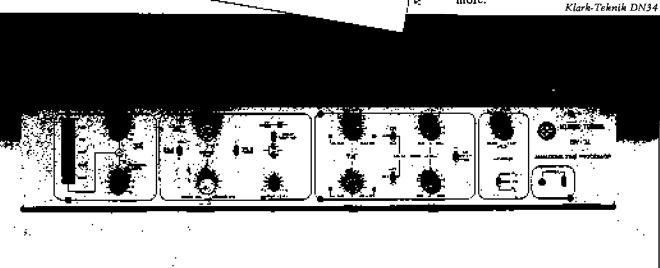
The Soundcraft display will feature three new major product ranges. First is the 400 Series of fully modular eight-track consoles. The series is available in three mainframe sizes for 12, 18 and 26-input channels, with four output and stereo remix buses.

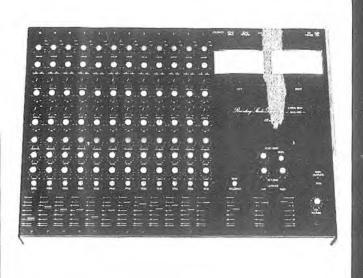
Second is the Series 3B, a completely revised version on the Series 3 exhibited last year. Routing is to 24 output groups plus stereo remix. Finally, the SCM381-8, a new one-inch eight-track tape recorder, which is the first product of Soundcraft Magnetics Division. It has standard remote control for all audio and tape functions.

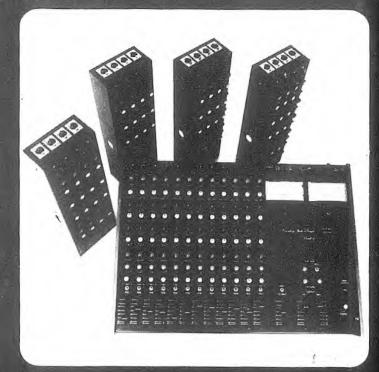
Turnkey

Turnkey is a sales organisation specialising in the supply, installation and packaging of studio equipment, from basic four-track set-ups to 16-track packages. A select range of equipment from leading manufacturers—including RSD, MXR, Soundcraft, Quad and Teac—will be on show, together with studio accessories of all sorts: compressors, parametric equalizers, stereo reverb, DI boxes and many more.

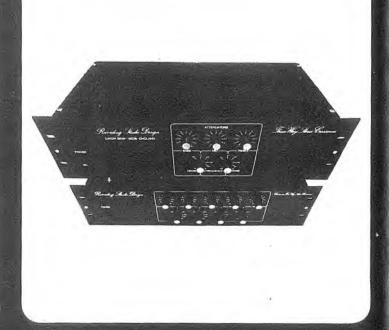












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RECORDING WORLD

STUDIO DIARY

Who's been recording what, where...

Eden Studios, London

Eden should be quite proud; numbers such as Oliver's Army, Lucky Number, Milk and Alcohol and the Undertones' Get Over You were all recorded there. Last month the Stranglers were in for tracks with the eminent Martin Rushent and engineer Aldo Bocca . . . who is also engineering an album by Punishment and Luxury which is produced by Mike Howlett . . . The band's name remains a secret, but whoever they are their recorded will be engineered by Rod Hovison and produced by Richard Hartley and Tommy Boyce . . . Lene Lovich is expected early this month to work on a new album.

Phoenix Recording Studios, London

Phoenix is a recently established eight-track recording studio attracting bands such as the Undertones whose excellent debut album was recorded there, a self-produced affair engineered by Hugh Portnow ... Ex-Sweet vocalist Brian Connolly was in for self-produced demo tracks . . . Hugh Portnow also engineered some tracks for Riva Music (Rod Stewart's label) with punk group the Others . . . James Roberts, who with Hugh Portnow created the studio, engineered demo tracks by a new band called the Gangsters . . . Simon House, who in the past has played with Third Ear Band, Hawkwind and Bowie is currently laying down some tracks with James Roberts . . . Phoenix were also arranging jingles for London's Capital Radio . . . Nik Turner, cofounder of Hawkwind, is producing an album by Corinna, a new singer; James Roberts is engineering.

Rockfield Recording Studio, South Wales

The Hawkiords were rehearsing ... The Dukes are planning an album with producer Marty Cohn and engineer Phil McDonald . . . Airwaves are working on their third album produced and engineered by Pat Moran . . . Peter Hammill got Pat Moran as well to record his solo album . . . The Searchers were expected to start work on a future Pat Moran-produced album which should see the light in August or September.

Air Studios, London

The Dave Mingay-produced Clash movie is being mixed down by Bill Price . . . Siouxsie's second album is on its way, produced and engineered by Mike Steuvaroux . . . John Punter is producing and engineering Marseille's debut album . . . as well as Gloria Mundi's which is near completion . . . Stephanie de Sykes was recording tracks for an album . . . Strangler Hugh Cornwell was still working on his solo album entitled Nosferatu which will feature Ian Dury, Bob and Mark Mothersbaugh of Devo, Beefheart's drummer Robert Williams and ex-Mothers of Invention keyboardman lan Underwood. Steve Churchyard is engineering this promising album . . . America's new elpee, recorded in the States, is to be mixed down at Air Studios by Geoff Emerick and produced by George Martin. Harries, Air's manager, told us that this was to be their best album yet . . . Guess what? Lulu is recording an album with engineer John Kelly . . . Irish band Starjets, currently touring with Stiff Little Fingers, have just finished their debut album engineered by Mike Steuvaroux and produced by David Bachelor.

Red Bus Studios, London

Tina Turner was in for overdubs with producer Alex Constandinos. Geoff Calver is engineering . . . Daniel Goldschmidt was producing an album by Italian singer Toni Rallo . . . Rock band Ofanchi are working on a RCA album with engineer Richard Dodd and producer Ron Rocker . . . Biddu with Tina Charles were mixing some tracks . . . Tony Sadler was producing some disco material . . . Marshall, Hain were busy recording some tracks for a new album produced by Keith Williams . . . Simon Scoffield is to engineer an album by Milk and Honey, the Eurovision Song Contest winners.

Basing Street Studios, London

The Skids are back in town with a single engineered by John Leckie and Bill Nelson . . . Random Hold got Bill



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McCormack to engineer their new single . . . Robert Ash was in Basing Street with Hi-Tension for overdubs. An album is due to be released very soon . . . Starjets were finishing their album . . . So were AC/DC with engineer Tony Platt and producer Mutt Lange . . . Straight 8 are recording tracks . . . Rhett Davies is both producing and engineering a single by Grand Hotel . . . The Mobile recorded Kate Bush for Granada, the Eruptions for TOTP and Dean Friedman at his recent London concert . . . Loudon Wainwright was working on an album.

Advision, London

Screen Idols, an EMI band, are currently recording an album with producer Dennis Mackay . . . Wire are preparing their third LP with engineer Paul Hardiman; Mike Thorn is producing . . . David Essex is adding the final touches to a new self-produced single engineered by Paul Hardiman . . . Strange man, changed man, Bram Tchaikovsky is having his single mixed with producer Martin Rushent . . . M are recording a new pop single . . . Deke Leonard is recording a Radar New single from M album to be produced by Rushent . . . So is Ian Gomm.



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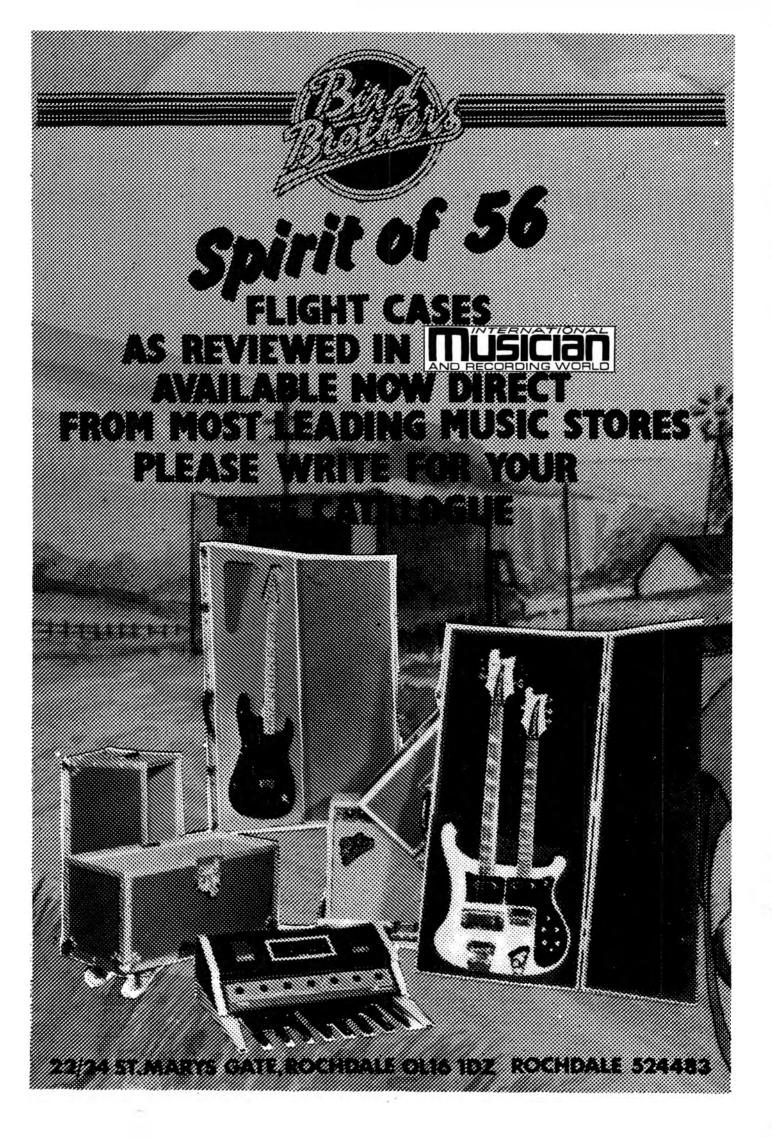
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Your Queries

Click trick

I have recently bought a Gibson "Paul" guitar. When I play it I notice all the metal components — e.g. the strings, tailpiece, bridge, machine-heads — seem "live". They produce a "click" through the amp when I touch them. It is not a loud noise, just a nuisance. Is it possible to eliminate this?

