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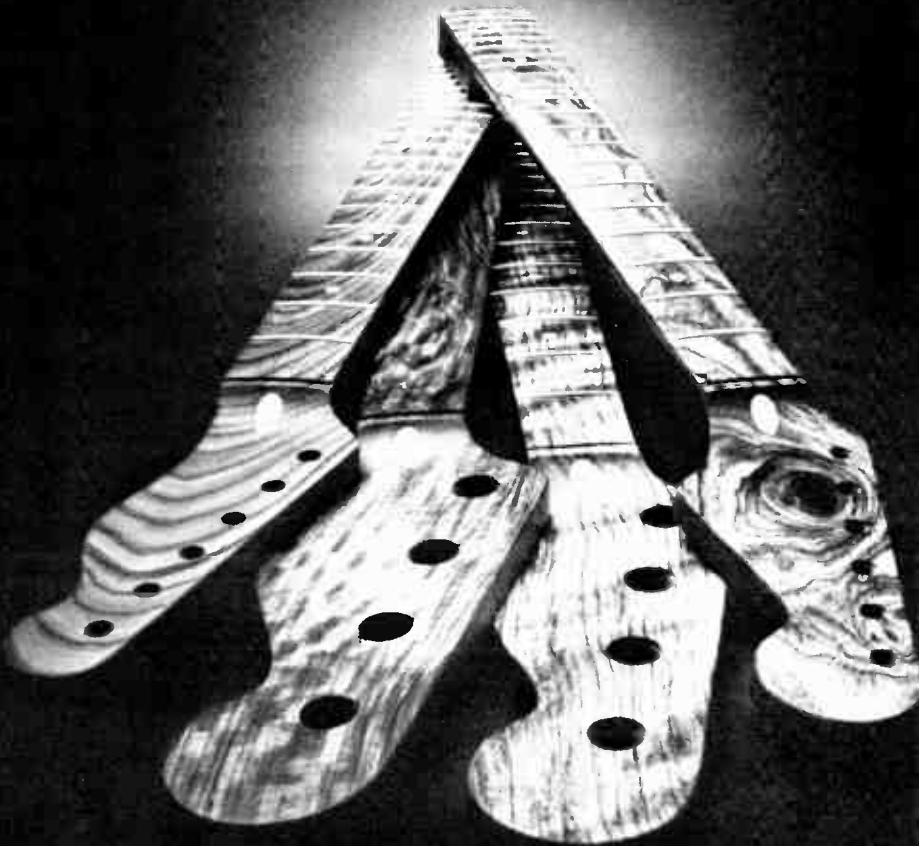
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World Radio History

INTERNATIONAL Musician AND RECORDING WORLD™

**MAY 1980
Volume 2 No 5**

1500 Broadway, (19th floor),
New York, NY 10036
Tel 212 921 9050
Telex 230 645 459

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01-379 6917/01-379 6342
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16 Rue de L'Industrie
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(Answer Back SORAU)

International Musician and Recording World Limited (USPS No. 331-630) is published by International Musician and Recording World USA, Ltd., 1500 Broadway, 19th Floor, New York, NY 10036. Telephone 212-921-9050. US and Canadian circulation by Curtis Circulation Company, West Caldwell, NJ 07006. International Musician and Recording World is a registered trademark. © International Musician and Recording World USA, Limited, 1980. All rights reserved. While every care is taken in the publication of the magazine, the publishers cannot be held responsible for any results arising from the contents thereof.

Published, produced and printed in USA.

Sole International Distribution Agents
Gordon & Gotch (Australia) Ltd.,
Melbourne, Sydney, Brisbane, Adelaide,
Perth
Gordon & Gotch (NZ) Ltd., Wellington,
Auckland, Christchurch, Dunedin
International Magazine Distributors,
Capetown, South Africa

SUBSCRIPTIONS

USA and Canada \$18 second class postage paid at New York and all additional mailing offices.

Subscription Requests
GPO Box 44, Brooklyn, NY 11202
POSTMASTER: If undelivered, please send form 3579 to GPO Box 44, Brooklyn, NY 11202.
Tel: 212-834-0550

A Personal Look at I.M. & R.W.

Jean-Charles Costa brings 15 years of guitar playing and over 10 years worth of experience in the related fields of recording, publishing and M-1 to his new post as Editor of *International Musician and Recording World*.

Born and bred in Washington, D.C., Costa came to New York in 1965 to attend Columbia University. Leaving Columbia in 1969 he went to work for Elektra Records as a fledgling publicist and staff writer, working with groups like the Doors, the Stooges and MC5. Soon after, Costa went on to a long and fruitful association with Atlantic Records, first as a staff writer/publicist and later as a member of the A&R (artists & repertoire) and Artist Relations Departments. While at Atlantic, Costa was fortunate enough to work with leading groups of the day like the Allman Brothers, the J. Geils Band, Derek and the Dominoes, Yes, ELP, Hall & Oates and others. Costa also had the benefit of having total access to the legendary Atlantic Studios and in-house advan-

tages.

After an extended stay at Atlantic, Costa switched over to the publishing end of rock & roll, working as a staffer for *Rolling Stone* and *Crawdaddy* magazine while freelancing for other publications in the field. Following a two-year guitar sabbatical to California and Europe, Costa took over as Editor of *Gig* magazine, a tabloid news-magazine dealing with contemporary music. After *Gig's* premature demise, he went back to freelancing, working on *Rolling Stone's* recent consumer guide project and a screenplay dealing with the life and times of a rock & roll musician.

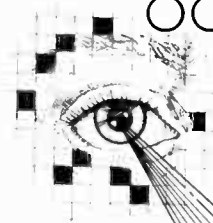
Costa joined *IM&RW* in January, 1979, as Associate Editor and has held that position with the publication until his most recent appointment as Editor. In this new post, he will be responsible for assigning features, playing columns and tests and overseeing the general editorial content of the magazine as well as contributing equipment tests from time to time.

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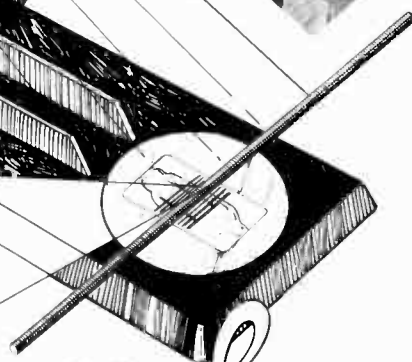
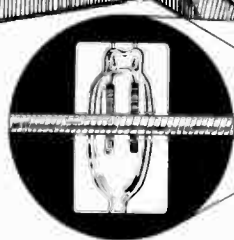
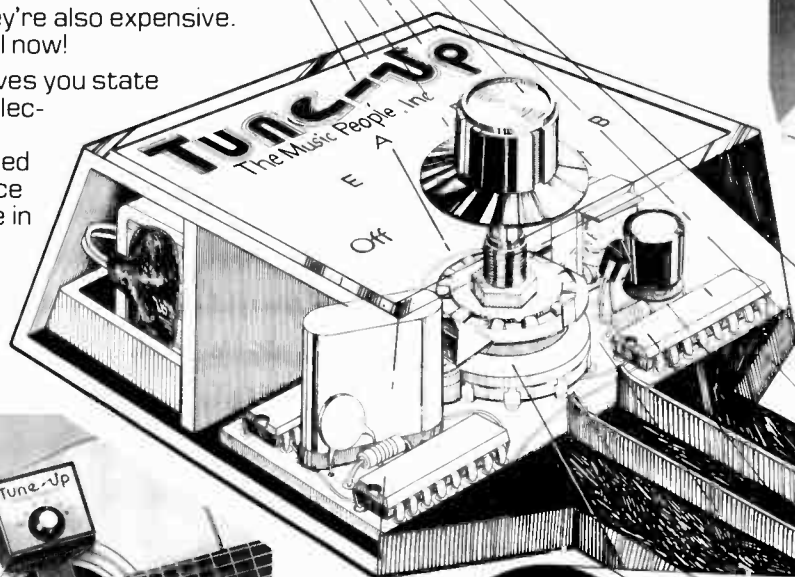
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Letters

More Than Debbie Harry

I've been reading IM&RW since the Steve Howe issue (April, 1979) and I must say that the February, 1980 issue has been the best yet. For the first time I read the magazine cover-to-cover and loved every page.

David Johansen's vocals made me buy his latest album, and your article brought that aspect out. Mainly, I was particularly moved by the story on the group Blondie. Just about every magazine around has done an article on the group, but most of them got no further than Debbie Harry's face. This one turned out great to my tastes, as I am more excited in the group's music than their looks. One thing I'd like to know is what kind of guitar is Debbie holding on the cover? It looks like an electric harp guitar. Please tell me anything you can about this axe.

Thank you for a fine musicians' magazine.

*Christopher J. Van Sickle
Wheaton, IL*

Debbie Harry is holding a Coral Electric Sitar which was popular during the Sixties but is no longer available.

Howe's Books

Thanks for giving the American public the best music magazine money can buy. It's really great to see a publication that tends to the needs and wants of serious rock and jazz musicians. Which brings me to my question about a *very* serious rock musician, Steve Howe. In your April, 1979 interview with Howe he mentioned that his guitar collection would soon be the subject of a book. Well, I've read about Howe publishing a book of selected solos and also one on the history of Yes. When is this book (or books), going to be published? Steve Howe's my favorite guitarist, he's the best, but I've been waiting almost two years for these books and I'm desperate to find out when it's going to happen.

One more question. I know Howe used a Gibson 175-D for a long time, but what year was it and what alterations, if any, did he do to it? Your answers to these questions would be most appreciated. Stay great!

*Mike Poche
New Orleans, LA*



In with Johansen

I thoroughly enjoyed your article on David Johansen. However, there is one point that I would like to clarify. Johnny Rao and Boz Verno are no longer with the band. They were replaced by Freddie G. (guitar) and Charlie Pipp (bass), who were in a Jersey band that frequently played with the Johansen band. Freddie and Johnny were not part of the group when *In Style* was recorded but now successfully tour with the band. Thanks for letting me set the record straight.

*M.L.
Wethersfield, CT*



The Return of Genya

I have before me my first issue of your very interesting magazine and I must hasten to say it's going to be, already is, a most welcome addition to the family of musical periodicals coming into my home.

Being a keyboardist with professional status ranging over 40 years — some would put me into the elderly category, but I don't — I'm pleased with the information on today's exciting instruments. And amps, too; the major problem all keyboard players have struggled with until recently has been proper amplification.

But my chief reason for writing is to express my delight in the article about Genya Ravan. I've wondered for a long while what had become of her. She became one of my favorite singers on the strength of her albums with Ten Wheel Drive in the early Sixties. Thank you for the information and I'm looking forward to subsequent issues.

*Eddie Dimond
Washington, DC*

What About Floyd

I am thoroughly disgusted with the fourth rate review of the new Pink Floyd album, *The Wall* (February, 1980) by J. C. Costa. He very obviously does not know what the Floyd are all about as he proclaims that the band has not done anything worthwhile since the pre-*Dark Side of the Moon* days. I think it is about time that Mr Costa grew up. This is not the "halcyon acid days" of the Sixties and Syd Barrett. God bless him, is gone. Any serious listener knows that Pink Floyd have evolved and progressed far beyond their contemporaries making startling musical revelations and statements and are exploring many uncharted areas to say the least.

Mr Costa did not mention one thing about the music on the album throughout the entire review to which he so generously dedicated one measly paragraph. Someone should explain to Mr Costa that in order to review an album you have to open it up and listen to it. To see this rubbish in such a respectable musical publication as *IM&RW* is very, very sad.

*Michael D. Siegel
Baltimore, MD*

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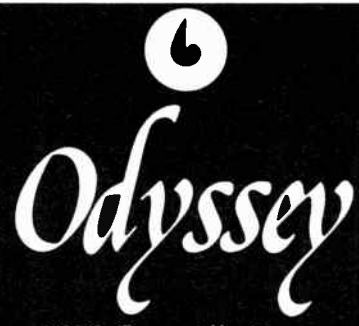


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On Guitar:

Steve Kahn



(Columbia JC 34857). I chose the solo as it seems to be a favorite with the many people who have either written to me or

come back stage to talk after live appearances; it also happens to be one of my favorite moments on the album.

Before we examine the solo, let's take a look at the composition. "Star Chambers" owes a great compositional debt to the great keyboard master-composer, Herbie Hancock. The feeling and mood created on this tune were inspired by two tunes from Herbie's *Man-Child*

(Columbia PC 33812) — these were "Sun Touch" and "Bubbles." The tracks to all of the tunes on *Tightrope* had been recorded, and upon examination I realized I hadn't played any acoustic guitar up to that point. Again, enter Herbie Hancock. I remember another moment on *Man-Child*, this time from the tune "Hang Up Your Hang-Ups." It is a non-stop, hard-driving funk/jazz piece which is *very* electric. After all this great excitement has been created in the tune and you feel it coming to an end, the instrumentation thins out and, out of the blue, comes Herbie's acoustic piano, cushioned by the string synthesizer. From the first time I heard this I thought it was a brilliant and striking touch. So, when it came time to put my album together, it seemed that after so much electricity in "Star Chamber," its solo section would be the perfect moment to introduce my acoustic guitar playing style. It's been this kind of usage — the acoustic guitar playing over the beautiful textures created by the Fender Rhodes — that has been a sort of trademark on each of my three solo albums.

The solo was performed the very first pass at over-dubbing, and, though I did try a few more times to do another one, the consensus was that the original had a special quality about it.

The harmonic rhythm (how long each chord is played) and changes (chord quality and the intervals between them) are fairly typical for much of the modal oriented music written in the post-Bebop period. Here we

continued on page 144

Steve Kahn has recorded three solo albums — "Tightrope," "The Blue Man" and "Arrows." He is also the author of "The Wes Montgomery Guitar Folio" and has worked as a session musician for such noted people as Billy Joel, James Brown, Phoebe Snow, Dexter Gordon, the Brecker Brothers and Steely Dan, to name but a few.

Pick-up to Solo

[B = BEND]

EXAMPLE # 1

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On Bass: Jeff Berlin



Rhythm is a difficult subject to teach. So many components are involved when you mention the word rhythm that the student must decide exactly which aspect of rhythm he or she wishes to concentrate on. We have soul music, jazz, rock, rhythm in odd time signatures, rhythm & blues, hybrid music such as jazz-rock, ethnic music such as Indian or African, gospel music, latin, reggae and a host of others. As a bass player, you'd have your hands full moving from style to style while keeping the concepts authentic. Rhythm must be the most elusive concept in music because I hear nothing except people asking me to "lock it in."