James Niven, Tonbridge, Kent.

Stephen Delft replies: There are two possible causes. One is that the normal connection between the screened side of your guitar circuit and the metal parts of your guitar has been broken or was never fitted. Normally there is a wire connected inside, either to the bottom of one of the tailpiece supports or to the bottom of one of the bridge supports. If you look inside the wiring cavity, you should see one thin (usually uncovered) wire appearing through a small hole in the side of the wood. If you don't have one, it's probably a job for a skilled repair man, because it's not easy to replace after the guitar is finished. The other possibility is that your guitar is wired correctly and there is something odd about your amplifier or about the mains wiring which supplies it. If your guitar checks correctly, have the amp checked. If the amp is correct, I suggest you have your mains supply checked for an adequate earth. One of these should find the problem.

Nice one

I've got an old Levin folk acoustic and I was wondering if you could give me a rough idea of how much it's worth. It's about 20 years old and has L.S.18 as its type number.

S.P. Hurrell, Hildenborough, Kent.

Stephen Delft replies: You have rather a nice guitar. If it is in good condition it will be worth somewhere between £200 and £400 perhaps, depending on how much the prospective buyer wants it. If you are considering insuring it, I would insure for at least £300 as you are unlikely to get anything for less than this which would sound as good.

Socket to me

A plea from a roadie: it seems impossible to get decent jack plugs and sockets (chassis and inline). No-one seems to make these with screws for attaching the wires and all those we currently have are practically impossible to solder (it just doesn't seem to take). Having managed finally to get a decent joint, you are likely to find

Send your opestions about instruments, amplification, music and the business to Queries, International Musician and Recording World, Grosvenor Heuse, 141-143 Druty Lane, London WC2. If you'd like your question answered by a particular one of our consultants, mark your envelope "Stephen Delft", "Mark Sawicki" etc.

that you've melted the ubiquitous plastic bits and the thing is useless. Do you know of anyone who makes/supplies decent jack equipment?

G. Walker, King's Norton, Birmingham.

One way round the problem is to use Cannon XLR type connectors wherever this is practical. For mike leads, mixer-to-amp feeds, effects unit interconnections, loudspeaker cables. etc. the XLR-3 is a most serviceable connector - but take advice on which pins to use for what. Wiring up in the standard method will ensure that your leads will mate up with anyone else's. Where you have to use jacks - e.g. with instrument leads - the Radiospares heavy duty jack is pretty good, with sensible screw terminals and a good cable grip arrangement to prevent the wires being pulled out as soon as someone trips over the lead.

Nothing to read

I have just bought an RCF L18F/100A speaker which I intend to use for bass guitar reproduction. This speaker is made in Italy and I received no literature with it. I have been unable to obtain anything but the most basic info about it. Could you give me any help with an enclosure design for this unit?

Howard Green, London N19.

Ken Dibble replies: It is not unusual for loudspeaker chassis units to be supplied without literature. The manufacturer's specification is usually given in the catalogue and it is assumed that the purchaser knows what to do with the unit once he had bought it. I suggest that you write to the British distributors for RCF and ask for the assistance you require. Address your letter for the attention of Mr. M. Fellows, Covemain Ltd., Dunchurch Trading Estate, London Road, Dunchurch, Rugby, Warwicks. CV23 91.L.

Dead Wood

I am planning to construct a PA system and I would like advice on

whether to use high-density 18mm chipboard or 18mm plywood for cabinet construction, as there seems to be a conflict of opinion concerning the relative "deadness" of the two materials.

K. Gater, Exeter, Devon

Ken Dibble replies: There is little doubt that high-density chipboard is better acoustically than most grades of plywood. However, plywood is far better as regards wear and tear. Provided that you use a grade that is free of holes or gaps, and is of several layers rather than three- or five-ply often found with cheaper plywoods, you should not find any problems.

Fight feedback

I heard of an idea for fighting feedback on stage which involves a small phase shift of the signal being amplified by the PA. Thus any sound reentering the mike is at a slightly different frequency and thus does not produce resonance. Does the idea





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Your Queries

work and if so are there any generally available units to do this?

Ernie Webster, Croydon, Surrey.

Ken Dibble replies: This is a practice that has been in use many years. I believe it was poineered by the BBC and you can often find advertisements for such units in the specialist sound magazines, But bear in mind that for use with a band PA, frequency shifting is the same thing as a change in musical pitch - so you could find problems with the musicians in the band thinking that they are never in tune! By far the best way to solve feedback difficulties is to use properly designed loudspeakers and top quality amps, mixer, mikes, etc., and to use these properly. A good sound rig, driven by a guy who knows what he is about. will rarely give feedback problems.

Vox popular

I have a collection of old Vox solids. In 1965, when I couldn't afford a Precision, I bought a "nearly new" Phantom bass. Then, when I switched to guitar, I bought a Vox Soundcaster, and later added a Consort, a Wyman bass and a Phantom 12-string which has an action you wouldn't believe. I have one small, niggling problem I'd like to put right. I know the guitars aren't valuable but some of them don't have the right tone and volume knobs fitted. I think the original Vox aluminium knobs were most attractive and tasteful. Where can I get some, or very near copies?

> Tony Blunt, Stalbridge Dorset.

You may be able to get at least some of the Vox-style knobs from a company called Re-an (Burnham Road, Dartford, Kent), who manufacture plastic and metal parts for the radio and amplifier trade. You may also find display stands with packaged Re-an knobs and fittings in some music shops.

Piano problem

I am a keyboard player with a sound problem. I play a Fender Rhodes, a string machine and a synth, all of which I put through an MM six-channel mixer, powered by an HH 100w slave and a 200w 2 x 12. This set-up provides me with ample volume for the strings and the synth but leaves the piano barely audible unless I put the Gain and the fader on the channel itself full up. This, of course, causes excessive hiss and distortion at times.

I'd be grateful for any advice you can offer.

Stan Cooney, Dundee.

Mark Sawicki replies: Because the output levels from your various keyboards are so different, ideally you should use a mixer specially designed for keyboards, or alternatively have a mixing system with channel input sensitivity figures tailored to individual keyboard needs. Naturally, when you set the channel gain very high, you automatically encounter problems with noise and distortion. A simple solution would be to use an add-on "Gain Box" with the Fender Rhodes channel - a quality pre-amp type, matching the impedance levels involved and providing the gain you require.

Wire works

Do you know where I might obtain a decent mandolin pickup (magnetic)? I would prefer a humbucking sort but a single coil would do. If all else fails, I am thinking of rebuilding an old single-coil pickup which I possess. Do you think the wire would tolerate this or would it be better to start from scratch? Could you advise me as to where I might obtain a good book on pickups so that I have some idea of what I'm doing before I wreck anything?

Robert King, Alveston, Bristol.

Stephen Delft replies: Mandolin pickups are difficult to obtain. Most people make them by rebuilding a single-coil pickup. The wire on your old pickup is unlikely to tolerate rewinding but you can buy English 46 or 47 gauge wire from the London Electric Wire Co. (210 Church Road, London E10) and other suppliers - try your local classified telephone directory. If you take them a piece of the old wire, they can probably supply you with more. As far as I know, there isn't a good book on the subject of pickups: I suggest you hang on for IM's pickup survey (coming soon) which will have some useful information for you. If you can't wait, try to get hold of four small bar magnets, so you can make a pickup for yourself without destroying the old one. Try about 4,000 or 5,000 turns of between 45 and 47 enamelled copper wire.

Cover up

Like many owners of Rickenbacker basses (or "Rick" copies), I've found that the cover over the treble pickup is something of a hindrance. I wonder if it is possible to remove all the chrome in this area and replace it with a simple cover to tidy the hole up. What possible options are there for customising this area? I notice, for example, that Roger Glover (ex-Deep Purple) uses a "Rick" with what appear to be two Fender Jazz pickups. However, I would not like to change the versatility of sound or the treble edge my "Rick" copy produces.

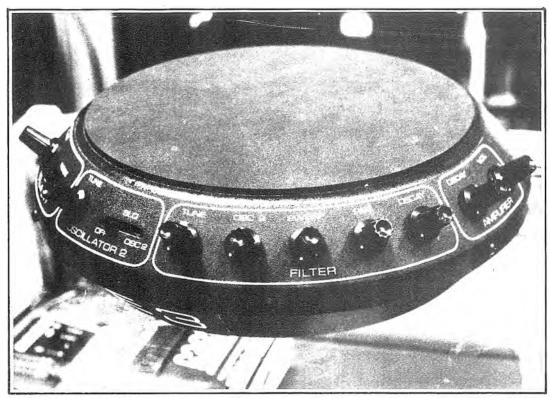
Nigel Farquhar, Staining, Nr. Blackpool.

Stephen Delft replies: If you have a genuine old Rickenbacker, the so-called "cover" over the treble pickup is an integral part of the pickup and should be left entirely alone. But later "Ricks" and copies generally have something which looks similar made out of plastic or metal, and in either case it is not an essential part of the pickup and can be removed by carefully taking the pickup apart and reassembling it without the cover. This does leave a bit of a hole, but because of the chrome surround it may not be obvious as a hole to the audience. You could certainly have a masking plate made to fill up the hole if you wished. Also, I have seen several successful conversions, of putting Fender pickups on Rick Basses and, for that matter, Rick pickups on Fender Basses when you can get the Rick pickups.



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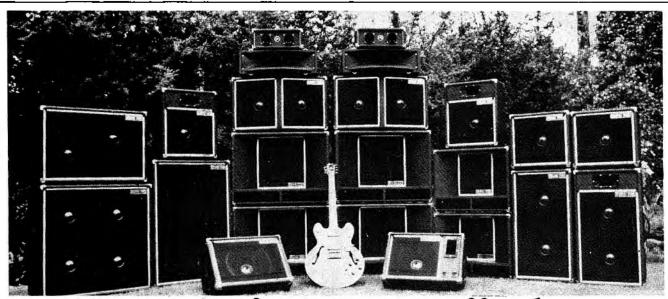
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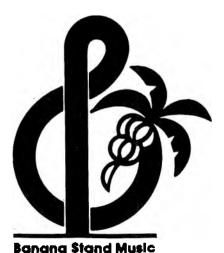
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Adjusting beginners guitars: 4

Zero frets and nut adjustments

In previous articles I have explained where on the fingerboard you would find the first, second, third frets, etc. Once you know which end to look, this is perfectly straightforward, but there is a small snag which you may encounter on some guitars. This is called the "zero" fret or "nut fret". It is not very likely that you would find one on the sort of beginners' guitars which I recommend in the first article of this series, but you may already have a guitar fitted with a zero fret, and the procedure for nut adjustment is rather different from that given last month.

The photo shows a guitar which has a zero fret mounted next to the nut. The conventional type of guitar nut maintains the spaces between the strings and also supports them above the frets and fingerboard. When a zero fret is fitted, these functions are separated. The nut only sets the spacing between the strings; the height of the strings above the fingerboard is set by the special additional fret (zero fret) fitted close to the nut. The slots in the nut are deeper than usual, so that the strings can rest on the zero fret. At least, they should be deep enough to let the strings rest on the zero fret, but sometimes they are not. This can cause buzzes and tuning problems. Sometimes also the slots are too narrow and the strings cannot fit down to the bottom. The nut slots can be enlarged, if necessary, in the same way as described for a standard type of nut, last month. Neither the depth nor the width of nut slots is very critical when a zero fret is fitted. From a simplified point of view, no string height adjustment is possible, and fortunately, none is usually necessary. It is necessary only to ensure that the strings do rest firmly on the zero fret, and are not suspended just above it by a badly fitted mut.

You may think that this sounds a less troublesome arrangement than the standard nut and, indeed, some guitar factories do find it convenient. In practice, it is not quite such a good idea as it may seem at first. Also in practice, either nut arrangement can be made to work quite well enough for a beginner, and there is little point in trying to convert an inexpensive guitar from one to the other. In any case, you can't just add or remove frets at will. For instance, if you want to convert a guitar which has

a zero fret, you must put the new nut where the zero fret used to be, not where the old nut used to be. This is really beyond the scope of "adjusting beginners' guitars."

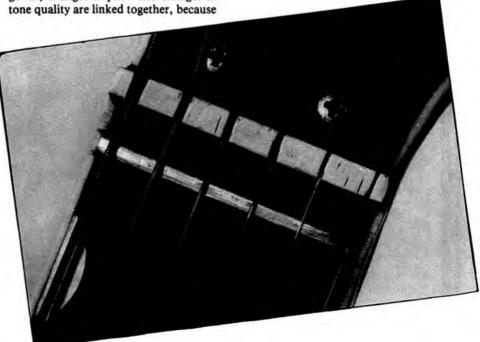
Tuning and intonation

At the beginning of the first article in this series. I suggested that you should not buy guitars which did not play in tune. I also suggested that a reasonable way to check this was to compare the note on the first string, when held down at the 12th fret, with the harmonic note, obtained by plucking the same string "open" or unfretted, but touched lightly with a fingertip, level with the position of the 12th fret. Although there are fine theoretical arguments against this, at the level of sorting out good beginners' guitars from bad ones, the fretted note and the harmonic note should be exactly the same pitch. Some people confuse differences in pitch between two notes with differences in tone quality. As an example, it is quite possible for a clarinet and a recorder to play exactly the same note, but they would still not sound exactly the same. That is a difference in tone quality or timbre. If two identical recorders played slightly different notes, that would be a difference in pitch. When comparing 12th fret notes and 12th fret harmonics, you are looking for agreement or difference of pitch.

With many instruments, including the guitar, changes in pitch and changes in tone quality are linked together, because

of the acoustic design of the instrument, and we all become accustomed to hearing changes of pitch and timbre together. When comparing fretted notes and harmonics (and also when tuning a guitar), you have to learn to ignore changes of timbre and listen only for changes of pitch. If you are buying a new guitar and you can't carry out this test reliably yourself, then go shopping with a friend. Ask the guitar shop assistant to demonstrate this tuning check for you on the instrument you intend to buy. If he says it plays correctly and you later discover that it does not, you may need new strings, the guitar may need a small adjustment. or you may have been misled when you bought it. Go back to the shop, with your friend, ask the advice of the assistant or if necessary the manager. and politely remind him that you were assured at the time of sale that the guitar played correctly in tune at the octave.

Asking the shopkeeper's advice about a problem is a tactful way of asking him to look into it, without either of you having to take up defensive (and time-wasting) positions. Tact does not in any way reduce your buyer's rights. Also, if the guitar performs badly because you don't know how to look after it properly, a tactful approach is more likely to produce a helpful reply. If you are convinced you have been badly treated by any shop, see your local



weights and measures inspector (try the Town Hall). If he thinks you have a good case, he will pursue it on your behalf. If he thinks you complaint is frivolous, he will tell you so.

I should warn you that quite a lot of the cheapest guitars do not play in tune at the 12th fret, and some of them don't seem to play in tune anywhere. If you just want a cheap acoustic on which you can thrash out three chords most of the time (with a couple of minor sevenths on religious holidays), it probably doesn't matter whether the guitar even has a 12th fret. You are unlikely to play beyond the fifth fret anyway. Any intonation problems you experience are more likely to be caused by old strings, a high nut or your own inability to tune the thing (in roughly that order). If on the other hand, you have any feeling that you might learn to play well, one day, it is important that your first and subsequent guitars play properly in tune. Otherwise you are training your ears to accept out-of-tune notes, and when you eventually get a good instrument you won't be able to tune it or use it properly.

Most expensive classical guitars do have the bridges set correctly, and do play practically the same notes at the 12th fret and the 12th fret harmonic on the top string, when their strings are tuned to normal pitch. If you have the opportunity to try one or two expensive classics (say in the £200 to £500 range), apart from enjoying the chance to play a good instrument, try the "12th fret against harmonic" test, so that your ears can learn what the result should sound like. You may then be able to apply the same test to cheaper guitars. There is nothing magical about the 12th fret. In fact, it is necessary for a guitar to play correctly on all frets. It just happens that the most common reason for poor intonation on a cheaper nylon-string guitar, is a slightly misplaced bridge and that the "12th fret against harmonic" comparison is a useful way of checking this.

It can very occasionally be misleading, if both the bridge and the nut are misplaced by corresponding amounts, or if the fret spacings are erratic. It is very unusual to find erratic fret spacings on a recently-made guitar and difficult to check for this before purchase. As I mentioned in the first article, the best protection is a reliable

and long-established brand name or importer's name. It is also very unusual to find cancelling errors in the bridge and nut. If you want to be really certain, put a good capo at the first fret position and then compare the note at the 13th fret and the harmonic found by touching lightly above the 13th fret. That eliminates the nut placing from the test. If you find a guitar which passes either the 12th fret test or the "capo and 13th fret" test, but not both there is likely to be a problem, at least with the height or placing of the nut, and possibly with the bridge as well. The rule is to work on the bridge until the "capo and 13th fret" test gives matching notes, then leave the bridge alone and work on the nut, until the 12th fret test gives matching notes as well.

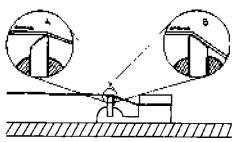
I mention this adjustment sequence out of interest, because the information does not seem to be generally available, but it is not something which can be done easily or quickly. Don't buy a guitar with this sort of complex problem, unless it is reduced to a "salvage" price, and you want to spend a lot of time learning about the art of adjusting troublesome guitars. Howevever, by all means apply both the 12th fret and "capo and 13th fret" tests if you wish to avoid the misfortune of buying a troublesome guitar.

In practice, these tests are valuable if you are considering buying a guitar privately (where the principle of "let the buyer beware" is about the only protection you have), and they are also valuable if you already have a guitar which will not play in tune and you want to know what to do to put it right. Youmay or may not need them when buying a new guitar. I don't want you to think that you are in a state of war with the entire musical instrument business and that everyone is out to try and cheat you. It is much easier simply to deal with a shop which you can trust and which you know will see you right if any instrument proves to be unsatisfactory. But if you want to make thorough checks before buying a beginner's guitar, and you feel that it would be wise, under the circumstances, to do so, you will find them here, in this series of articles.

Let us assume that you already have a guitar which is not in tune by either the 12th or 13th fret comparison tests. First of all, try at least two (different) new top strings. If the error persists, it is

most likely that it will be by the same amount, in the same direction, for both 12th and 13th fret tests. Either the fretted notes will both be higher than the similar harmonic notes, or they will both be lower. Usually if there is an error, the fretted notes are higher. (If there is a difference between the results of the 12th fret and 13th fret tests, leave the capo on, and use the 13th fret.) If there is a large difference between the fretted note and the harmonic, it may be necessary to unglue the entire bridge and replace it in a slightly different place, or to remove the saddle insert and fit it in a different part of the bridge. These are both difficult. If you want to do repairs at this level, there are several books on the subject. (I have two spare copies of the American edition of Irving Sloane's guitar repair book, which is one of the most useful ones.)