Let's face it, bass and drums are the anchors of the band. Like it or not, you are encouraged to play simply and cohesively *with* the drums. In fact, the drums have more freedom than the bass. The concept of filling space at the end of, say, 16 bars, usually falls on the drummer. A lot of bass players I know get paid heavy bucks to play DUM-DE DUM-DE DUM bass. I truly believe that most contractors and leaders (for sessions ED.) do not know that the bass can be used in a far more interesting rhythmical way than it generally is. When it comes to reggae, soul music and salsa, the bass is HEARD. We are the essence; verily, we *are* these kinds of music. For example, reggae would be lightweight music without us. It would be nothing more than the partials played on the upbeat. Our *presence* locks the whole thing together. In fact, by playing simple rhythm, we support every syncopated player in any style of music. Those guys owe us a lot!

Let's look at one of my rhythmic concepts. Like every other example that has appeared in this column, this can be done in at least a million different ways. Let's take one bar of 16th notes in the time signature of 4:



What we want to do is to take some of these notes and assign them a different place on the

staff so we would have two separate rhythmic lines. The next example will explain:



What we have are two separate rhythmical lines born from one steady 16th note line. If we take each line and write it separately and correctly from a rhythmic standpoint, here is what they look like. I'm writing them in the most easily readable way.

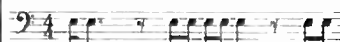


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ORIGINAL:



TOP LINE:



BOTTOM LINE:



Continued on page 144




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IM-4

How can we say that our MXD-5 is the best analog delay for your needs?

Who do you think you are... a musician, a PA engineer, a home recorder? What do you play... guitar, keyboards, a console? Are you a vocalist? We designed the MXD-5 to be the best value in analog delays for the majority of professional musical applications. The MXD-5's versatility and performance are unequalled in its price range. But whether or not you think it's the best depends on who you are and what you need from a delay device.

What do we mean by 'a majority of professional music applications'?

The MXD-5 is versatile. It will provide echo from the entire gamut of instruments and mics. With the MXD-5 individual channels for high and low level input signals make it possible to achieve a proper interface which is so important for sonic performance. We know that in order for any signal processor to work without distorting new material or adding unwanted noise there must be a correct matching of levels.

Right now you may be working on the road, tomorrow, may be in the studio. The MXD-5 is at

home in either situation. A three position switch allows an optimum interface whether going into a musical instrument amplifier, recording console, or a PA mixer.

How much delay is enough?

Once again, the answer to this question depends on who you are. You may never need more than 100 ms. of delay time. The MXD-5 offers from 20 to 200 ms. of delay at an astonishing frequency range. It was developed to provide a wide range of delay times, which are practical, while the quality of the audio signal remains extremely clean. This means a remarkably quiet product with a relatively wide frequency range at all delay settings. We feel that this is a very important factor to consider.

What about, 'how little delay is enough'?

Most other analog delays offer no less than 50 ms. This limits them severely in that they cannot achieve a subtle thickening for instruments or voice. Their delay range starts at a contrived doubling. The MXD-5 can deliver delay from a thick double, to a distinct repeat; in all ranges the performance is superior.

What kinds of things comprise an echo?

In addition to a single time delay, or repeat, there are other factors which effect the way an echo sounds. The intensity of the signal is an important consideration. In many units the volume of the delayed signal is not controllable. With the MXD-5 it can be regulated from a hint to a wallop.

A multi-repeat is achieved by recirculating the delayed signal through the analog circuitry over and over again. In order to get a clean multi-repeat you've got to start with a superior delay circuit. This is what makes the MXD-5 so together.

What qualities exist in natural echo?

Echoes rarely exist in nature without some degree of reverberation. That's why we built in a high quality spring reverb. The sustain time is variable to a maximum of three seconds. The depth is independently controllable. This reverb feature further separates the MXD-5 from other delay units. The MXD-5 can achieve the illusion of natural spacial relationships.

The EQ of the echo and reverb signals are adjustable so that subtle variations of the effect are

attainable without affecting the dry signal.

What makes the MXD-5 better than other competitive units for live performance... the road... the home studio?

The MXD-5 will work consistently under the most strenuous professional conditions. No matter how good a unit sounds, it would be of little value to you if it lives on a repair bench. The MXD-5 is built with the same mechanical and electronic integrity that you would expect from any professional musical product. It is standard rack mountable and an optional road case is available for the most adverse travel conditions. The MXD-5 was also designed to suit your needs on stage. Instant switching of echo and reverberation has been provided for with remote control which may be foot operated (optional) independently.

The LED overload meter is bright enough to be seen for positive visual monitoring of the input signal. There's access to the delayed signal without the reverb signal for recording or on stage panoramic stereo-like effects.



The bottom line is hearing and using the MXD-5 analog delay. For your needs, today and tomorrow; this delay line should prove to be universally better, in both flexibility and performance, than anything in its class. The **MXD-5... \$399.50**, suggested retail.

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On Drums: Bob Henrit



With the acquisition of a much larger kit within the past few years, I have been forced to play with a changed style and technique. For years I have played with the orthodox left-hand grip but now find it's impossible to fill round six or seven tom toms with any degree of speed or force using this grip. I'm now in the individual position where I use orthodox grip for snare and *time* playing (after quite a few years I still feel it's best) and I change to matched grip for the tom tom work. It's a strange situation but with hard practice I've managed to change the grip in mid-fill from snare to tom toms quite successfully. While I'm on the controversial subject of orthodox versus matched grip I would say if I were just taking up the drums I would without doubt use the matched (parallel) hold. I find it leads to a funkier feel — still as I say it's more or less too late for me since I only really feel "at home" playing "orthodox". This style, as most of you will no doubt know, evolved because hundreds of years ago it was the only left-hand grip you could use while marching along with your drum slanting from left down to right — and play at the same time. These days, of course, the special harnesses' enable even the marching drummer to play matched grip with his drum-head roughly parallel to the ground. Anyway, I'm more or less stuck with orthodox grip but you needn't be.

I thought I'd mention recording technique in passing and talk a little about *reading* at the same time. Many moons ago I was booked for a session substituting for a drummer who didn't play too well. Being scrupulously honest I admitted that I didn't read too well but would appreciate a part as a guide. The producer assured me that since "it was only rock & roll" I wouldn't need a part. I arrived at the studio just in front of fifty other musicians who all had their parts. Need-

less to say it was not "only rock & roll" and I had to learn my part while 50 experienced musicians waited for me. It was a very sweaty experience! At that time young musicians with long hair were definitely frowned upon by the session-man fraternity.

I got through it in the end and over the years I've talked to all sorts of studio players who, funnily enough have had the same sort of embarrassing experience — and survived it. To sum up, its essential these days to read if you intend a career as a studio player.

As far as recording is concerned it's important for the drummer to *under* rather than *over* play. Obviously it's the drummer who draws attention to the song's punctuation by his "fills" and accents. Mostly, as Steve Gadd will tell you, it's what the player leaves out that makes all the difference. Anything the drummer plays, though, will sound better if it's played positively. Get in there and play with confidence even if at first you are wrong. I have always maintained that it's better to be positively wrong than almost right — but then again I could be wrong!

In conclusion, listen to as many drummers as you can (bad ones as well as good), copy then unashamedly but adapt their ideas to your own style. Remember there's something to be learnt from *every* player. These days we're all fortunate in having so many great players to emulate. Bear in mind also that a half-hour's applied drum thinking is more beneficial than two *bored* hours of practice.

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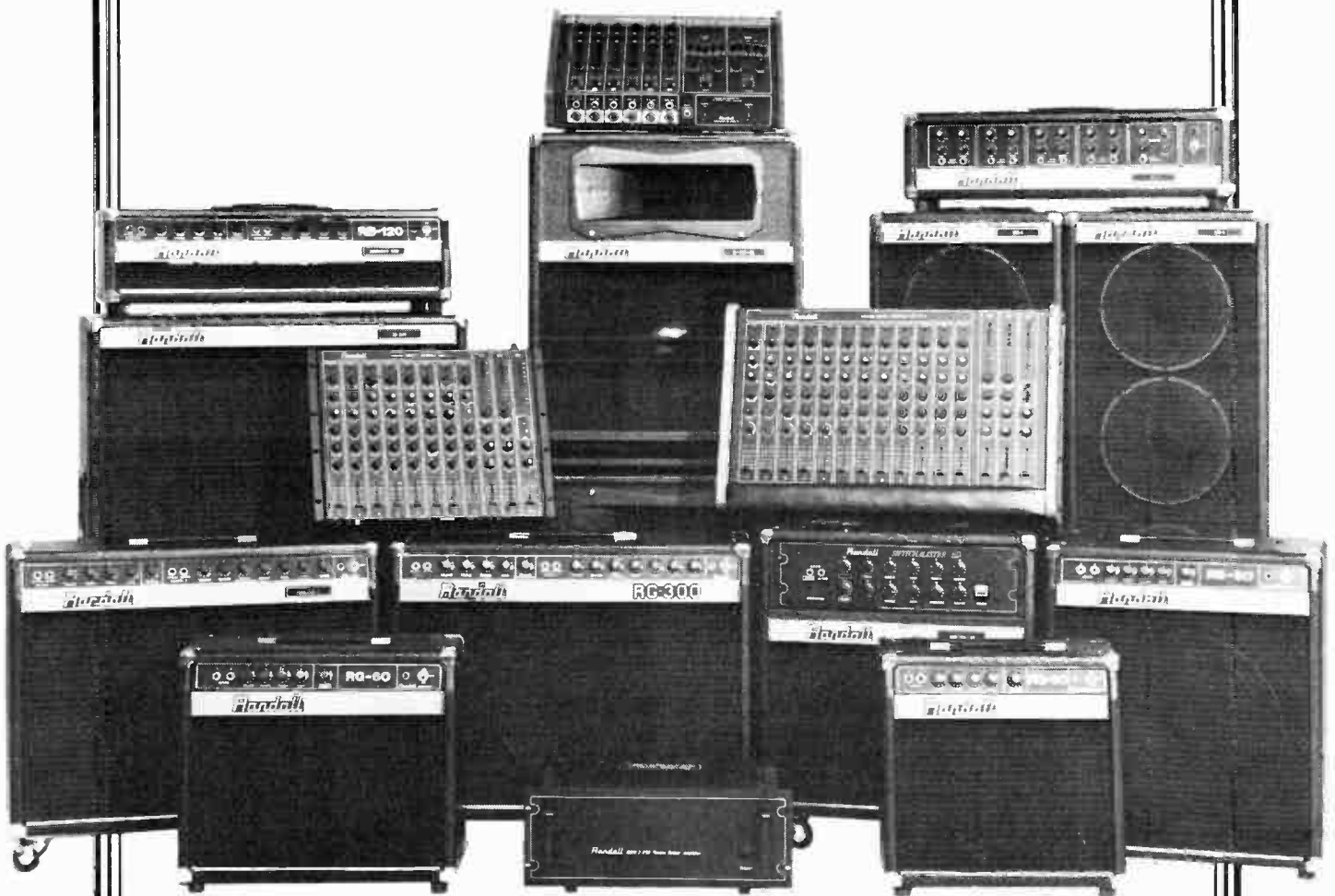
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On Sax: Alan Holmes

After the tenor and alto is that tricky little saxophone, the soprano. Even though it is a saxophone it very often ends up sounding like an oboe or an amusing circus instrument.

Selmers don't make a soprano mouthpiece wider than 65thou. The 'F' which is used only 55 thousandths or equivalent to a Lawton 5*. Sopranos are very difficult to play in tune so a closer lay should make pitching more stable. Because the foremost priority of the Soprano is to overcome its difficult intonation, the tip opening has to be a compromise between the tone and the ease of pitching.

The use of harder reeds also helps stabilize the pitch and make it less sensitive to breath pressure. Narrow bore reed instruments like the soprano and particularly the oboe, are sensitive to the point of tuning to the sort of uneven breath pressure quite imperceptible on the other, larger saxophones. Softer reeds on the soprano make a reedy and oriental tone. I personally feel as an oboe player, that the soprano should sound like a saxophone and not some strange oriental oboe complete with a scale so inaccurate that it includes quarter tones.

In fact, once the scale has deteriorated to oriental levels by reason of soft reeds, then it has ceased to be of any use in playing in unison with other instruments. The use of 3½ or 4 reeds on soprano is beneficial in controlling the pitch and excessive edginess. The 55 thousandth or 5* is also closer to clarinet for those that indulge. My Leblance 3L clarinet mouthpiece is 45 thousandths so shifting the soprano closer to the clarinet is safer than moving wider towards the alto.