If the difference between the fretted note and the harmonic is small, you may be able to correct it, or at least reduce it, by re-shaping the top of the saddle insert in the bridge as shown in the two diagrams. Although these do not move the saddle, they do move the position of the point where the string actually rests. This has the same effect, although obviously the range of adjustment is limited. If the fretted note is higher in pitch than the harmonic, file the bridge saddle as shown in A so that the bearing points of the strings are moved further away from the fingerboard. If the fretted note is lower in pitch than the harmonic, file the saddle as shown at B so that the bearing points are moved towards the fingerboard. If you want to be really classy, you can file different top angles for each of the strings, but this is usually only worthwhile or necessary on the better steelstring acoustics, and we are concerned here with cheaper nylon string guitars.



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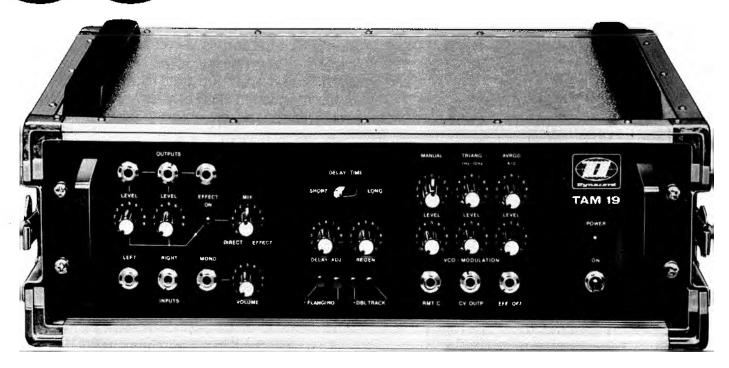
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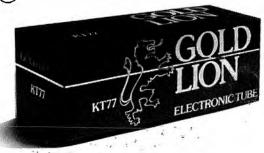
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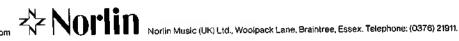
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Understanding Synthesizers

whis is the second of two articles about sequencers. Last month, 1 introduced the sequencer as a device used primarily to produce preset patterns of notes, the sequencer's output controlling the frequency of the VCO. This month I'll describe some additional features of sequencers, illustrating how a sequencer can be used in conjunction with the keyboard module in a number of different ways which do not necessarily involve the VCO.

Remote control of sequences

Fig. 1 shows the front panel of a sequencer, including the row of knobs at the top which determine the sequencer's control voltage output during each step, and the various knobs and switches which control the clock, for example the rate control which determines the duration of each step. To produce an automatic sequence, the "mode" and "end step" are first selected then the "start" button is pressed. In single-cycle mode, the sequencer halts the first time it moves on to the selected "end step"; in the repeat mode, the sequencer goes through an endless series of cycles until "stop" is pressed, each cycle ending on the selected "end-step". (If this is all mumbo-jumbo, try to find a copy of the May issue!)

For reasons which will become clear later, it is often convenient to be able to start, step and stop the sequencer by remote control rather than by pushing the buttons. Designers therefore usually provide external inputs, shown in Fig. 1, which in effect allow the "start", "step" and "stop" buttons to be pushed electronically. For example, as described in more detail below, if the keyboard gate pulse is connected to the "external start" input, the sequencer will start running when any key is depressed. Alternatively, if the sample-and-hold module's clock (see Part 11) is connected into the "external step" input, for every sample taken by that module, the sequencer will advance one step.

Keyboard-triggered effects

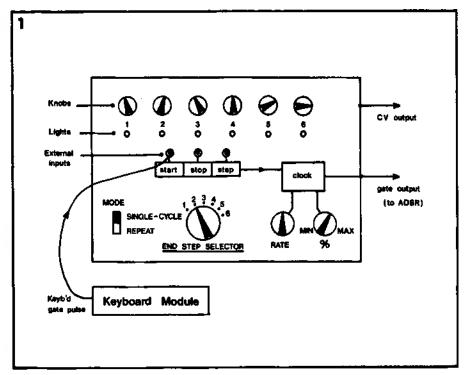
Although it may be far from obvious, all the various features of sequencers which I have described originally evolved because they help the player to exploit the enormous potential which synthesizers have to offer. Many useful effects can be

produced by making the keyboard gate pulse start the sequencer in singlecycle mode (see Fig. 1). In this situation, the sequencer is very much under the control of the player, in contrast to the free-running repeat mode of operation.

Let's suppose that bottom C has been tapped on the keyboard and that the first four sequencer knobs have been adjusted so that the VCO produces D, C, E and G, the end step selector being set to "4". Every time bottom C is struck, the VCO will produce these four notes, their duration being determined by the clock rate control, as illustrated in Fig. 2. Every time a new note is played on the keyboard, the sequence will change pitch, the shift being equal to the interval between bottom C and the new note. Using this approach every note (or, with a switch in the "external start" lead, selected notes) played on the keyboard can produce an arpeggio, a chromatic run, octave jumps, or indeed any desired pitch sequence.

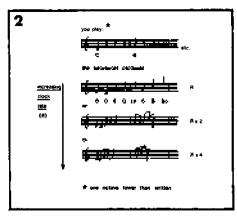
If the clock rate is very high, the individual notes in the sequence tend to become lost and only the final note (determined by the setting of the knob corresponding to the selected "end" step") is heard. If only two or three steps are used, and the corresponding knobs are set to produce a descending pitch sequence covering a wide range (say two to three octaves), "attack transients" can be simulated. Every note produced by the synthesizer is then actually preceded by a very fast sequence of descending notes which introduce an entirely new dimension into the perceived tone quality, (This is an application of sequencers which is not well known and is certainly worth exploring.)

When the keyboard gate pulse is connected to the sequencer's external step input, the sequencer advances one step for every key depression (assuming that each key is released before the next one is pressed). If for example the sequencer's control voltage is fed to a VCF, each note in a phrase played on the keyboard will then have its own sound quality. This approach can be used in many forms to add variety to synthesized sounds, the changes caused by the sequencer occurring in coincidence with other events produced by the keyboard.



Front panel of a sequencer with six stages. For the production of automatic sequences, an internal clock is included which can be started and stopped either manually (using the push buttons) or by remote control (via the external inputs). With the external connection shown here, the sequencer will start when any key is pressed down.

Part 13

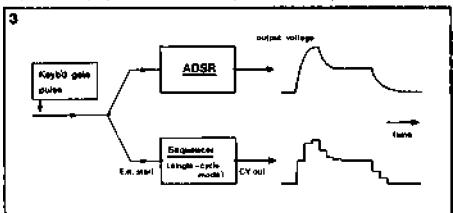


New waveforms

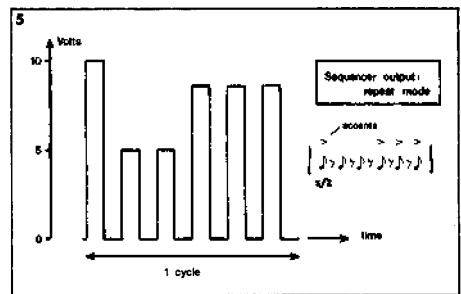
The keyboard gate pulse is most commonly used to trigger the ADSR module, which in turn controls the VCA so that each note played on the keyboard gate pulse is used to start the sequencer in single-cycle mode in the way already described above, it is possible to substitute the sequencer's output for the ADSR waveform.

Fig. 3 illustrates the correspondence between the ADSR module and the sequencer, the sequencer's knobs and clock rate having been adjusted to produce a waveform very much like

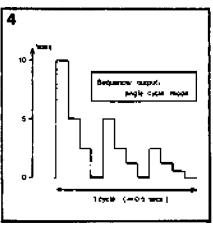
Effect of varying the clock rate on a keyboard – triggered sequence, Notice that pressing different notes on the keyboard alters the overall pitch of the sequence. (The sequencer is operating in single-cycle mode with the end step selector set to "4".)



A sequencer can be used in the same way as the ADSR module to generate a particular waveform coincident with each key depression. Note however that although the sequencer cycle starts when the key is depressed due to the external start connection, the sequencer's output (unlike the ADSR waveform) is not dependent on the key release.



A sequencer-generated repetitive waveform which could be used to superimpose rythmic patterns on audio signals passing through the VCF and/or VCA.



A complex waveform generated by a 12-stage sequencer operating in single-cycle mode which will produce echo effects when used as the control voltage for a VCA.

the typical ADSR waveform. The sequencer's output must have steps in it, but this waveform, just like the ADSR waveform, can perfectly well control a VCA or VCF.

The advantage of the sequencer lies in its ability to produce a far greater variety of waveforms than the ADSR module. Just one example of a complex sequencer waveform which can be used to produce an echo effect is shown in Fig. 4. (If you try this, add plenty of reverberation; notice too that the sequencer responds only to the key depression and not the release.)

When the sequencer is switched to repeat mode, it effectively becomes an LFO with an infinitely variable waveform. (One sequencer cycle is equivalent to one cycle of oscillation.) To produce vibrato using a sequencer would of course be ridiculous, but it is possible! However a low frequency waveform of the kind shown in Fig. 5 (frequency approximately 0.5Hz) fed to the VCF or VCA would have a far from trivial effect, superimposing a rhythmic pattern on whatever audio signal might be passing through those modules.

Parallel and series outputs

The sequencer's control voltage output can be fed to any number of voltage-controlled modules, for example both the VCO and VCF, but the modules will then be receiving the same voltage at any one time. It is often a great advantage if the sequencer can supply two or more independent outputs at the same time so that, for example, the frequency of a VCO and



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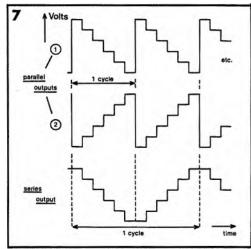
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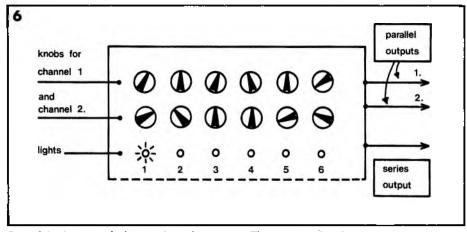
KEIO ELECTRONIC LABORATORY CORP. Tokyo, Japan

the cut-off frequency of a VCF can be controlled separately.

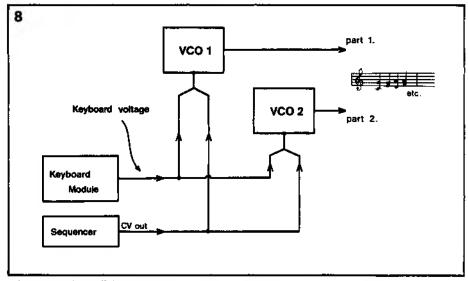
Fig. 6 shows part of the front panel of a "two-channel" sequencer, with the other controls, which are not shown. remaining essentially unchanged (as in the bottom half of Fig. 1). Each stage of this sequencer has two knobs, the sequencer providing two control voltage outputs (ignore the "series output" for the moment). When light 1 is on, the upper knob determines the voltage at output 1, and the lower knob the voltage at output 2. These two outputs are called "parallel outputs" and can be used to control any two voltage-controlled modules independently. The two voltages of course both change at the same time when the sequencer advances to the next step.



Parallel and series control voltage outputs produced by the sequencer shown in Fig. 6 operating in repeat mode.



Part of the front panel of a two-channel sequencer. The sequencer has three outputs: two parallel, and one series. Using the parallel outputs, two voltage-controlled modules can be independently controlled at the same time. The series output is used to produce longer sequences, up to 12 steps long in this case.



A sequencer's parallel outputs can be used to produce passages in two-part harmony.

To make maximum use of the sequencer's controls, another output called the "series output" is also provided in any sequencer with parallel outputs. At the series output, the sequence of voltages set by the top knobs is followed by the voltages set by the bottom knobs (i.e. two sequences occur in series). This will become clearer if you look at Fig. 7, which shows all three outputs when the sequencer is operating in repeat mode. Notice that the cycle length at the series output is twice the cycle length at the parallel outputs.

Two-part harmony

A sequencer with parallel outputs can be used to produce short passages in two-part harmony if each control voltage output is fed to a VCO. In order to shift the pitch of the sequence from the keyboard, both VCOs must receive the keyboard voltage as shown in Fig. 8. (If variable note values are required, the manual step button must be used unless a separate means of controlling the clock rate can be devised.)

Rhythm patterns

As I mentioned in Part 12, although the clock rate can be set manually, it can also usually be varied by an externally applied voltage. If one of the sequencer's parallel outputs is used to control the clock, then the duration of each step can be independently adjusted. A sequence generated using the other parallel output can then have any required rhythm pattern within the limitations of the sequencer. In practice, the ability to generate gate pulse patterns in a preset rhythm is extremely useful, for example allowing sustained chords from a string machine (connected into the VCF's external input) to be chopped up into the most exotic rhythms, many of which would be technically impossible to play without the sequencer's help.

In this series I have covered a lot of ground, from the basic physics of sound, through all the individual synthesizer modules, to the sequencer which is perhaps the most sophisticated single unit to be found in most synthesizer systems. Next month, to round off the current series, I will be writing about computer-controlled synthesizers which probably represent the ultimate step in the application of electronic technology to sound synthesis.

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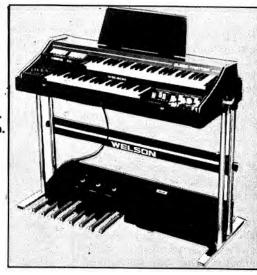
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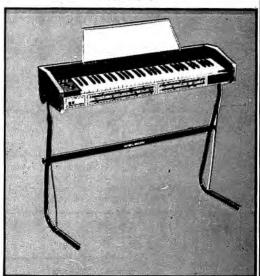




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Roxy Music

The Red Crayola

Fats Domino

Earl Klugh

Roxy Music

Manifesto (Polydor)

One of the most hip and interesting bands of the early Seventies bounce back, and judging by the "sold out" notices on their British tour, they still have a lot of fans. Bearing in mind their previous product, this comeback album seems rather different for a band such as Roxy.

First thoughts are that they sound rather subdued when one thinks back to the brash flamboyant outfit of 1972. Of course the line-up has changed somewhat with Ferry, Manzanera, Thompson and Mackay being joined by Gary Tibbs on bass and a trio of well-known faces in Alan Spenner, Paul Carrack and Dave Skinner.

Still, it's an album that grows on you, and the sound is typified in a couple of tracks, Angel Eyes and Dancy Away. Ferry's always distinctive, impassioned vocals over an understated backing of bass and drums with Manzanera and Mackay punctuating fills on guitar and sax respectively.

Manifesto is certainly an interesting album which shows that Roxy can move with the times and have not merely become an anachronism — a label which they could surely never live with

David Lawrenson

Produced by Roxy Music. Recorded at Ridge Farm and Basing Street.

The Red Crayola

Soldier-Talk (Radar)

An obscure album, this one. Featuring Pere Ubu and Lora Logic, the Red Crayola offer us a post-punk landscape of sounds. Music for the elite? Free punk? Underground? Whatever it is Soldier-Talk is certainly outside rock 'n' roll's language.

The musical climate is voluntarily irritating; its structure is bizarre. Saxophone and brass appear when least expected, bumping into tinny, trebly guitar riffs of very short duration, the drumming is incensed, frantic, jumping in and out of gaps like a fly trapped in a glass. The interplay is highly skilled and innovative but disturbing. This purposely uneasy feel reaches

a dramatic peak with the singing. Mayo Thompson has a high-pitched, shaky voice with which he declares that "a letter bomb is an apt expression." Seemingly rich lyrics which after reflection mean nothing at all. The Red Crayola want to adopt a pseudo-intellectual art form, cerebral music as opposed to popular music. A dry, hype approach to the contemporary world. Soldier-Talk will please the nouveaux dandies, those who cannot bear to be part of the masses. Punk is in the charts, Woolworth sells dayglo footless-tights; it's time for a change. Snobrock?

Hervé Corre

Produced by Mayo Thompson and Jesse Chamberlain, engineered by Steve Lipson and Alan Jacoby. Recorded at Kingsway Recording Studios.

Fats Domino

Sleeping on the job (Sonet)

"I just can't get New Orleans off my mind," Fats sings on one number. It shows, too. He went back to his hometown to record this album and obviously enjoyed every minute of it. His voice is as warm and punchy as ever, and there's a barrelful of his superb piano playing. He doesn't just play rock 'n' roll piano in the Little Richard style: he draws on his earliest influences with some Albert Ammons-type boogie woogie, plays spine-tingling blues licks on Avery Parrish's After Hours and occasionally throws in some Cajun syncopation for good measure.

For some reason, he thought it necessary to fill out some tracks with strings — and oncloser inspection, they turn out to be a string machine, and not too well played either. This is a pity, because the production is quite rich enough without it. The piano is way up front, natch, and the anonymous bass player (no personnel details to be had) churns along nicely.

Only one duff track: Move with the groove, almost a novelty number, with flimsy tenor sax over a near-military drum pattern. Very odd. Best of the rest: Something about you, which recalls his classic I'm walking of 20 years ago, that levely After Hours and the gently rolling, triplet-infested Shame on you.

Jeff Pike

Recorded at Sea-Saint Studio, New Orleans.
Produced by Fats Domino.

Earl Klugh

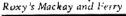
Heart String (United Artists)

As far as I know, Earl Klugh's music is unique. He plays acoustic and Spanish guitar instrumentals with an electric band backing. This is the third album I've heard from him and it's just as enjoyable as the other two.

Basically Earl Klugh plays easy-listening mood music — but dispel any notions of Mantovani and James Last. His acoustic playing is perfectly blended with other electric instruments and his style is simple but effective.

The tracks go through the whole range of moods and tempos from the up-tempo I'll See You Again, with a nice change of pace in the middle, to the latin influenced Spanish Night and the ballad Acoustic Lady, complete with poignant strings.

Klugh music won't tax your brain or blast







your eardrum but if, like me, you need a nice relaxed album in your collection to soothe away the day's troubles, then buy this one and put your feet up.

David Lawrenson

Produced by Earl Klugh. Recorded at Electric Lady Studios, New York.

Even Serpents Shine (CBS) One little game is to play this album to a hard-core Lou Reed fan. Within the first few grooves he will recognise his hero. This is where you maliciously announce his error. Had this been Reed's work he would have climbed right to the top of those popularity charts again. The Only Ones play 11 great numbers, Reedesque in feel and interpretation, but not once does plagiarism come to mind. These original and exciting songs are the work of Peter Perrett, the band's rhythm guitarist and vocalist. All the numbers are intense, hypnotising. They flow with grace and intelligence, occasionally bursting into guitar solos by a very promising guitarist, John Perry. The sound of his Stratocaster is very clear and I can't help comparing him with Mark Knopfler of Dire Straits. Perry is more of a rocker but both go for that sensitive fingerpicking and neither puts his band into the shadows. They are not solo artists and it's much better that way. Appearing on the album is "Rabbit" Bundrick, proving once again how deeply he understands keyboards. Vocal harmony, very important with Even Serpents Shine, is helped by backing vocalist Koulla Kakoulli who, when singing behind Perrett, brings a soothing contrast to his somewhat monotonous voice. The first side of the album contains three gems, From Here To Eternity, You've Got To Pay and the grandiose Out There In The Night.