For the soprano, a range of 45 thou, Selmer 'D' 4*, to 60x, thousandths Selmer 'G' 6 to 6* with 3½ or 4 reeds for alto: from 75 thousandths, 6, to 85 thousandths 7* with 2½ to 3 reeds. The most popular are — 6*, 80 thou, to 7*, 90 thou. For Tenor: 95 thousandths 6* to

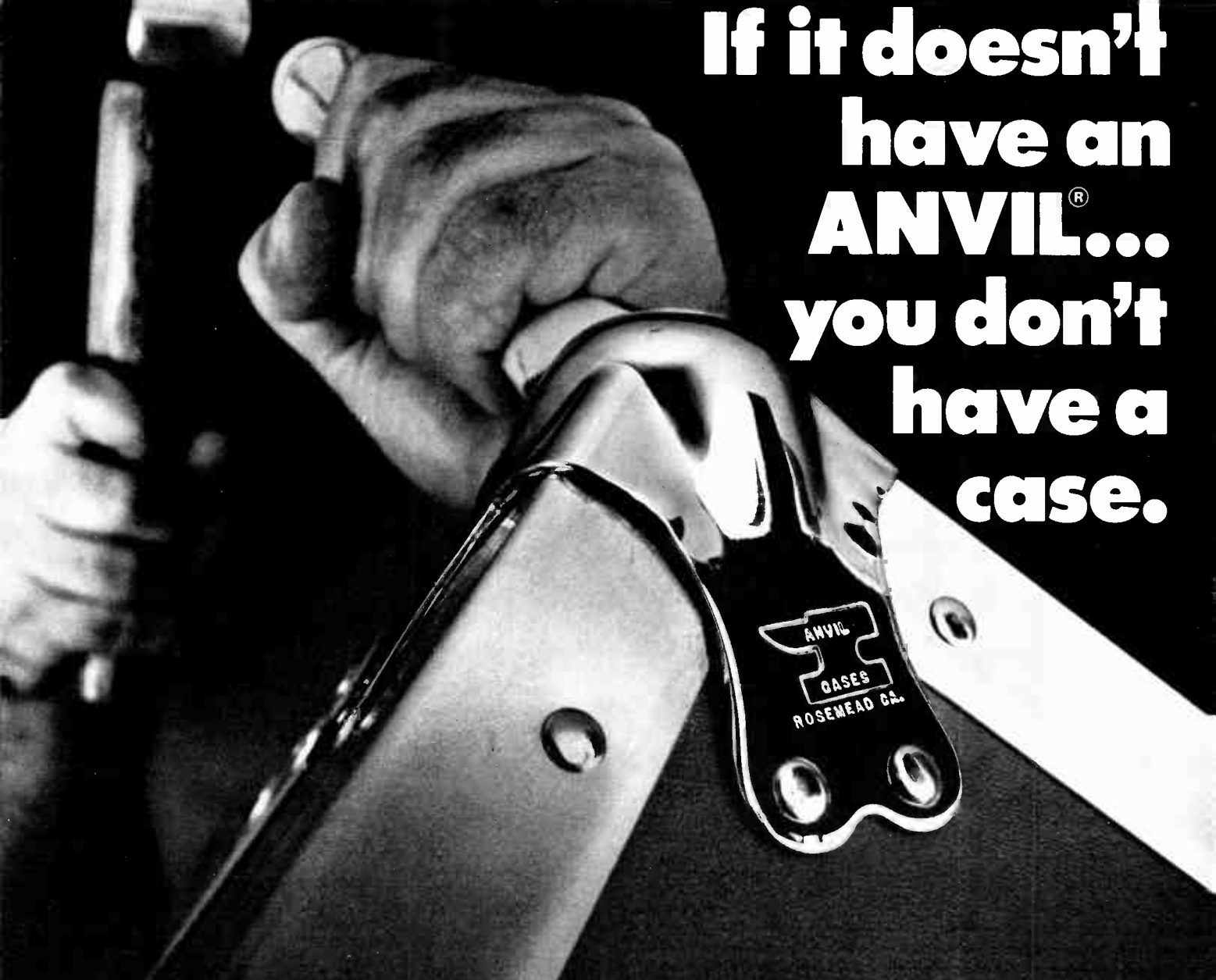


110 thousandths 8, with the most popular the 100, 7, and 106, 7* with No. 3 reeds. For Baritone: 6, 105 thousandths to 7* 115 thousandths with a 2½ medium soft reed to 3 medium reed.

As a matter of interest Geoff Lawton, who makes the excellent but scarce Lawton mouthpieces and who has experimented extensively with mouthpieces, has arrived at almost identical conclusions. His personal choice, Lawtons of course, are: soprano 5*, 3½ reed, alto 6* (the very latest ebonite model) 2½ reed, tenor 7*B with No. 3 reed, baritone 6*B with 2½ reed. His alto 6* is the same tip opening as a Link 6.

No doubt many of you will disagree with these recommendations but if you are looking for a basis from which to experiment, particularly for studio work and rapid switching, you will get results from these ratios. Whether it is the result you want, is then up to you.

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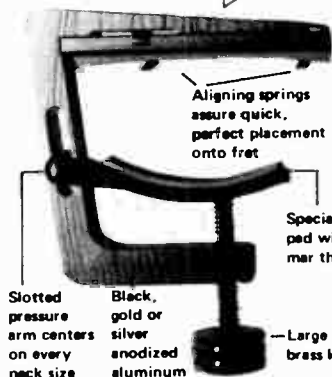


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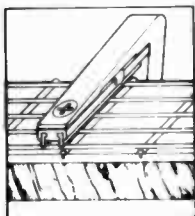
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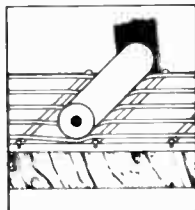


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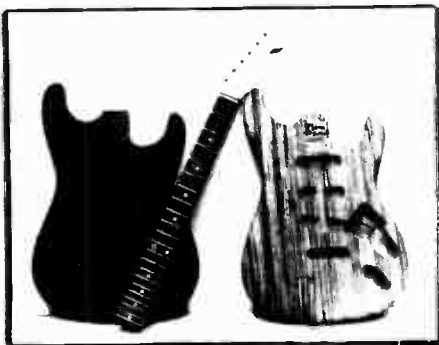
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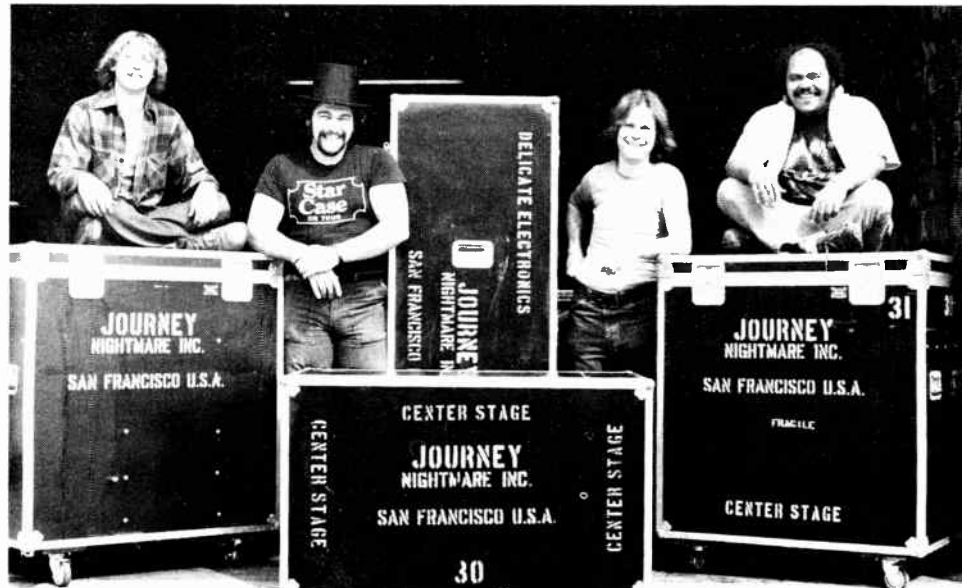
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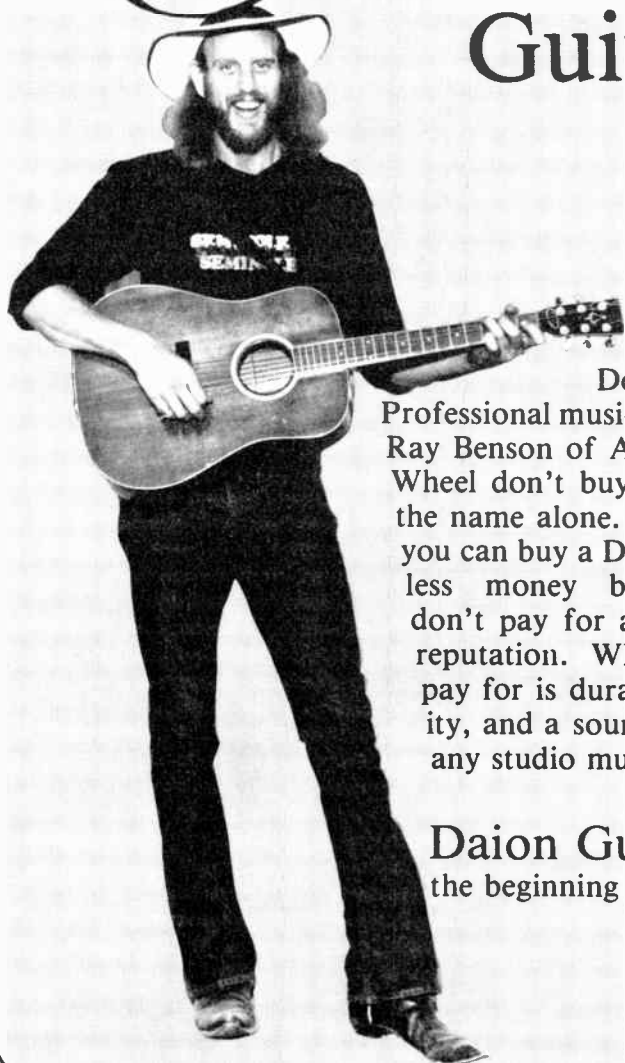
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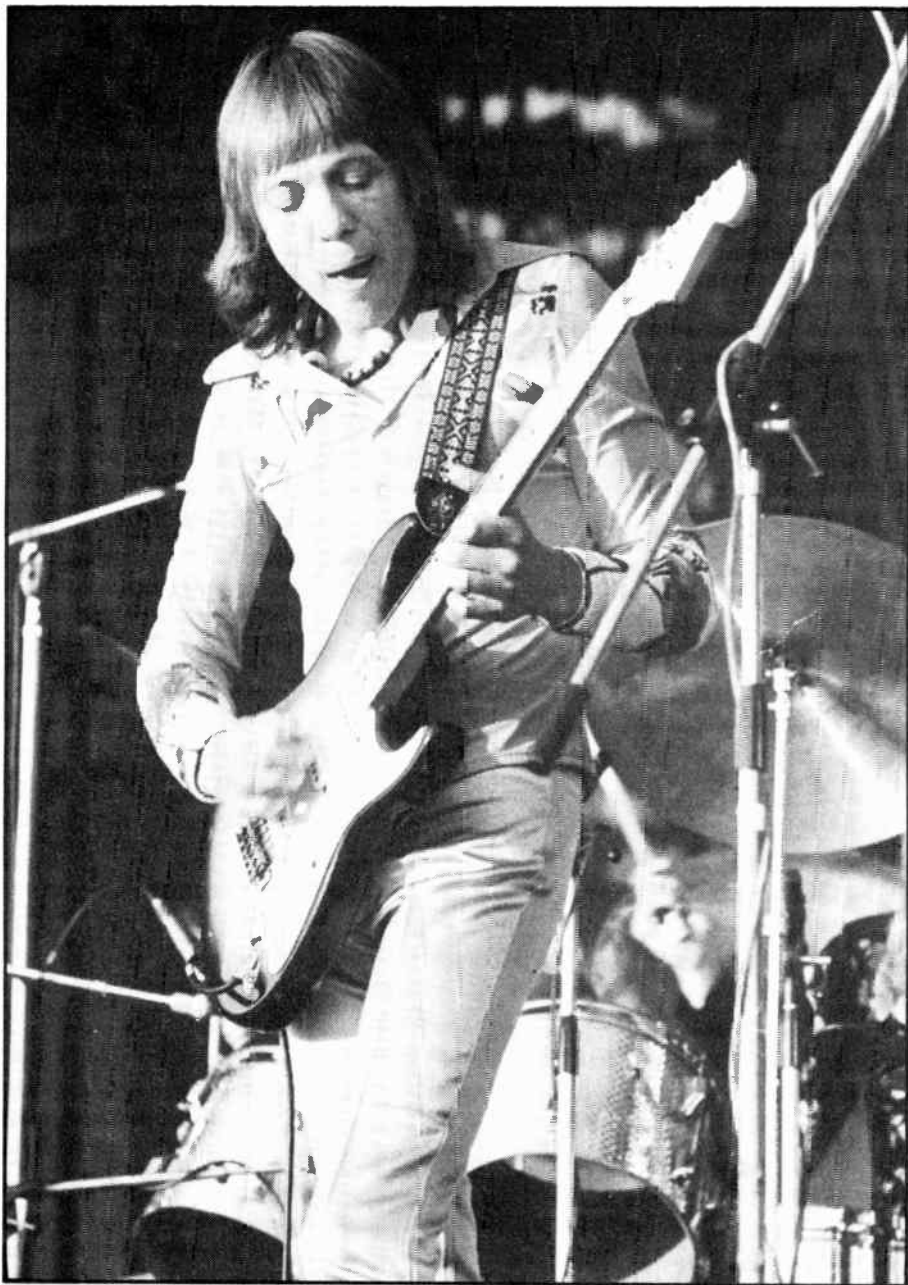
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A FACIAL WAY TO PLAY

Robin who?

Saying that Robin Trower is *just* a rhythm and blues guitarist is like saying that the Grand Canyon is just a hole in the ground. Or that a diamond is just a hunk of polished stone.

Robin Trower is *more* than just an R&B

guitarist. Lately he's decided to prove that this is true, and has forsaken the jacuzzi lifestyle of Malibu to play live and record an album.

Trower's last record — *Caravan To Midnight* was a moody affair, heavily produced and exotic. His latest recording, *Victims of the Fury*, is by contrast a stark and raw album, under-produced.

"I've got a feeling that his new album is possibly even better than *Bridge of Sighs*," admits Trower.

Me and Robin are sitting backstage in London, where the Trower band are recording a television gig.

"I don't think I've recorded a definitive album," he says. "I just like bits and pieces of all the albums. With *Victims of the Fury* I was definitely feeling aggressive when I wrote it. This album has got the most direction of all the albums. I realized that I could mess about with all sorts of different styles and all kinds of music if I put my mind to it. But I asked myself what do I really want? What is it I really get off on myself? When it comes down to it, it's rhythm and blues with a blues base. Anything with that kind of feeling to it is my kind of music. When I sit at home and play records, it's always R&B and blues. So I came up with a serious piece of work."

Robin thought that collaborating on song lyrics would be a good idea. He contacted Keith Reid, of the late Procul Harum, with a view to putting some words to his music: "Lyrics have a certain power to them, and I thought it would really add to what we were doing."

Putting Keith Reid's lyrics to the music adds a depth and feeling. Certainly, the new record strikes a fresh mood, though it still remains distinctive Trower. The rich, sensuous guitar sound is overwhelmingly evident on *Victims of the Fury*, yet it's been pared back to its bare bones. It's raw, it's vital, and it's urgent. It's hard to believe that it's been made by a musician who has been written off in the past as one of rock's dinosaurs, occupying the same niche as the likes of Led Zeppelin and Genesis.

Victims of the Fury was cut in the studio in something like 25 days. "A lot of those tracks were very, very well rehearsed," explains Robin. "We set out to do a live kind of recording. We were rehearsing to go on the road as much as to go into the studio. It wasn't like making a record. It's a different concept."

In the studio, Trower uses the same Stratocaster as he does on stage. This is a '66 alternated live with another '66 Strat which has the bottom E tuned down a

tone. Robin uses his pedal board in the studio, too.

"I can't play without my pedal board. That's where my sound comes from. It's complicated, don't ask *me* how it works. I had the board built by my electronics guy. He invented the system so that I could use as many pedals as I like without losing signal. It uses a pre-amp down by the effects."