Hervé Corre

Produced by Alan Mair and Peter Perrett. Recorded and mixed at Basing Street Studios by Robert Ash.

Crache Ton Venin (EMI)

This is France's favourite punk band, the first to have revived French-speaking rock 'n' It's thanks to them that record companies are now signing on French alternative rock bands.

If Telephone sang in English they would be very big in this country. Pure, fast, modern rock 'n' roll that has anyone with a bit of energy in them dancing the night away. This is what this four-piece band are all about, fun dancing, music as entertainment. If Great Britain's champion pogo team would listen to this album, they'd love it. No metaphysical questions are raised here.

A powerful drummer, a girl bass-player who finds enough muscle to back two fingerpickin' good guitarists make Telephone. Their only previous weakness, Jean-Louis Aubert's vocals, is now a thing of the past. A lot of hard work and Martin Rushent's expert ear have put an end to this misery. Aubert has learnt to sing in a relaxed way, making the lyrics clear - lyrics which are in French and mostly concern big city kids. However, Telephone specialise in chorus and non-French speaking kids could easily remember them. Could be the first French band to make it in this country.

Hervé Corre

Produced, recorded and mixed by Martin Rushent at Studio Pathe, Paris and Red Bus, London.

Evolution (CBS)

You know how it is. You've just come in after a fairly exacting night on the town and you want a little background music - nothing so complex that you have to think about it, but nothing so simple that you fall asleep over your coffee. Evolution is the perfect album for latenight easy listening. Few of the 11 tracks seem interested in catching the unwary listener off his guard or actually surprising him. Instead they just begin, bounce along for a couple of minutes and then end as anonymously as they began.

But there are a couple of exceptions: Just the Same Way which features the strong lead vocals of keyboard player Gregg Rolie, and Daydreams which has an opening reminiscent of some of the beautiful music which appeared from the West Coast in the late Sixties and floats along as gently as a summer's day.

As EMI would put it, file under "POPULAR: Pop groups,"

Rob McIvor

Produced by Roy Thomas Baker at Cherokee Studios, Los Angeles. Engineered by Geoffrey Workman and George Tutko.

Violinski

No Cause for Alarm (Jet)

This is generally considered to be a new band formed by ELO violinist Mik Kaminski, but in fact the nucleus of Violinski, Kaminski, drummer John Hodgson and keyboard player



Telephone

Journey

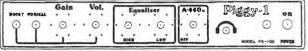
Violinski



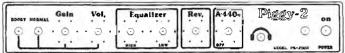
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Albums

band called Cow in the early Seventies — and most of the tracks on this album sound as if they date from those days. It is only the weakness of the material which ruins this album. The band perform adequately, if a little predictably, and the recording quality is as sharp as one could ask for. But the songs, almost exclusively written by Hodgson and Marcangelo, are quite simply awful.

To judge from this album, Kaminski should stick to performing on ELO's album and Marcangelo and Hodgson should use their obvious musical abilities as session men.

Rob McIvor

Produced by Violinski at Marquee Studios, De Lane Lea Music Centre and Musicland Munich. Engineers: Jeff Calvert, Rafe McKenna & Mack.

Louis Clark

(Per-spek-tiv)n. (Jet)

This is the album Mike Oldfield might make had he attended arranging classes and preferred playing keyboards to guitar. Clark has served his apprenticeship arranging for, among others, ELO, City Boy and Kiki Dee, and now he presents his own masterpiece for approval. Well, all the necessary elements are in the work: a band of 14 experienced session men, two years' studio time, lots of very enjoyable melodies and a composer, arranger and performer as versatile as any you could wish to meet. Sadly, the whole is less than the sum of its parts and what could have been a very pleasant pattern has been erratically stitched together so that some of the colours clash. (Per-spek-tiv)n. is one continuous work. Perhaps it would have been more successful as a collection of shorter, more concolourous pieces.

Rob McIvor

Produced by Louis Clark, engineered by Dick Plant. Recorded at the Music Centre, Wembley and DJM, London.

Bob Welch

Three Hearts (Capitol)

Bob Welch came to prominence last year with his first solo album French Kiss, from which he had a hit single Ebony Eyes. This probably made up for the disappointment of leaving Fleetwood Mac just before their enormous success. Welch is a singer/songwriter/guitarist who seems to fit into the same category as Boz Scaggs and Robert Palmer. His music has a commercial R&B feet, while his image is directed at the female of the species.

I didn't really expect to like this album, but there's no denying that the lad can write a catchy tune, and there are at least three songs which I'm sure would make hit singles. The title track is one of these and, as on Here Comes The Night and Precious Love, the arrangement and backing is excellent, getting the most out of Welch's adequate but distinctive vocals.

That ever-popular string arranger, Gene Page (he worked with Barry White and Robert Palmer) makes an excellent contribution to the album, while Welch himself intersperses a variety of licks to remind people that he's still a guitarist. Overall, a nice poppy album.

David Lawrenson
Produced by Richard Dashut and Carter.
Recorded at Sunset Sound.

Patrik Fitzgerald

Grubby Stories (Polydor)

There are 17 tracks on this lump of vinyl, which at least proves that Patrik Fitzgerald doesn't flog his songs to death. Each one appeals because it homes in unerringly on its target, makes a pithy statement and moves on to the next. His themes are Coming To Terms With Life, the Injustices and Lunacies of the Establishment, the Torment of Young Love, and stuff like that. To put it another way, Fitzgerald writes songs/poems about himself. Because he's not in love with himself, because he manipulates words wittily and well, and because he performs honestly and without pretensions, his little cameos all have point and, well, charm.

This is his first album and he's taken the sensible step of recruiting a few musicians (Peter Wilson, keyboards and guitars, Robert Blamire, bass, and John Maher, drums) to augment his rough and ready acoustic guitar playing. This doesn't make it a "band" album: it's still very much the product of a singer-songwriter (doesn't that seem a funny expression these days?). The extra instrumentation does allow him to leave more space between the vocal lines sometimes, which serves to add impact to the lyrics.

Jeff Pike

Produced by Peter Wilson, engineered by Richard Whaley. Recorded at Matrix Studios.

Just Jazz

Jeff Pike reviews some recent jazz releases

Pass & Pedersen: Chops (Pablo)

The finest guitarist in jazz meets the finest bass player in jazz. Argue if you dare. Actually, Joe Pass met Niels Henning Pedersen some time ago and they've worked off and on with Oscar Peterson ever since. But this is the first time they've recorded together as a duo; and the result is utterly brilliant from beginning to end.

Pedersen doesn't just play faster than any bassist on earth, he's also a highly expressive improviser. Half the time on this album, he's playing what amounts to a solo, while Pass adds harmonic depth and elegant decoration. Other times, Pass creates good melodies out of thin air (as a true improviser should) while the deft Dane drives it along like a one-man rhythm section. When they play up-tempo themes in





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Albums

unison (like Rollins' Oleo and Pettiford's Tricrotismo, the precision is breathtaking. When they improvise together in counterpoint (as in Loverman and Jobim's Quiet Nights), the empathy is uncanny.

Pass plays with a beefy electric tone throughout, mostly with a pick, and Pedersen sticks to conventional double-bass, close-miked with no effects. The sensitive recording gives them both the clarity and richness they deserve and the balance is perfect throughout. A classic, indispensible record.

Martin Taylor: Taylor Made (Wave)

It's not really fair to listen to any jazz guitarist straight after Joe Pass. He's an impossible act to follow. But Martin Taylor is well worth a listen. He's young, British, technically assured and plays jazz the way guitarists used to before they discovered wah-wah pedals. In other words, he's right there in the Kessel-Farlow-Montgomery tradition, playing standard tunes and bebop classics with a grace and fluency that belies his tender years. He's accompanied here by Peter Ind, a sensitive and under-rated bassist, and John Richardson playing vigorous but tasteful drums. There are no musical surprises, no new territory being explored, but the satisfaction that comes from hearing three skilful practitioners of their art.

Charlie Parker: Bird With Strings (CBS)

A representative collection of Parker material simply has to include some of the tracks he cut with a string section. because they necessarily show Bird at his best, but because he took them very seriously. In the early Fifties he yearned for respectability, some sort of cultural status, and he relished the chance of working with some "legitimate" This album collects recordings musicians. made from live radio broadcasts from the Apollo and Birdland and also a Carnegie Hall concert. Parker plays with a regular trio, plus a six-piece string section and an oboe. The quality of both sound and playing varies a lot. but there are enough highlights to make it a collector's item. One take of Easy to Love (there are three in all) is a miniature masterpiece. There are two beautiful versions of Laura, and They Can't Take That Away From Me shows Parker at his most extrovert and ecstatic. A mixed bag, with a few real gems.

Tatum, Hampton, Rich: Again (Pablo)

Busy, busy, busy. There are a lot of notes on this album, from only three men. Neither Art Tatum nor Lionel Hampton nor Buddy Rich could be sanely classified as shrinking violets and to put the three of them in the studio together could be to risk creative overkill. But that's what Norman Granz did in 1955 and the sides that were issued soon after were rightly hailed as classics. Now, amazingly, another eight tracks from the same sessions see the light of day for the first time.

Tatum was notoriously difficult to solo alongside (many a guitarist drowned in his cascading "accompaniments") but Hampton holds his own majestically, partly because he can/could play almost as many notes per second as the pianist, partly because he shared with Tatum an adventurous harmonic approach which kept them both on their toes and partly

because they obviously enjoyed playing together so much. They both solo at 100mph, often simultaneously, but miraculously also leave room for each other. Magic.

Short Cuts

The Dovells: Cameo-Parkway Sessions (London)

Schmaltz from the vaults. Four lads with cute haircuts who had eight US hits in the early Sixties, singing close harmony. Lead voice Len Barry later had some solo success (1, 2, 3 and Like a Baby) and the group recorded the original of Bristol Stomp. Not a lot of people know that.

Allman Brothers: Enlightened Rogues (Capricorn)

Can this really be the band that brought you Jessica? On this showing, certainly not. The recipe for this album seems to be, if you can't come up with good material, then re-fry some boogie. Unfortunately, this boogie has been re-fried so much it's positively burnt.

DL

Various: A Monument to British Rock Vol. 1 (EMI)

The idea's a good one but surely EMI could have compiled some better stuff. Seems to me that this was a good opportunity for them to re-pack some of the material previously owned by smaller companies that are now part of the EMI empire. Only a third of the album justifies its title — and Volume 2 will probably be the same.

HO

The Twinkle Brothers: Praise Jah (Virgin Front Line)

Long-established reggae group (formed about 1962) continue to make excellent records. Lots of old songs here, given a simple old-fashioned treatment. Remember rock steady? So do they.

J

The Scorpions: Love Drive (Harvest)

German heavy metal. You either love it or you don't. I don't.

ĎΙ

Adrian Gurvitz: Sweet Vendetta (Jet)

Gurvitz is one of those people who has been on the rock scene for years but never seems to have got anywhere. Now it appears that he had given up rock for disco-soul. This sounds like the Bee Gees on a bad day.

RM

Prince Far I: Cry Tuff Dub Encoutner Part 2 (Virgin Front Line)

Disappointing dub album by Michael Williams (Prince Far I). He's an engaging performer but as a producer he plays safe and delivers no surprises. And what's dub without surprises?

JP

Barclay James Harvest: Best of . . . Volume 2 (Harvest)

A pleasant but pointless compilation. The real best of the band has already been covered on Volume 1 and this album just consists of old flip sides and throwaway tracks.

RM



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To: General Sales Manager

Subject: "SP7" Launch at A.P.R.S. London. June 20th.—22nd, 1979

What's this Petty Cash Voucher doing on my desk for the hire of:-

- (a) The Boston Symphony Orchestra
- (b) The Roedean School Choir
- (c) Six assorted Cannons (Not vicar types, I hope!) and a Fire Engine!!!!

marked: Expenses re. launch of "SP7" at A.P.R.S. London, June '79 !!?

Did you really spend all this to promote our new "reel-to-reel" recorders? From the day we conceived this project I've always thought we were going mad - offering to "Custom-build" recorders, suggesting such a wide model range with all those variations. Why don't we paint them all black, offer one model and make life easy for ourselves?

Our Financial Director says that you want to market the "SP7" with a base price of under £400.00 - you must be joking!!

Can this be true? The Production Manager says you've indented for five models to be available for the launch. No doubt personally hand picked by yourself to display the "SP7" to its best advantage! Are you charging them to your credit card again?

Do you really hope to get everyone onto our Stand No. 96 at A.P.R.S.? With all the money you're spending, I hope so! I'll be coming along to see the girls (correction, Miss Jones) — the NEW "SP7" and if your predictions are correct, I might just sign your expenses after the show.

By the way, you never did tell me what "SP7" stands for?

Signed Managing Director

G.S.M. I've told him, now - lets tell you all about the "SP7" NEAL FERROGRAPH - "TOTAL TAPE TECHNOLOGY"

Rep	y:
Diagon	

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Sound side är en av Sveriges mest välsorterade musikaffärer, belägen Götgatan 32 i Stockholm. För dom gitarrintresserade finns allt från nybörjargitarrer till professionella instrument typ Gibson, Fender, Gretch m.m.

Du som är händig och vill bygga en egen elgitarr eller elbas kan göra det från Mighty Mites breda sortiment av delar, mikrofoner, halsar och kroppar. Och varför inte modifiera din egen gitarr med en ny mikrofon, plektrumskydd, stall, dom finns nu även i massiv mässing som är mycket populärt. Men om du behöver en reservdel så finns den nog hos Sound side, som lagerför det mesta som finns att få till gitarrer som bland annat Strap Lok system, vilket är ett enkelt sätt att låsa fast axelbandet i gitarren, så att det är omöjligt att tappa den. Förmodligen den billigaste försäkringen om du har en dyrbar gitarr. Eller ett gitarrställ av helt ny typ (Heavy Duty) från Amerika, där din gitarr står stadigt.

Dom har även ett stort sortiment av gamla orginalgitarrer och basar som dom importerar från Amerika. Om du är intresserad av ett gammalt orginal av en viss modell och den inte finns på lager kan dom förmodligen fixa den åt dig.

Har ni några frågor eller problem om gitarrer och basar, kontakta då Roger på Sound side, jag är säker på att han kan hjälpa dig.

Och för dom som behöver en förstärkare, så finns en massa olika fabrikat att välja på både nytt och begagnat. Från billiga batteriförstärkarna och 6, 10, 20 watt för hemmabruk, till dom professionella, Combi och separata förstärkare och högtalare av fabrikat som Music man, Fender, Roland, Yamaha, Traynor, Peavey, Hi watt m.m. Trumslagarna har även dom ett brett sortiment att välja på.

Nybörjarset från 1245: — till dom avancerade trumset för yrkesmusiker som dom kraftiga Sonor tillverkade av nio lager formpressat trä, Ludwig, Tama, Orange, Gretch, Slingerland och Rodgers.

Och nu en trappa upp där finns Keybord avdelningen fullt med Synthesizers, Elpianon och orglar som man kan provspela genom ett mixer system eller privat för sig själv med hörlurar. Där hittar man Arp, Moog och Yamaha Polyfoniska synt och deras unika elflygel CP 70B med det riktiga strängljudet samt Fender, Wurlitzer, Roland, Elpiano och andra Keybord instrument från Hohner, Clavinett till Logan stråkmaskin.

Vidare finns det en avdelning i en skolsal där du kan lära dig spela elorgel, elgitarr, elbas m.m. under ledning av utbildade lärare.

Nu går vi över till PA-avdelningen, PA betyder Public address. Vilket på svenska är det samma som sånganläggningar. Där finns mindre anläggningar, som räcker till att använda på ungdomsgårdar och klubbar, och större anläggningar till orkestrar som vill mika ut sina instrument. Till dom bygger Sound side bl a stereoslutsteg på 700 watt och egna högtalarlådor i olika storlekar. Sound side har dessutom en stor uthyrningsverksamhet från enstaka instrument till komplett konsertutrustning inkl. ljud och ljus. Bestående av sound-craft mixors med multikabel och Mega 3-vägs högtalarsystem och ljusanläggning på 48 000 watt, som hissas upp av tryckluft. Sound side har också i anslutning till uthyrningsavdelningen en väl utbyggd service verkstad som snabbt tar hand om kundernas trasiga instrument.

Du som bor eller besöker Stockholm och är intresserad av musikinstrument är välkommen till Sound side.



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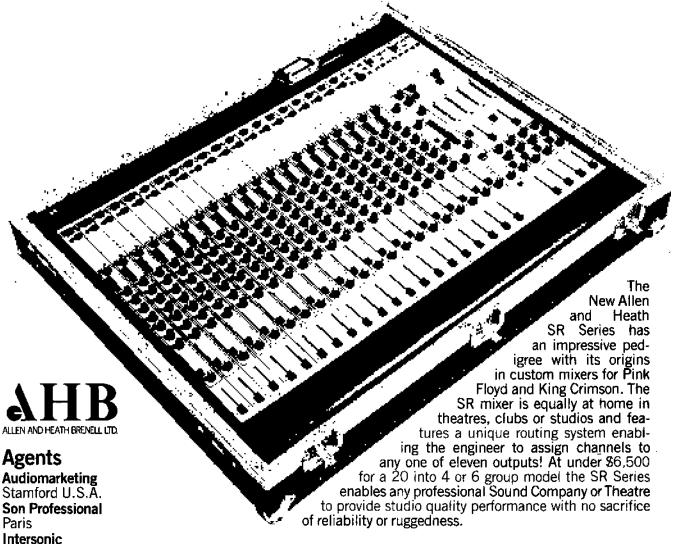
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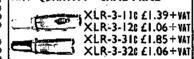
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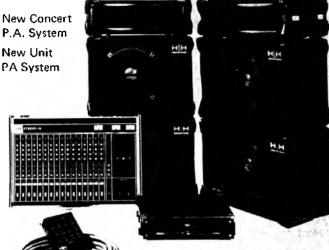
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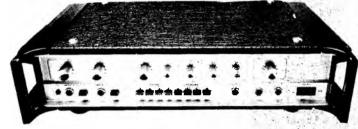
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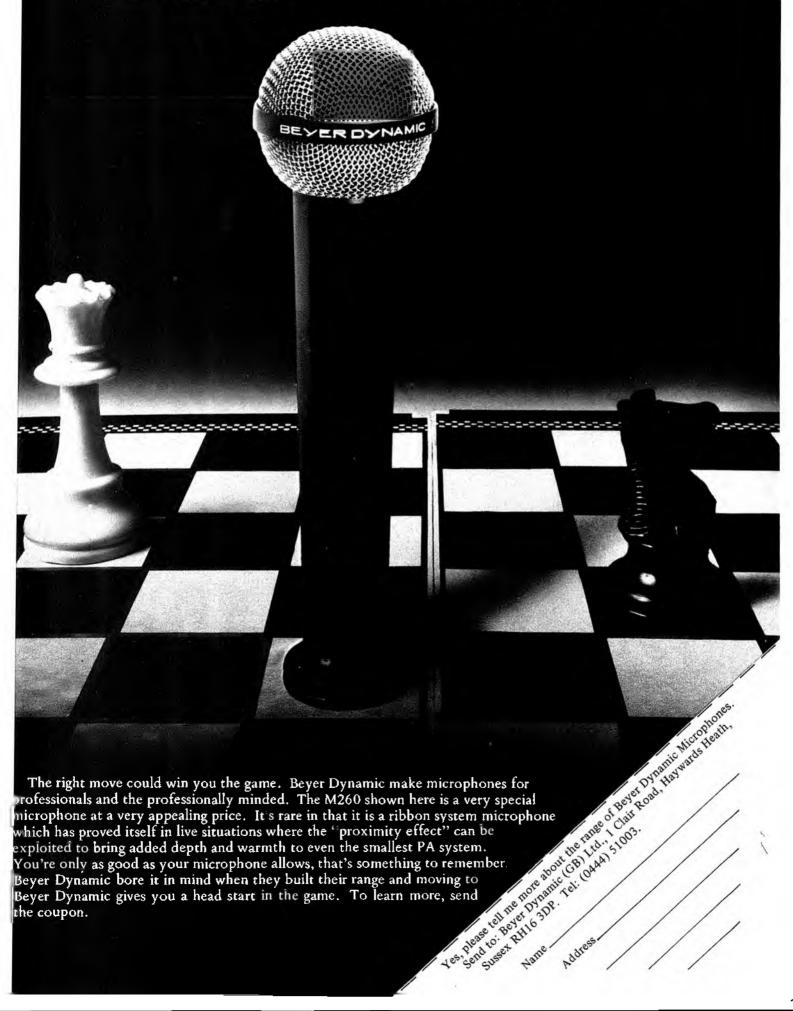
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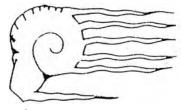
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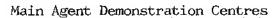