Among the effects on the board are a Univibe, a pair of Electric Mistresses, a Mutron flanger, plus a couple of one offs "knocked up by my guy". He goes through them all in a night, but prefers the spacey noise supplied by the Mistresses. All of the pedals have been doctored to some extent by his consultant: "I don't know what he's done to them, but one of them produces a very ADT sort of sound, and the other has a kind of flange effect. The Univibe has the controls on the outside but I never vary them. We spent a year talking about what sound we wanted before we actually invented the pedal board, and started to mess about with the amps.

"I use a combination of old and new Marshall tops on two stacks. The old one has been doctored, and the other amp is a new one with the preamp, and that's been altered, too. The old amp I use for the hardness of the sound, and the new one with the preamp I use for its distortion and sustain. I get my full sound out of both of them used together."

Trower is reluctant to divulge the exact settings on his amps, guitars and pedals for some of his best known sounds, and explains this reticence by saying that "it wouldn't be relevant" because his amps aren't standard and neither are his effects pedals.

But his guitars certainly are, save for one. This latter is a Strat he's fitted with Lawrence humbucking pickups, because "The Strat and Marshall amps are one of the best TV aerials in the world" and with so many local TV transmitters in the States, he's suffered from a great deal of interference in the past.

A quick listen is the only attention that Robin gives to the PA system, just to check that it's adequate. He likes to play loud. Some of the big sound he achieves from his equipment, he attributes to his strings. He uses Ernie Ball; .011, .015, .016, .024, .034, and .046 gauges, which are fairly heavy. Too heavy, by some opinion, to bend properly. But Robin maintains that constant practice is necessary before a player can become effective with heavy strings.

Robin owns six guitars — three Strats, two Gibsons, and a Martin acoustic. The '66 Strat that he uses on stage predominantly is his favourite.

This guitar is used at home when Trower sits down to write songs in front of his Revox. He taps the microphone for a bass drum beat and uses a matchbox for maracas. Plenty of overdubbing goes onto the Revox before Robin is satisfied that he's got a song. Mostly he'll get an idea in his music room, sort out the medley and the backing, then get together with Jimmy Dewar to write the lyric, or put it on cassette and give it to Keith Reid to take home and work on.

There are certain chords that Robin feels happiest using when writing — Bm, C sharp, and E. He reckons these keys have the nicest and homeliest feel on the neck of his Strat. That's not to say that he can't write songs using other chords.

"The thing with playing guitar in a three piece," Robin explains, "is that where possible I like to have open strings in the part. That's why I like using keys such as C sharp, because it's got an open E, and you can even have an open B and E. Open strings sustain, and they have a more filling sound than a chorded string. I like to use open G and D. I'm always trying to get that open sound. I think that has a lot to do with why I write in those sort of keys.

"With C sharp you can use the E chord shape a lot, which gives you a lot of open strings like 'Day of the Eagle'. It's got the bottom E and it's also got the open strings on the top. I particularly like chords that are neither major nor minor, I'm very fond of those. I certainly don't like full majors, they're too stated, though I have used them."

How does Trower define his music?

"I don't think that anything we do fits into any categories," he says, after it's suggested that he treads a fine pathway between heavy metal guitar hero and blues player. "We cover quite a wide ground. There's no way you could fit *Bridge of Sighs* into any kind of category. It's in its own space. I think of it in terms of rhythm and blues. Fundamentally, it's music with a blues feeling that's rhythmic. There's a very spacey mood sometimes, which also comes out of the blues feeling."

All Trower solos are jammed: "I hate sticking to specifics. There is the occasional song where the solo has been worked out. I still leave a small amount of freedom in these cases. The solo becomes more a part of the song than an overdub because it's

live. When you've got something like that, you have to make up for the backing as well as the lead you're doing. Then it's easier to have some idea fundamentally worked out. I never play it exactly the same each time, but the shape of the solo and the direction I'm going has to be worked out. Other than this, I don't really like repeating myself."

Trower maintains that *Bridge of Sighs* was the major turning point of his career. It was that album which shot him to superstar status on both sides of the Atlantic and made sure that he never need work again. But as a musician he looks back to the early sixties and B.B. King for the first major influence in his guitar playing. "I started seeing the guitar as something more than it had been in my mind up to then. It had always seemed to be just a rock and roll thing — Chuck Berry licks. But after hearing BB I began to see it as an expression, even a voice."

When Robin is playing live you can see him shaping each note with his mouth, as if he's singing the guitar part while he's playing. He admits that the other major influence was Hendrix. Up to leaving Procol Harum, Trower's playing displayed no evidence of his later, power. His playing altered dramatically when Hendrix was at his peak. Initial criticisms that Trower is merely a Hendrix clone have proved to be unjustified. Trower merely took a style, honed and refined it. There's no disputing that he's sole possessor of his technique.

Other influences have been Otis Rush, Albert King and Buddy Guy. Robin plays records such as James Brown *Live at the Apollo*, Bobby Bland, Muddy Waters, Diana Washington, plus a bit of Duke Ellington, for light relief.

Trower doesn't rate *anything* that's happened in the seventies except for Donny Hathaway, and he's dead now. The punk explosion didn't reverberate hard enough to reach Malibu Beach. As for Two Tone and Mod, Robin heard it all back in the Sixties from the likes of Prince Buster.

And what of the next album? Robin admits that he hasn't been happy with all of his material the past few years. "I haven't been spending enough time on the material," he says honestly. This explains his collaboration with Keith Reid. "That's why I haven't been touring lately, because I wanted to get the material together. In future the material will always be right, however long it takes. The record company won't like it, but I'm determined to make the best albums that I can."

Steve Brennan

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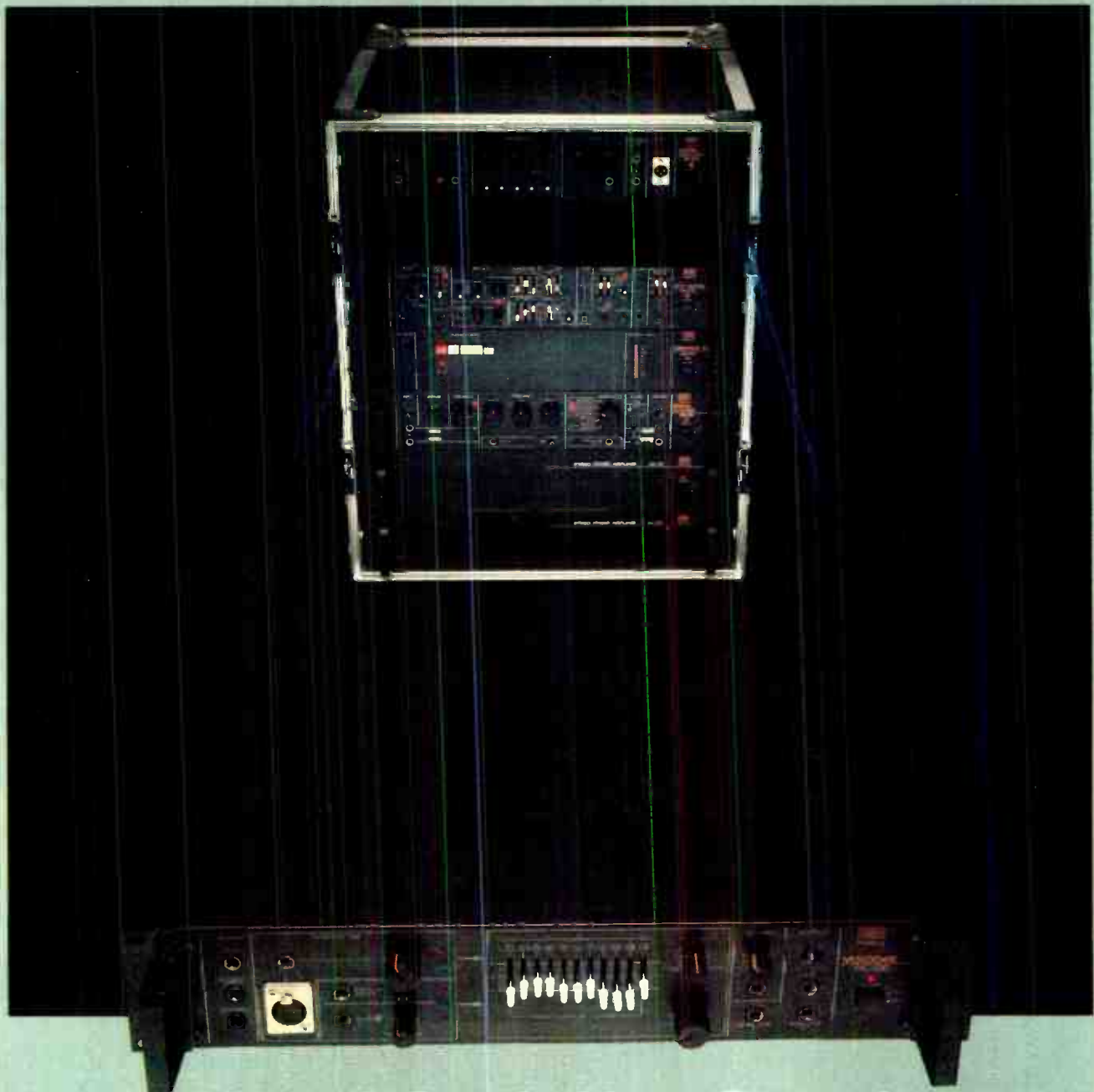
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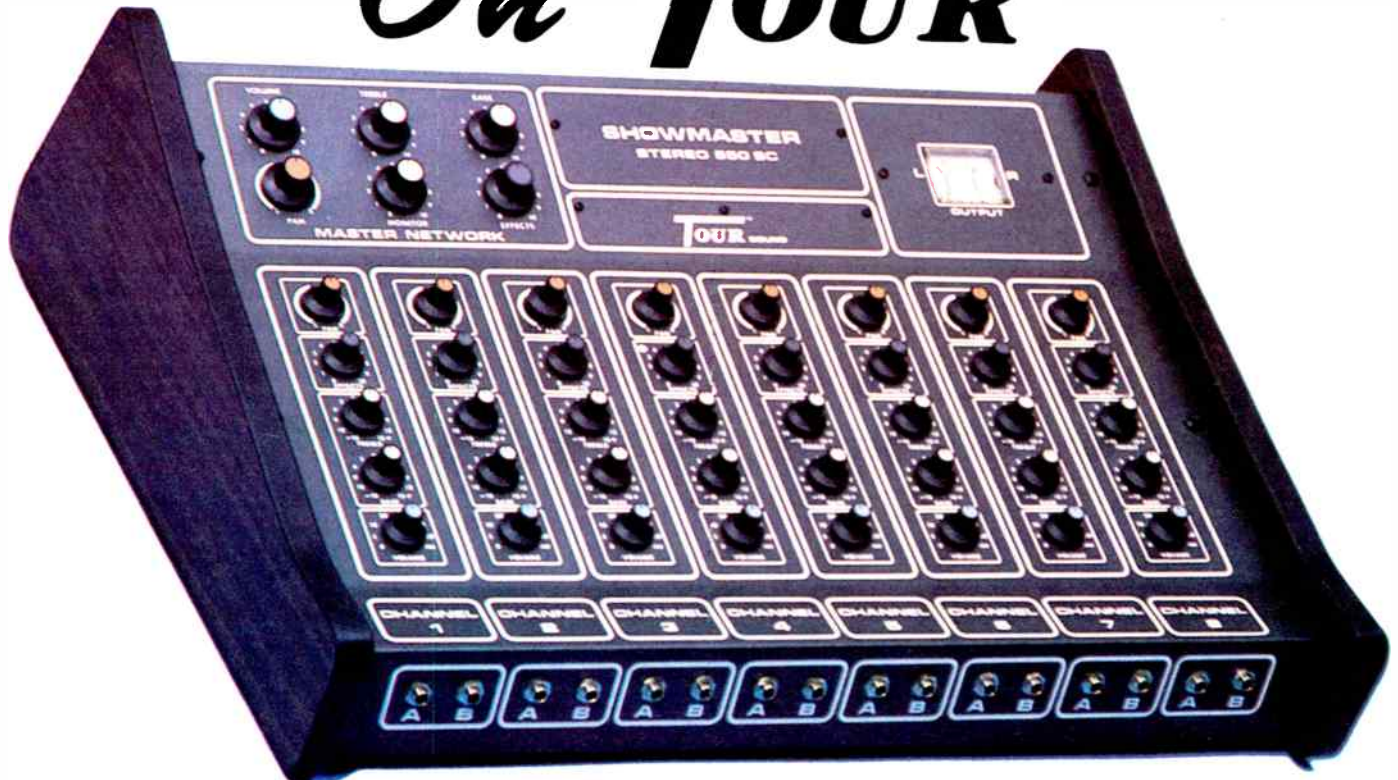
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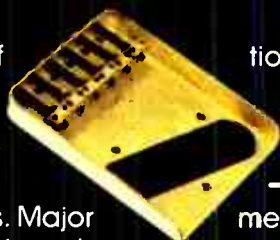
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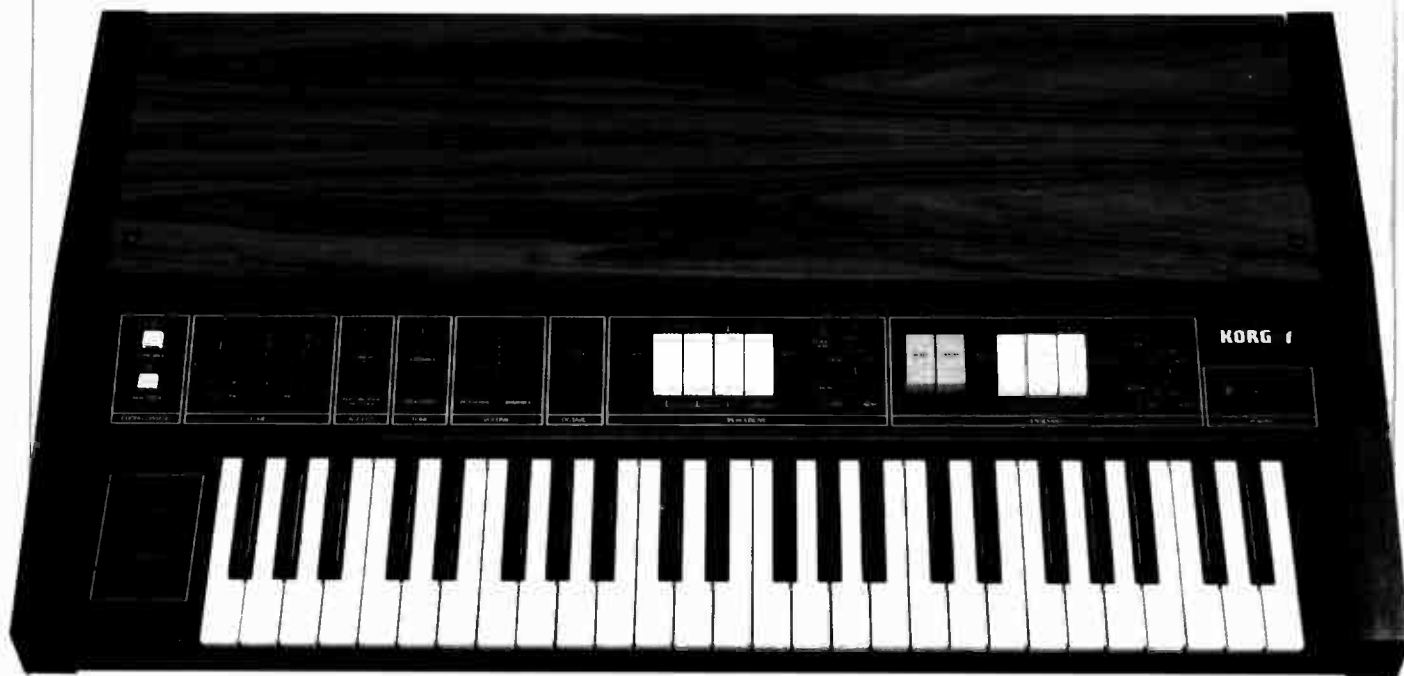


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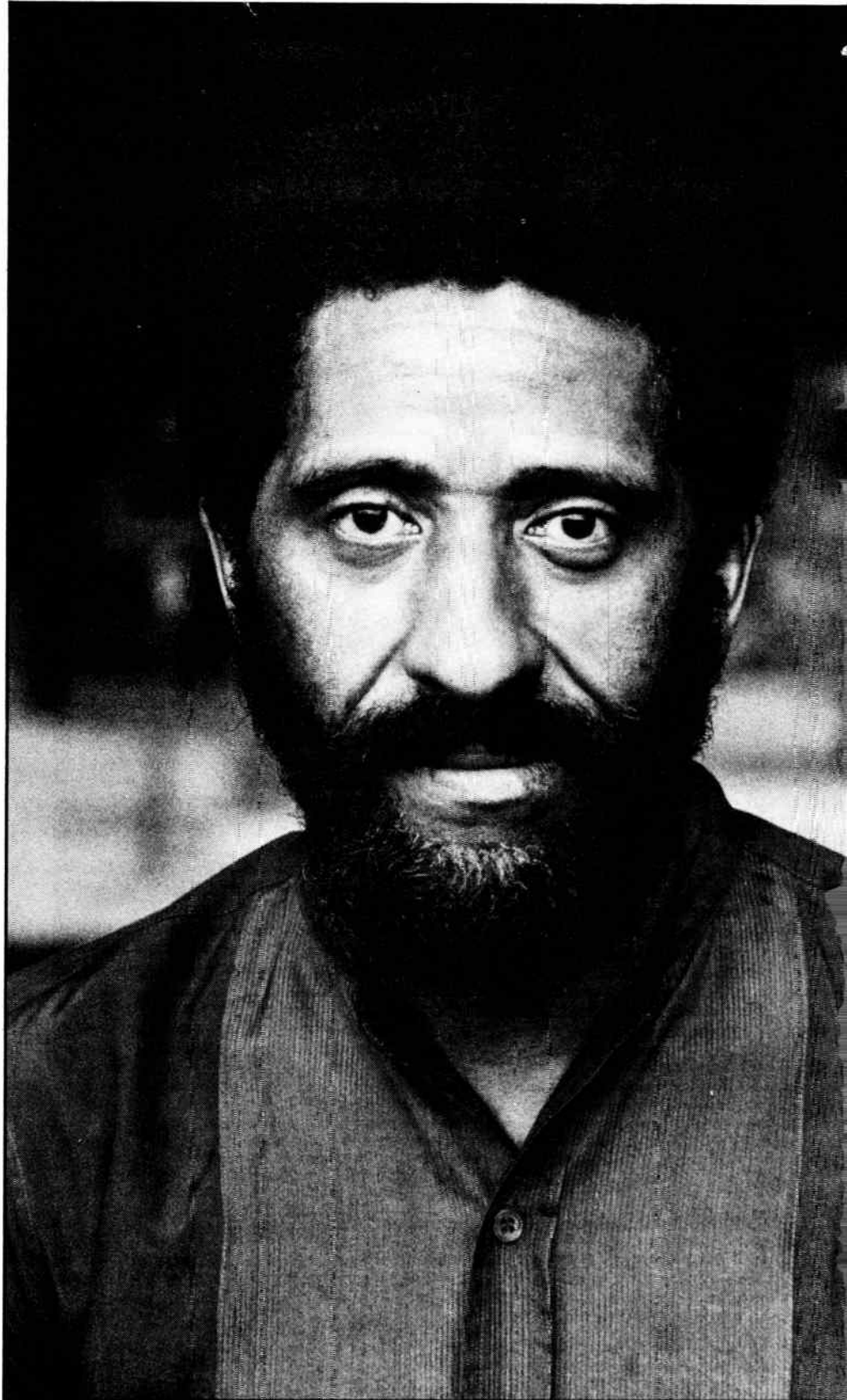
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SONNY ROLLINS

*A Restless Searcher
by Zan Stewart*



They used to call Stan Kenton "The Restless Searcher," an appellation that rests equally well on the shoulders of tenor saxophonist Theodore "Sonny" Rollins.

The appropriateness of that title is readily seen and heard in his live performances, where the real Rollins comes out right on stage, with nothing hidden from view. He straps a tremendous length of electric cord to the Sony ECM-50 microphone mounted on the bell of his Selmer Mark VI tenor, and the revelation begins.

Roaming the stage, horn held straight toward the ceiling, Rollins sends forth melodic cascades of incredible sonority, supported by powerful thrusts of rhythm. It's a stunning display of spontaneity and all in attendance — audience, band members, Rollins himself — never really know what is coming next. His current pianist, Mark Soskin, confirms that "Sonny is the most unpredictable of players. We may go out of the bridge of a ballad right into a calypso." Rollins, following his ears, searches for the next musical cue that tells him what to play. And even if his live shows are not always *great*, they are certainly always good, even though perhaps the man himself wouldn't go that far.

The search continues off the bandstand, as it has for most of the tenorist's life. Rollins is the artist who's twice exited from the music world to look for solace and understanding in religion and books. He's the man who wants to stay in touch with today's music because he's one of the *living* and wants to be involved with what he considers to be good music. He's the composer who, much like other great improvisers such as Freddie Hubbard and McCoy Tyner, writes new music for each album, always coming up with surprisingly fresh and vibrant opuses. Still, he's unsatisfied with his growth and seeks newer ground. Rollins is, in the end, a true artist, searching not for the ultimate but rather the unexpected and undiscovered.

This search actually began when Rollins was 11 years old. He had been studying piano but quit through lack of interest. His mother took him to an uncle's house, and the uncle showed young Sonny a saxophone he had under the bed. "He opened up the velvet case," Sonny recalls of that fateful day, "and there was this beautiful, golden horn, so shiny, and I thought, 'This is it!' And from then on, that *was* it. My mother just had to buy me a saxophone. Times were hard but she did it. First I

got an alto, then a tenor."

Circumstances could have been worse for the budding talent. His house was on 153rd St. on Sugar Hill in Harlem, close to the famous Savoy Ballroom and in the immediate vicinity of pianists Bud Powell and Kenny Drew, who lived on 141st, drummer Art Taylor and altoist Jackie McLean. These guys were hanging out every day, playing as much as possible with "elders" like Powell and Thelonious Monk, both of whom welcomed the young turks. Rollins was a mere 20-year-old when he recorded alongside trumpet genius Fats Navarro with Powell for Blue Note in 1949. He was rehearsing with Monk while still in high school.

"A trumpet-playing friend of mine knew the Monk," he says, "and took me around to his house. The musicians would complain that Monk's music was too hard to play, but by the end of rehearsal, everybody'd be playing it. Recording with Bud was something else, too. It was my second time in the studio and Bud would glare at me when I'd make a mistake and I'd think, 'Boy, I'd better not make that one again.' Those guys were really up there and I was like a kid in school. It was good experience because it pushed me ahead a lot."

Playing intermission music at Club 845 in the Bronx in the early Fifties found Rollins on the stand opposite Miles Davis's band, and Miles asked Sonny to play with him. A six-month stay with Miles, a brief period with Monk's quartet and a year (1956-1957) with the Max Roach-Clifford Brown band were Rollins' last gigs as a sideman. He's been a leader ever since, but the times with Monk and Roach still exist as rich memories.

"I can say what Coltrane said about 'Monk,'" relates the tenorist, "that if you missed a chord, it was like stepping into an elevator shaft." There wasn't any space in there to get lost, because you couldn't get back. You had to know the music and concentrate. You couldn't be messing around and looking at girls while you were playing." Rollins, Roach and Monk were all featured on Monk's *Brilliant Corners* LP for Riverside. "Max is a beautiful drummer, perhaps the finest when it comes to playing a solo," Sonny says respectfully. "You can hear all the tones because Max studied tympani. I think I did some fine work with him, but I'd like to see what we'd do today. We played a few minutes at the White House thing with Jimmy Carter,

but it wasn't long enough."

During the Fifties Rollins's explorations led him to drugs, and he was one of the few who managed to get off them after being hooked. He went to Lexington, Kentucky, coming out clean once and for all in 1955. Relating information about the drug problem to kids today is hard, because musicians have always been notorious for drug abuse. Now it's cocaine or PCP, then it was smack. "But before junk, guys were drinking a lot," says the tenorist. "Guys like Coleman Hawkins, Ben Webster, they'd see how many you could turn back. It was kind of a macho thing. And then it was heroin, because everyone wanted to copy Bird, right down to his habit.

"You see, when I came up, you had to do *something* in order to play, at least I felt like I had to. Then I began to feel like I didn't want to mess up my body, so there was a big division between keeping yourself in shape and allowing yourself to dissipate because you needed something to give you that relaxed feeling so you could play. I tell kids they have to find their own way."

Rollins's way was a retreat from music in 1959. He studied religion and yoga (eventually getting all the degrees offered by the Rosicrucians in San Jose, CA) and practiced Hatha yoga and meditation. He stopped drinking and smoking, changed his diet to lighter foods with less meat. He discussed philosophy with John Coltrane, who was in Sonny's words, "a very deep thinker all the time. That was his nature. He was born a very spiritual being, without having to read about it from anyone else, though he did like Paramahansa Yogananda's *Autobiography of A Yogi*. When I first heard John's playing in the Forties, there was something unusual about it." During this hiatus, Rollins used to practice on Manhattan's Williamsburg Bridge (hence the RCA album *The Bridge*), not because he was a fanatic for bridges, but because he didn't want to disturb a pregnant woman living in the next apartment. "I wanted her to get her rest," he says.

Another great help to Rollins in his search has been Lucille, his wife of over 20 years. They met in Chicago in 1957 when Rollins was playing with bassist Herbert Brown. Brown's wife and Lucille worked together, and she "told Lucille something like 'have I got a guy for you,'" Sonny recalls heartily, "I really don't know what she said but Lucille

came down to the club and we hit it off pretty good and soon thereafter we started living together, then we got married. She really knocked me out, even though I wasn't very mature. I was about 26."

Rollins returned to the music business in 1962, playing with a renewed vitality and a new band, featuring Jim Hall on guitar. He made a Bossa Nova album, then formed a group with the inventive trumpeter Don Cherry. Some feel that Rollins's best work was done with Cherry; nevertheless, the saxophonist decided to leave the music scene again in 1969. The previous year he had gone to an ashram in India for a few months, meditating, studying and just *being*. When he returned to the States, he was quite calm and peaceful, but it didn't last and soon the music world began closing in and around him and Sonny exited again. The fact that he and Lucille were separated during this period may have affected his decision, he even considered quitting music permanently — but he and Lucille reunited in 1971 and Rollins began performing in a new, more positive way. Lucille was the main reason.

"You know," he says thoughtfully, "good women are very loyal and every man needs a good woman. Lucille kept me together. I can honestly say that I probably wouldn't be playing today if it wasn't for her, because she got on my case and stood behind me. She's been a real blessing in my life." Lucille also plays an integral part in Sonny's musical life as his manager, traveling with him and working very closely with him on his recordings. "When he came out again in 1972," Lucille adds, "he went into the Village Vanguard. He wanted it to be a quiet thing but he got a lot of publicity and the calls kept coming in and somebody had to handle them, so I did. After a while, I found that I loved it."

Also in 1972, the Rollins moved from Brooklyn to Germantown, in upstate New York's Hudson Valley, and Sonny signed with Milestone Records, still his label today. He's done seven albums, all produced by Orrin Keepnews, with whom Sonny worked on some dates at Riverside in the late Fifties. Looking at his recording career as a whole, the albums seem to fall into three distinctive groups: the pre-1959, characterized by burning uptempos and churning ballads; 1962-68, with an accent on changing rhythms, freer playing and a lighter sound; and the post-1972 era, with a

concentration on contemporary tunes, calypsos, R & B-type blues and more ballads featuring a marked simplicity over earlier efforts, fewer notes and less extensive harmonies. No matter what the critics say, Sonny says it's all him, that if you look closely there's a definite logic and progression from one LP to the next, and that there's plenty of 1955 Sonny in 1980 Sonny.

"I'm living in a world with other people and hearing music that I like, such as some disco things, I like the beat, and some soul things. You know, I think guys get on me and intellectualize too much about *what* I was doing *when*. Actually, I'm very basic. I like basic stuff, stuff that communicates. I'm a very natural player. I'm not a guy that you can write a treatise about, at least I don't think so.

"When someone tells me my playing is happy, that makes me feel good because that's my basic attitude, sort of happy. It's always been that way because it's really me. My playing has always been kind of peppy. It's not something I do for a fad. I don't try to fit into anything, I'm just trying to get a positive sound into my music."

Compositionally, Rollins leans toward hummable melodies and simpler harmonies, the latter allowing more freedom. "At this stage of my development, I'm trying to simplify things, because in that simplicity, I can really get complicated. I hear dissonances and there are times when a dissonance comes as naturally as a triad. When it comes clearly and positively, and when I hear it that strongly, generally the other players hear it too. So working with basics like triads seems to set up situations where I hear natural dissonances. We're not trying to impose or force anything. By leaving things open, then we can play freely, and by free, I mean open in a dominant-based harmonic set-up."