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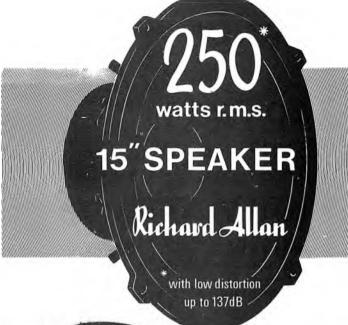
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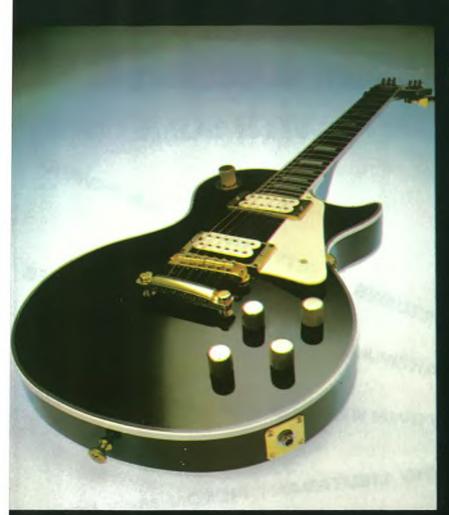
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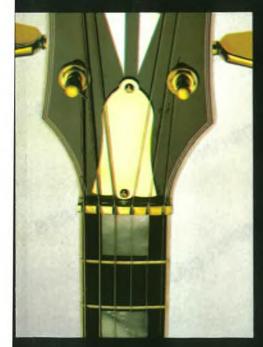
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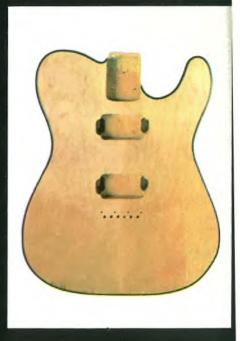












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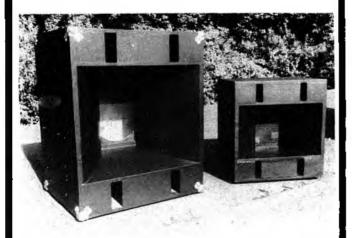
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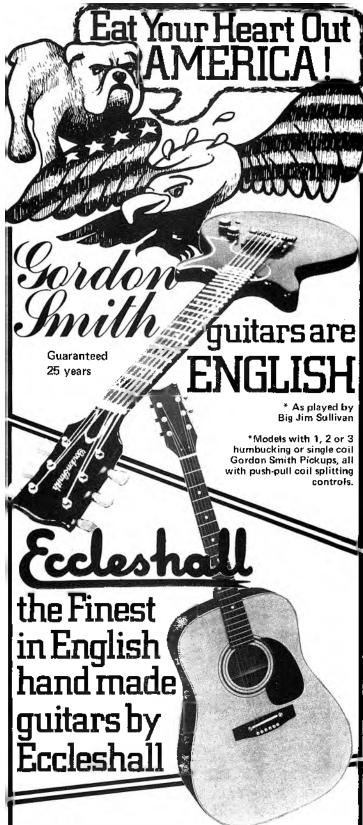


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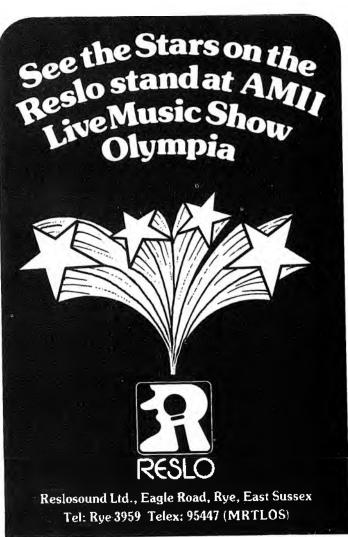
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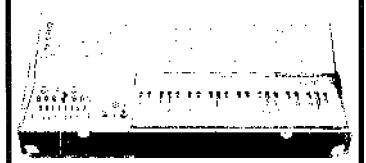


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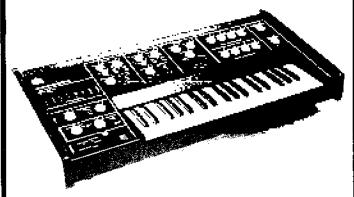
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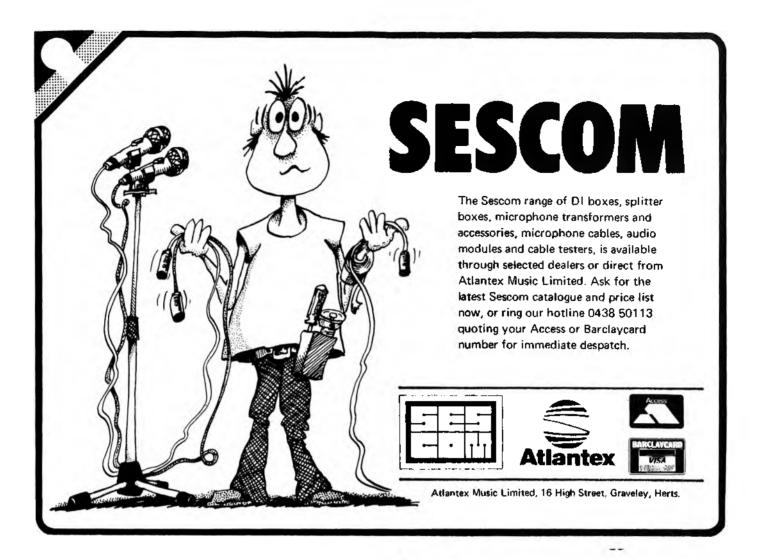
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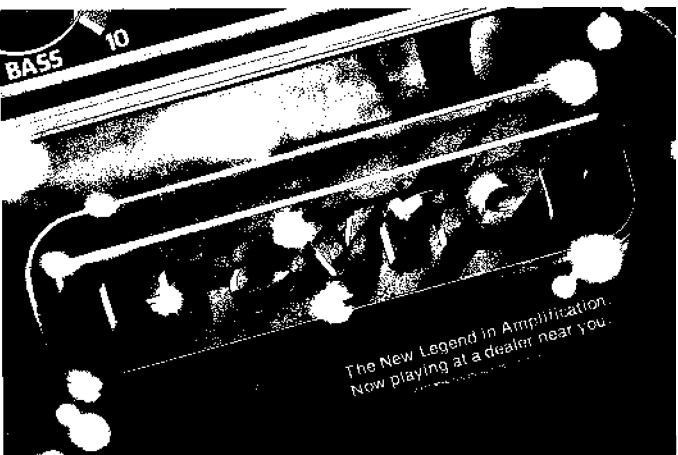
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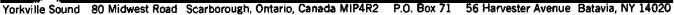
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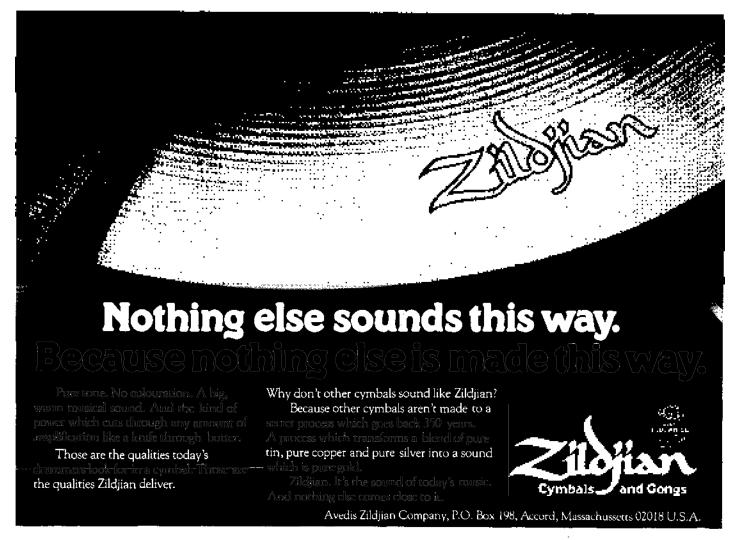




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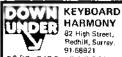
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