The "we" Rollins alludes to is his band of over two years, with Mark Soskin (piano), Jerome Harris (electric bass) and Al Foster (drums). The tenorist has a realistic viewpoint about bands, and that includes a little praise: "They are a very good band. I have to give them their due. We can sound very good. Perhaps one of the reasons is that I pay them well and we play nice tours, like to Japan and Europe and college dates here in the States, they get written about and they get exposure by playing with me. I don't have any illusions that they all love me or



anything. They're doing a service for me and I'm doing a service for them. Too, these guys all want to get their own bands happening and, with our intermittent work schedule, they can explore some of their own directions, so it works out OK. If I was working 365 days a year, it would be different."

Certainly one of the bonuses about this talented ensemble is the presence of drummer Al Foster, for years an associate of Miles Davis and also a Rollins admirer for quite a while. "He's one of the best drummers in music," Sonny says with a smile, "and I'm glad to have him because I've been through a lot of drummers, so I think I deserve a good one. I like a strong drummer who knows what's going on and isn't confused by me, so that I can do what I want to do." Foster, with a brightly-colored towel draped around his neck, is the perfect foil for Rollins, working up whirlwind phrases that stimulate the saxist. Their fiery interchanges while trading four or eight-bar phrases is particularly expressive.

Sonny also likes the bespectacled

pianist Soskin, who, he says, he did not favor in hiring. "Mark was already good when I got him, but I've heard him develop since we've been working together." Mark just released his first solo album on Fantasy, and admits it includes some calypso pieces that are a direct influence from working with Rollins.

To play with the enthusiasm and energy that continues to bring satisfied smiles to his listeners, Rollins has got to keep himself in shape. But at 50 he looks 40, and probably feels it. He keeps his weight under control, though on the road he tends to burn it off easier and consequently eats more junk than he would at home. And he practices everyday to keep his chops up, working mainly on his embouchure. "If I don't get some time in everyday, then my chops go soft and it's hard to get back. I might get a cut lip or something and that's really a hassle, so I have to keep after it."

As with most saxophonists, mouthpieces and reeds are not the most pleasant of topics, especially reeds, since re-

cent cane crops have not been good and reed quality is definitely down. But for Sonny, there are other circumstances. "I've had some problems with my mouth and the dentists tell me they haven't figured out how to keep the gold crowns in place for a guy that uses as much continual pressure as I do, applying it from the bottom and the top. So the mouthpieces I've used haven't always been what I've wanted, but rather what would work under the given situation. If there's a crowd waiting, I have to go with whatever will work."

What works these days are two Berg Larsens, a hard rubber at 130 over 2 and a metal at 140 over 2, and a 10 Link played with medium to medium-soft Ponti reeds, available at a shop of the same name in New York. Ponti's used to be called Prestini's, and Sonny still likes them, except that the tips are extremely delicate. He's been using them for about eight months, switching over from Rico Royals. He used to favor the regular Ricos in the brown box, but when he'd find a good one it'd only last a couple of days, and he found that to be more than mildly frustrating.

Continued on page 41

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Continued from page 39

Reed hassles can drive a touring man crazy, especially if he can't find the reed he wants right before a show; so there must be something extraordinary driving this creative giant on to that next gig, since he could probably retire reasonably well off from his record royalties. It turns out that Sonny loves to play for audiences. "Yes," he admits with a nod of his head, "musically, I'm living mainly on the reactions from audiences, person to person, because that's when I'm at my best anyway. If I can reach the people that come to see me, that keeps me going, really." And if he's not satisfied with most of his live shows, at least he doesn't have to listen to them over and over, as would be the case if he were mixing one of his albums.

But he doesn't do that either. Now Lucille Rollins and Orrin Keepnews handle the final stages of Sonny's dates, at least on the last two albums. Sonny is relieved, to say the least: "I'm the kind of person who always says 'Gee, I could have done that better' or 'why did I play that?' so I really don't like my own records. I can only listen to something a number of times and then I'll say, 'Oh, let's just put it out.' But I can trust Lucille's musical judgment so she's a great help this way. I wouldn't let just

anybody edit my stuff."

Whether or not Rollins enjoys the recording process, it's still the albums that get the airplay and the people into the live performances, so Sonny always plays the new music on each show, along with pieces from the past. His recent sets have opened with a riotous blues, then gone into a standard ballad like "Easy Living," then a calypso, a pop or funk tune, from the latest LP another calypso, ballad and a blues to head home. In the middle he'll do a number featuring the Lyricon woodwind synthesizer, on which Sonny resembles a looming Hammond B-3 organ. He feels his cheery sounding sets reflect both the Rollins of 1955 and of 1980. A case in point is that "Strode Rode," from the 1957 *Saxophone Colossus* date on Prestige, is part of the recent sets.

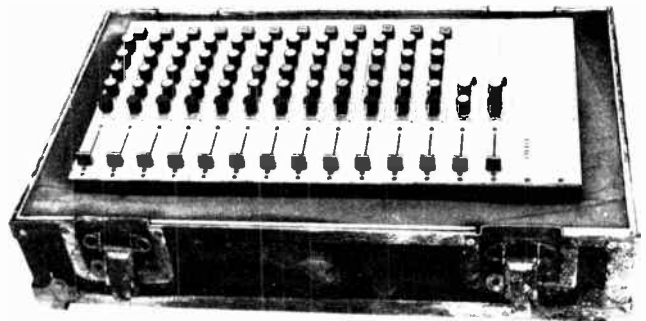
"There's nothing particularly special about 'Strode Rode,'" he explains. "It's just a minor tune that I can extemporize off of. It has some validity in a general jazz spectrum so it fits into what we're doing, plus it's an original. I also try to put standards into the set, older tunes like 'My One And Only Love,' because I'm a guy that likes melody. I like the song form. I usually have the melody in my head when I'm soloing. I grew up this way, and that's why I relate to songs. I used to go to matinees and see

musicals, and many of those tunes I still remember. But one doesn't have to be a melody player or work in the song form to be a good musician. It's just my way.

"So, yeah, what I'm playing today encompasses everything that I've done. All of these experiences I've had, from my first recordings up until now are part of the picture of the whole me. I know I'm not together in my own playing. I know what I'm trying to do that I haven't gotten just right yet. I'm not a perfect musician. I want to write more, play better. Music is a thing that's still going on for me and I haven't reached a point where I want to do what I did in 1957, for a lot of reasons, but mainly because I didn't have it completely together then and I don't now. What I'm trying to say is that there are things that I want to do that are an expression of 'Sonny,' when I get it all together. Then people will say — those that don't see it now — 'Oh, now I see what he was doing.' I just want to feel satisfied with something I've done."

You see, top of his field or not, respected by players and loved by audiences, Sonny Rollins still feels he has to push on, looking for that ever-elusive moment of satisfaction and comfort. But if he keeps searching, he'll keep growing and learning. As an artist and a human being, he couldn't set a better example.

CALZONE... WHEN "STANDARD" ISN'T GOOD ENOUGH!



As we were cruising the Indiana toll road on our way to Washington from a White House gig in Seattle, a tow truck caught us and flagged us down. Smoke was billowing from the back of our truck. As we opened the cargo door, flames welled out at us. A trucker who had stopped to help, yelled, "Get back, the gas tanks are gonna blow!" We moved back and stood helplessly watching all our equipment burn. It took 20 minutes for the fire department to get there. The heat was so intense that our aluminum ladder completely melted. We were certain all our equipment was destroyed. Later as we were clearing out some of the charred remains, we discovered the blackened CALZONE case containing the mixing board. The case was in one piece and the board looked okay inside the case, so we took it out and tried it. It worked! Thank God for CALZONE.

George Spalding, Events, Inc., Washington, DC

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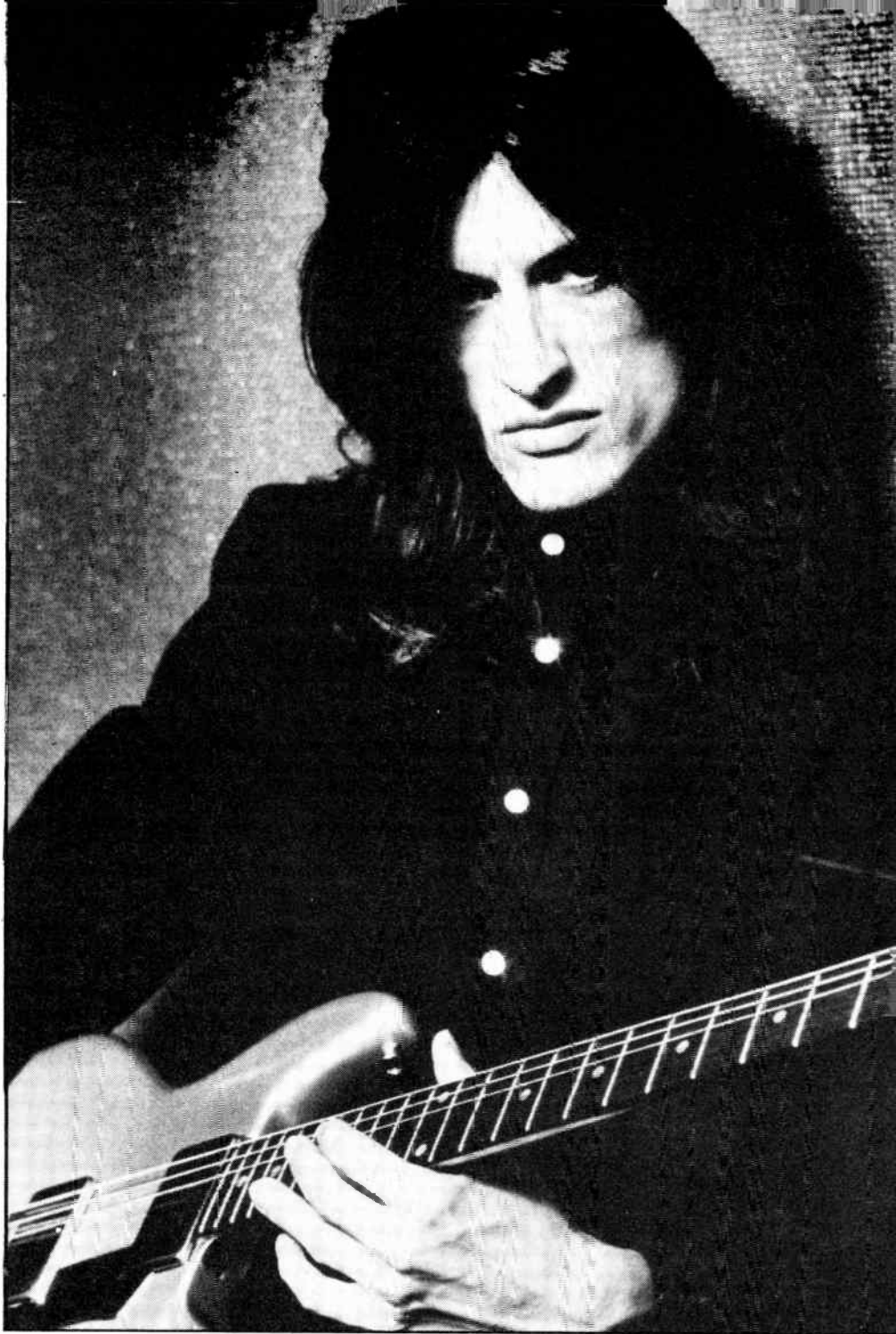
JOE PERRY UNLEASHED

by Gary Kenton

I predicted big things for Aerosmith years ago. I immediately disliked them, finding them to be brimming with confidence even though their music was primitive, redundant and derivative. When a band turns me off so instantly and so thoroughly, I know it's headed straight for the Top Ten. Secondly, they were tight and knew their limitations. Do not pass this off lightly: many groups of far greater talent and intellect have gone down the dumper because they couldn't marshal their resources to make the big move to the big time. Aerosmith never bit off more than they could chew. And thirdly, they improved. Even skeptics like myself had to give Aerosmith (and their producer, Jack Douglas) credit for turning out some fine, hard-nosed rock & roll albums (i.e. *Toys in the Attic*, *Rocks*) in the mid-to-late Seventies. There may never have been an entire LP of consistently top-drawer material, but their best songs got better and their filler was listenable.

I first encountered Aerosmith as a student at Boston University. I recall leaving the student union on several occasions only to be blasted off the sidewalk by a boisterous rock band in full throttle. There was Steven Tyler, pouting and prancing for all he was worth, while lead guitarist Joe Perry ran off flurries of notes even as he eyeballed the female portion of the student body. This was Aerosmith's way of relaxing when they couldn't get a paying gig: plugging in for free in a well-trafficked area and blasting out the eardrums of every innocent bystander in the vicinity. I stopped to watch them for as long as I could stand it. It wasn't long. But they left an indelible impression on me, sort of like the dent a tire iron might leave on one's forehead, and I went out of my way to discover their name (they weren't rich enough to have it written on their drums at this point). Evidently, I was not the only one who remembered them; Aerosmith went on to become one of the biggest live attractions on the rock & roll tour circuit while their seven albums (all for Columbia Records) have sold somewhere in the neighborhood of 15 million copies in the U.S. alone.

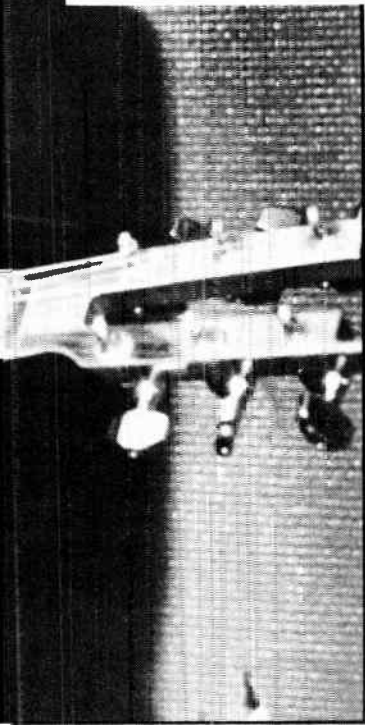
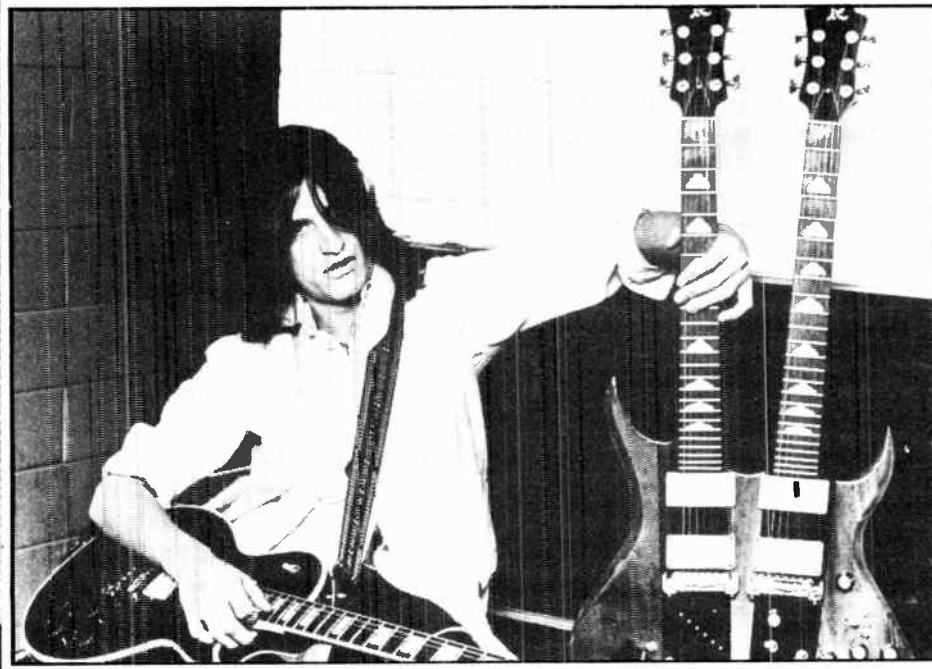
It is acknowledged that a major ingredient in the Aerosmith success story was



timing: there has been one major lull in the career of The Rolling Stones and it coincided directly with Aerosmith's ascension to superstardom. They have never purported to be trendsetters — they haven't played an original riff in their lives — but they borrowed from worthwhile sources with a fixed collective identity in mind. They created, or recreated, a role for themselves and played it to the hilt. One could hardly blame them for taking no shame in the fact that even their fans have called them The Rolling Clones. No one could argue that, at the very least, they brought a certain flair, megatons of energy and a great deal of moxie to the task.

But this second-hand image brought

with it certain drawbacks. Just as monkey man Tyler will forever be labeled as the poor man's Mick Jagger (some have suggested that surgical grafting was done to thicken Tyler's lips in order to accentuate the physical resemblance), Joe Perry has been forced to live in the shadow of Keith Richards. In addition to certain personal differences between Tyler and Perry, it was the inescapable fate of being trapped in "the world's second greatest rock & roll band" that led Perry to pursue a solo career. "Being in Aerosmith just became too stifling for me," Perry says. "I've gotten used to being compared to Keith Richards . . . now that I've left Aerosmith, they'll say that I'm like Jeff Beck. I just want to be Joe Perry."



I was inexplicably affected by the news that Perry had quit Aerosmith. Having developed a certain grudging respect for the band, I had followed their career with benign amusement, never quite a fan but marking their progress every step of the way. Aerosmith had stood for nothing if not for solidarity, having maintained the same personnel since I had first been accosted by them in front of B.U. Now Perry and Tyler were bickering at one another through the press like a couple of schoolboys and there was suddenly a large chink in the heavy metal armor that Aerosmith had worked so hard to build up. But it is evident that Perry felt inhibited by that armor — for him there is no small irony in the title of the current Aerosmith album,

completed just as he was making the split: *Night in the Ruts*. Joe Perry foresaw an entire career in the ruts, so he formed his own band.

But before most people, especially the legions of Aerosmith fans, are ready to take on The Joe Perry Project, as his new outfit is called, they want to know what transpired to sour his affections for Aerosmith. Unlike his attitude in some of the interviews he conducted immediately after departing the group, in which he may have landed a few low blows to his former cohorts, Perry is now quite cautious about his assessment of the situation. "For me, it just reached a point where it was stagnating," says Perry. "I just wasn't feeling the old excitement any more. Especially on stage, it seemed that everything I did just went over the audience's head. But that's just the way it is when you're playing those large halls. Now this isn't to say that I think Aerosmith has lost it. For those guys, I guess it's still good, still the right thing. It's just that I feel like I've come full circle and I'm ready for a new attack."

So even while Aerosmith was on their national tour prior to the recording of *Night in the Ruts*, Perry had notions of pursuing his solo muse. At first, though, he intended to remain in the group while recording a solo album in his spare time. But several things kept this plan from being enacted. Firstly, there is no such thing as spare time with Aerosmith; from their beginnings, they have established a pattern of touring constantly, taking time out only to make records and to take the occasional vacation, usually at the point of exhaustion. Secondly, as Perry began to check out other musicians to play on his solo album, he found himself putting together a viable unit, a new band that would soon seem more attractive to him than Aerosmith.

It became immediately apparent to close observers of Aerosmith that a conflict was in the making when Perry's first recruit for his solo project was a singer. Although the other members of Aerosmith knew that Joe was on the lookout for musicians to back him up, Joe's association with Ralph Morman (a Bostoner who had previously fronted the outrageous Daddy Warbux) set up a clear competitive friction between Perry and Tyler, the inference being that Perry wasn't just interested in trying out some new guitar riffs or stepping out front on some lead vocals, but was attempting to put together an autonomous band with as many weapons as Aerosmith had.

"I hadn't seen Ralph in about five years," recounts Perry. "when he showed up backstage at an Aerosmith show in Orlando. He had been doing construction work, believe it or not. He asked me if I knew anyone who was looking for a singer,

Guitars, Guitars, Guitars...Amps.

Joe Perry has approximately 75 guitars, predominantly electric but including a few acoustic, scattered about his Newton, Mass. home. A few of these are in disrepair, or used solely for parts, but Joe uses most of them, if not on stage then certainly in his home studio. At the moment he favors his vintage Fender Stratocasters, of which he has several types. Bernardo C. Rico (B. C. Rico) the California guitar manufacturer who you may have read about in these pages made up a few of Joe's axes and he has also had a couple custom made by Travis Bean. While he used to travel with about 30 guitars with Aerosmith, he now contents himself to lug along about 10 instruments. Perry uses Bill Lawrence pickups and strings on all his guitars.

As far as amplifiers are concerned, Joe has several customized Music Man amps with Electro-Voice speakers. In the clubs and smaller theatres currently being played by The Joe Perry Project, he usually uses only one or two amps. He also has a few customized MXR effect boxes, but he's not using them very much at this time.

so I said I was." Next to join the fold was David Hull, who had met the members of Aerosmith while playing bass in Buddy Miles' band and who became tightest with Steven Tyler. Hull went on to join the Connecticut-based band Dirty Angels and was still on the rebound from that group when Perry approached him about forming a new band. The last to join was drummer Ronnie Stewart, who Perry rescued from his job in the drum shop at Wurlitzer's. "I asked around town as to who was the best drummer who wasn't involved with any specific group," says Perry. "and

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Ken Shipley
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Ohio

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Robert Thomas
Brewster, Ohio

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Michael George
Las Vegas,
Nevada

I owe a lot to your amp. I do sessions here: commercials and records. And the engineers in town love it when I bring my amp. The producers in town know also and they use me for most of the electric guitar work because I can get any sound for them while they ask for it. Last year my band opened the show for Boston 3 times and Tom Sholtz was absolutely freaked out by how loud that little sucker is.

Bruce Gaitsch
Western
Springs, Illinois

Just thought I'd drop a short line to say again how much I love my Boogie Mark II. The more I play it, the more I appreciate its super tone and amazing presence. Thank you for caring enough to produce the finest amp in the world!

Mike Hales
Fort Worth,
Texas

Hey thanks a lot for the speedy service! Your sending a new reverb chamber really says a lot about your company's integrity. If word of mouth is the best advertising, then rest assured because I love your amp and will continue to proclaim it as the world's best. I can't tell you how satisfying it is to deal with good solid people and products. You're the best!

Luke Engel
Troy, Michigan

My compliments to the makers of what I honestly consider the finest piece of equipment I have ever owned. Its versatility is just amazing, as is its ability to sell itself. In the time that I've owned it, I've been approached by a countless number of people interested in the amplifier. Thanks to MESA Engineering for one of the best investments I've had the opportunity to make.

Scott Saulnier
Downers
Grove, Illinois

Thank you very much for the repairs to my amplifier. Your amp is the finest in the World. The only thing that can top your amplifier is your excellent service. In this day and age it's a great feeling to know that someone still backs their product 100%.

Jeff Hathaway

I felt I had to write and tell you that you people have changed the image of manufacturers in the music industry. With all the celebrities you deal with you still take the time to deal personally with a "no name" like me. Right on!

Chris Mall
Corte Madera,
California

I wanted to drop you a note of thanks for your efforts in getting my amp to me in time for my session work. Your amp is really much like an instrument itself, and is played the same way my instruments need to be. You obviously put a lot of soul into your work.

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Barry Richman
Decatur,
Georgia

This is the first time I've ever written a letter to a manufacturer. I wish to acknowledge your commitment to craftsmanship. The phrase "state of the art" is so often loosely applied. Your work is truly state of the art and speaks for itself.

Ed Scannell
Torrance,
California

My favorite guitarist is Carlos Santana and you cannot imagine the pleasure it has given me to be able to duplicate his incredible tone and sustain. Equally exciting is the amp's ability to produce not only the Santana sound but anything from cool jazz to the most intense rock. The Boogie is all you say it is and more.

Paul Drummond
Oberlin, Ohio

I received my second MESA/Boogie last week and it arrived in perfect condition. I want to say that the Boogie amps are without doubt the best amps I have ever used. There are numerous devices on the market that promise tone and sustain but aren't practical for me. The Boogie does just what your literature says: all the controls are actually useful on stage, they aren't gimmicks, they work. I had an old Fender Bassman, a Twin and a Marshall but the Boogie can produce the sound of all these amps at any level of volume desired, plus it can do a lot more. This flexibility makes your amps worth the price. It's great that in this era when musicians take pride in owning fine old instruments, someone is actually building amps that are the best ever.

Drennan Jones
Liberty Hill,
South Carolina

JOE PERRY UNLEASHED



I was referred to Ron by a couple of people. Once I tried him out, I knew it was going to work."

"It all came together very fast," Perry says, "there were only two guys who I auditioned who we didn't use. I really didn't have the band together at all when I finally made the decision to leave Aerosmith, although some people don't believe that. It's just that everything fell into place so quickly and smoothly that people assume I had it all planned out."

The newly dubbed Joe Perry Project rehearsed non-stop for a couple of months and began to turn up on weekends at bars and clubs throughout New England. "We were rehearsing all week and doing dates on the weekend, like any other group starting out," says Perry. "we went in to these clubs, using their PA systems, and tried to kick ass, create some excitement. I hadn't felt so turned on by playing in years." After doing approximately 10 gigs, the quartet moved into the Hit Factory in New York with Jack Douglas ("I've worked with him for a long time with good results," Perry explains, "so why switch producers now?") to record their debut album. With the swirl of attention surrounding the record, and the obvious comparisons with Aerosmith in the offing, Perry chose a title for the album before it was even completed: *Let the Music Do the Talking*.

Although Perry is the first to admit that his initial solo effort is not the drastic departure some people might have expected, there are some obvious differences in style, sound and structure between The Joe Perry Project and Aerosmith. The most obvious change is that Joe Perry sings on four of the LP's nine cuts, three by himself and one shared lead with Morman. But if there was one overriding reason for Perry's unhappiness with Aerosmith it was that he felt that many of the contributions he *did* make went unappreciated. "There wasn't enough outlet for my songwriting," he says. "When people hear my album, they'll hear right away how much I had to do with the way Aerosmith sounded." Perry wrote all the songs on *Let the Music Do the Talking* album, six by himself and

three in conjunction with other members of the band.

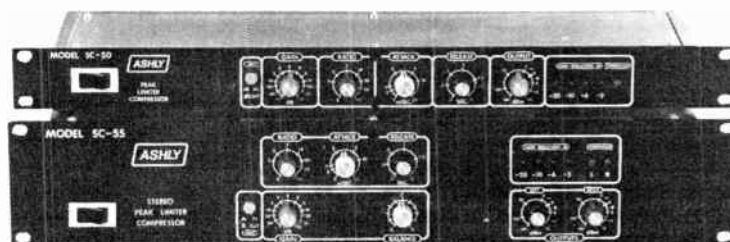
Like Jeff Beck, who Perry admires and who made a similarly celebrated exit from an established rock band, Perry also sought extra space for his guitar work when he went solo. "Beck might be a sort of model for what I'm trying to do," admits Perry, "but he only puts out one album every four years or so, and he doesn't concentrate on songwriting. The only players I'm really in awe of are the more innovative, jazz-oriented guitarists. Hendrix is about the only other rock player I listen to a lot. The guys in my band now are equipped to adapt to almost any style. They're ahead of me in a lot of ways, especially Ron, who is a solid jazz drummer . . . I can learn a lot from these guys."

If their is one major drawback for Perry thus far on his solo flight, it is that he misses long time guitar counterpart Brad Whitford. "You build up a certain chemistry over the years that can't be replaced overnight," laments Perry, "and the fact that I'm the only guitar out there means that I can't afford any off-nights. I don't have Brad to back me up. But along

with the increased responsibility comes more satisfaction and the extra work has made me a more fluid player." As it is, Perry has had to do more rhythmically and melodically than he had to do with Aerosmith, simply because there is more space for him to fill. The pressure is strongest on stage, where Perry cannot let up without having the song collapse. As a consequence, his style has shifted somewhat, drifting away from long runs of notes and moving toward a simultaneous lead and rhythm style similar to Mick Green of The Pirates (who may have invented the method) and Wilko Johnson, formerly of Dr. Feelgood.

This is less true on the album where, even though Perry and Douglas achieved a "live," spontaneous feel, Perry had the ability to double-track and overdub additional guitar parts. As a result, *Let the Music Do the Talking* sounds rougher and less polished than any of the recent Aerosmith albums, but is closer in basic technique and style than future Joe Perry Project albums are likely to be. "Obviously, not a whole lot of time has passed between the recording of *Night in the Ruts* and *Let the*

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JOE PERRY UNLEASHED

Music Do the Talking." says Perry. "and the basic format is never going to stray too far from straightforward rock & roll. A lot of the songs were written around the time I split, and they express my insecurities and anxieties, maybe even more than I would like. So the ties to Aerosmith were still fairly strong, but I think I've taken some constructive steps in the right direction. The changes will come gradually as the new band evolves. It's very exciting for me . . . I'm finding new tools and new possibilities. For instance, I could never have done a funky, R&B-type song like "Rockin' Train" with Aerosmith, but with this band it fits in perfectly."

And what are Perry's future plans for his bold new group? First, there will be an extensive tour of the United States, Europe and Japan, although the dates will take place on a much smaller scale than tours conducted through the same territory with Aerosmith, mostly in clubs and small theaters. After that, there may be an addition to the band. "I'm fairly sure that we'll be adding another guitar or keyboard player before we make another record," says Perry. "I know that there's a lot more I can do if I don't have to worry about holding the rhythm down. But that's just another reason why this new set-up is so great . . . I have the freedom to make changes and try new things. If I want to try doing a rockabilly number, I can get together with the band and work on it. It's very exciting to be able to write something and try it out immediately. That's the way a lot of great rock & roll gets made, you know."

Whether *Let the Music Do the Talking* qualifies as great rock & roll may be open to debate, but one could hardly argue with the spirit of Perry's new venture. If he has, indeed, been underrated as a guitarist and songwriter, he will have to prove it under the toughest possible scrutiny. Aerosmith fans and foes alike will have the chance to check out Perry & Co. up close, in small clubs and theaters, without the cosmetic distance of a big stage show or a numbing wall of Marshall amps. Like him or not, you've got to give Joe Perry credit for putting his money — and his music — where his mouth is.

Thanks, J.C.

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Grace Notes J.C. Costa

A few issues back, I did an overview of "baby" or backstage practice amps that was never intended to be either final or definitive — selected manufacturers responses to the contrary! One of these "left out" was the scrappy little "Mouse" amplifier from Lectrosonics Inc. Featuring 5 watts RMS ("about 5 times the power of the leading battery-operated practice amp"), an 8 inch speaker, a tone control, a 10 meg-ohm input (lead and bass guitars) and a truly rugged case with a truly heavy-duty — many make the claim, but few are chosen — metal mesh grill for survival on the road, the Mouse also has a rechargeable power pack (a major plus, eliminating the need for mucho batteries = mucho \$). Offering both a clean (excellent!) sound and a dirty or distorted mode (less terrific, the more you increase the gain after 3/4 or "3 o'clock" the more unwanted "frazz" snakes imperceptibly into the sound — my only gripe), the Mouse makes enough sense from a dollar-value and a durability standpoint to seriously consider owning one.

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- 3 Keyboard player 4 Drummer
- 5 Brass/woodwind player
- 6 Singer 7 Sound engineer

Do you attend concerts

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- 3 2 or 3 times a month
- 4 More often

Your age

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- D 30-40 E 41+

How much do you spend on musical instruments each year

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- 3 Professional

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Guitarcheck

Martin Acoustic M38 \$1510



tightening up and a return to older standards. I hope this applies to all their instruments, and if it does, I wish Martin every success for the future.

There is an interesting story behind this new model. It may not be the whole story, but it is worth telling. Several years ago I had the pleasure of meeting David Bromberg, while he was in London. His favorite guitar at the time was an old Martin *arch-top* guitar which had been converted to a flat-top with a pin bridge. I believe the work was done by an excellent craftsman in New York called Matty Umanoff. (I hope he will forgive me, if I have mis-spelled his name). I believe the guitar was originally a model F7, although I am relying on memory for this, as I made no record of it at the time. However, I was impressed with both the sound and the shape of the guitar and David kindly allowed me to trace around the back onto a sheet of card. I also looked inside the guitar with a small mirror, and I believe the soundboard bracing was very similar to 1930's-1940's small pinbridge Martins with "scalloped" struts. I thought it would be nice to make such a guitar one day, but guitar makers, like many other craftsman, have to spend most of their time making what their customers ask for. The roll of card was put away with other plans and I never did make the guitar. A wrecked Martin OM18 "Orchestra Model" came to me for restoration, sounding beautiful, but in an advanced state of decay. I made it work properly again, and repaired it until it looked like a well cared-for old guitar. In return for charging a reasonable fee for a quite unreasonable amount of work, I took detailed plans of the OM.

Considering what had been done to it in the past, the guitar had survived pretty well: it was

obviously a tough little guitar as well as a sweet and sensitive one to play. The Martin OM series had long been out of production, and very few people in England had seen an old one, or even heard of them. I made a few small changes to the design, with the benefit of 40 years of hindsight, and produced a small number of similar instruments for musicians who wanted medium sized steel-string guitars which would be loud, sensitive and stable. As far as I know, all the owners are very happy with their instruments and one or two have even placed orders for a second one. I suppose that indicates satisfaction. It is very difficult to make any major improvements on this particular OM design; it was nearly perfect to start with, and I notice that at least one specialist American maker appears to have come to the same conclusions. This may sound like an advertisement for bespoke guitar makers, but it is not really. To produce worthwhile results, these little 'OM'-type guitars take about twice as long to make as a big jumbo guitar of similar performance. Making them is an artistically and spiritually rewarding activity, but even at underpaid craftsman's rates they are also very expensive.

OM Guitars were made around 1930 to 1933 and appear to have been the first flat-top Martins with a 14-fret neck. They were generally similar to the 12-fret type 000 models made before this period, and the 14-fret type 000 models made after this period. The major differences seem to have been that most OM guitars had geared *Banjo* pegs and more significantly to this story, they had a 25.4 inch scale length instead of the 24.9 scale common to most 0's, 00's and 000's. In other words, they were only made for a short time, and they were fairly small guitars, with the longer scale length now used

on the much larger Dreadnought models (D18, D28, etc.). The longer scale length will cause the same gauge of string to be at a higher tension when tuned to the same pitch. Even such a small difference in length makes a surprising difference to the feel and sound character of the instrument. Light strings feel more solid when flat-picking and extra-light strings give a bright, singing tone without feeling flabby.

This new model M38 appears to combine the longer 25.4 scale length, with a body shape and construction very similar to the old flat-top converted F-series Martin which David Bromberg showed me some years ago. It is about one inch wider than the OM and 000 guitars across the body, but similar in appearance and styling, and about the same body depth. The body dimensions correspond closely to the specifications of the F.7 arch-top listed in Mike Longworth's book on Martin Guitars (to which I am indebted for the dates of production given above). Although the M38 would appear to be something of a hybrid, it is none the worse for it, and it is a valuable addition to the Martin range. You can play it like a big guitar, but it is easier to handle, takes up less space and is less bass-heavy than the D.18, D.28, D.35 series. It is optimized for use with medium to *extra-light* strings (rather than heavy to light gauges), and you should not try to use anything heavier than medium gauge strings. (13 to 58.) The internal construction involves some scalloping or paring away of the main soundboard bracing. Although it has been said in the past that this design feature was really intended for gut or nylon strung guitars Martin and some other makers are now applying it to some of their production steel string instruments, generally with the warning not to go above medium gauge strings.

I am pleased to be able to review a *new* Martin acoustic, or to be more accurate, *two* new models, as there is also a similar guitar called M36. I am also pleased to announce that it is a good one! Martin have had their share of troubles in recent years, including overwhelming demand for their instruments, and some labor difficulties. Standards have not always been as consistent as Martin, or their customers, would have liked. Many new instruments have been a credit to Martin's long-standing reputation, but regrettably, a few have not. From the evidence of this M38, there seems to have been a general

Usually, such guitars are more sensitive than standard models, and many people find that *light* strings are quite loud enough.

Incidentally, many of the older, small bodied Martins were intended for gut strings, even though they may have pin bridges and narrow metal machine head rollers. Some people do put steel strings on them, but they should be extra-light strings and it is still a risky thing to do. Unfortunately, little old Martins are easier to sell for high prices, if they are fitted with steel strings rather than gut or nylon ones, and they tend to be offered for sale in this way. If you have an antique Martin which you already use with steel strings, then one of the better choices would be Handcraft "Spanish". Don't let the name worry you, they are polished, silver plated, bronze wound, steel strings, in a very light gauge. For a softer sound for fragile instruments there is also a silk-and-steel set, called "Chopin".

The new M36 and M38, will certainly accept these strings, but they will also work happily with almost any good quality light acoustic guitar strings, such as Martin, Guild, D'Addario, Darco or Handcraft "Special Light." Do *not* use Handcraft medium: it is a very heavy "medium" and does not correspond with the usual American naming of gauges. It would be better described as "Medium/Heavy." It is a useful gauge, but too much for guitars with shaved struts.

38 falls somewhere between 28 and 45, and that indicates roughly what you get with this guitar: ebony fingerboard, rosewood body and bridge, lots of black and white binding everywhere and some abalone inlay around the soundhole. The soundboard is finished in a Pumpkin Pine color which does look reasonably like old varnished soundboard. It seems to be

one of the slightly pink Canadian woods, rather than European spruce. The rosewood body is finished with clear gloss lacquer and the neck is finished in a transparent, medium brown semi-gloss. Fingerboard, body, headstock and heel are bound with alternating strips of black and white plastic. The fingerboard is a nice straight-grained bit of ebony, neatly fretted with the usual Martin high, narrow frets and with small pearl position dots, there are matching very small black dots in the white binding on the edge of the fingerboard.

The overall sound with the medium-to-light strings supplied, is well balanced, fluid on single string solos, and tight on chord playing. The bass could be a bit rounder, but it is a brand new guitar, and it has already improved in this respect with a few weeks of occasional playing. I would prefer the action at the nut just a shade lower, but some people would prefer it just as it is. Overall the action is just right for the type of strings fitted and the intonation, compared at the 12th fret, is as near perfect as possible for this kind of fixed bridge.

Conclusion

It is not often we see a really new model of Martin steel string guitar. This one looks and sounds like a cross between an 000 28 and the ultimate, deluxe, vintage Harmony Sovereign. I think the most relevant conclusion I can make is to tell you that I have not seriously considered stocking new Martins in my shop for the last seven or eight years, but I was happy to buy this one. I look forward to seeing more instruments of the same quality. I shall continue making the little OM-type instruments from time to time, because I enjoy doing it, and as a craftsman, I am of course convinced that a good handmade guitar has elements of subtlety



and suitability to the needs of the player which cannot be obtained from a factory-made guitar, however good. I *could* make a guitar just like the M38, but I don't intend to. If I did, it would cost you twice as much as Martin's price.

Stephen Delft

Circle 901 on Reader Service Card

Instrument Martin M.38

Serial No: 412805

Scale length: 644 mm

String spacing at bridge: 54 mm

String spacing at nut: 37 mm

Fingerboard-width at nut: 43 mm

Depth of neck at fret 1: 22 mm

Depth of neck at fret 10: 25.5 mm

Action as supplied: 2.0 mm Treble/2.5 mm Bass

Lowest recommended action under our standard conditions: 1.8 mm Treble/2.5 Bass

20 Frets on fingerboard

Body joins at fret: 14

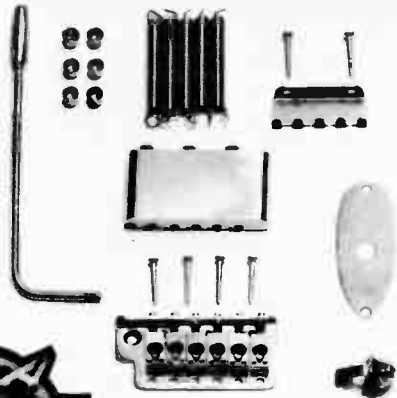
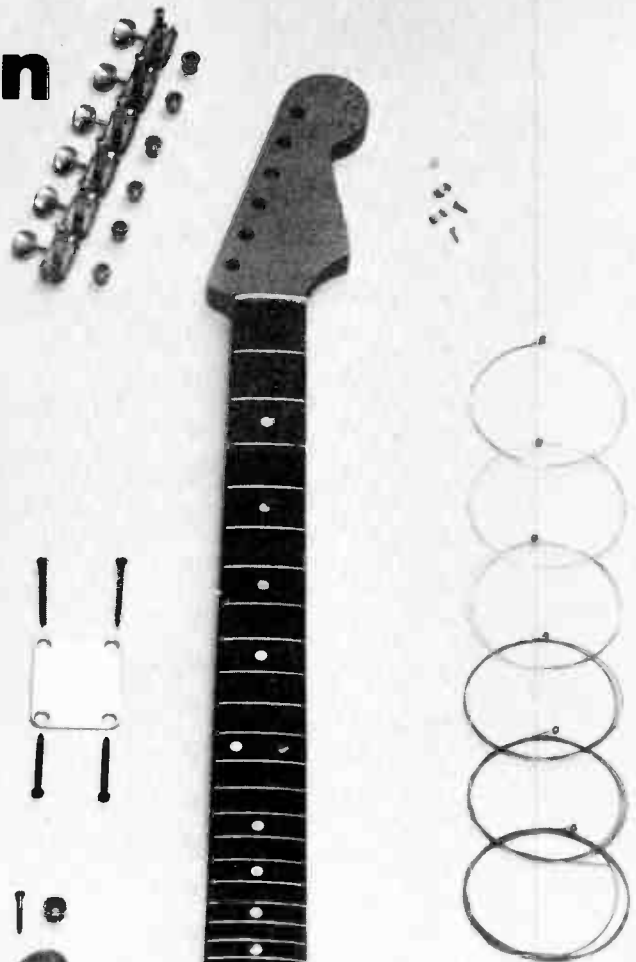
Heel starts at/around frets: 11-12

Typical body depth at edge: 100 mm (Price includes case.)

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Requiring only 19 1/4" (48.9 cm) rack height, the Scully 250 is ideal for rack mounting in the studio or case mounting for field recording. The 250 features low-noise, dependable electronics with a sync control provided for adding a track to the alternate channel, and input/playback monitor/VU selectors. Equalization is switched with speed control and the transport has all touch-button control TTL logic with protective motion sensing circuits which prevent tape break or spill when operating from fast mode to play. Configuration include full or half track mono; two or quarter track stereo. All models have two-speed Hysteresis Synchronous direct drive capstan motors. Unmounted weight is about 45 lbs or 20.4 kg.

Circle 889 on Reader Service Card

Soundcraft Series 400 Console

The new Soundcraft Series 400 is a fully modular 4-buss mixing console designed for up to 8-track recording and for "sophisticated" sound reinforcement applications.

Available in two mainframe sizes (one for up to 18 input channels, the other for up to 26), the Series 400 features high quality potentiometers (each with 41 detented position except for the EQ lift/cut and pan which have a single

center detent), push button switches, long-travel (100 mm) conductive plastic faders and transformerless differential, mike pre-amp which produces ultra low noise and gives a transient performance exceeding that of conventional transformer-coupled pre-amps. Metering is by 16-segment LED bargraph displays (great for low-light situations) which can be switched individually to VU or Peak reading characteristics.

Circle 891 on Reader Service Card

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- Selectable "Control Room" monitoring of all 5 buses
- On-board Phantom Power + 48V for condenser mics
- Independent channel "Soloing" with noiseless J-Fet switching
- Dual reading LED Channel Peak Indicators that read both channel overloading and EQ overloading.
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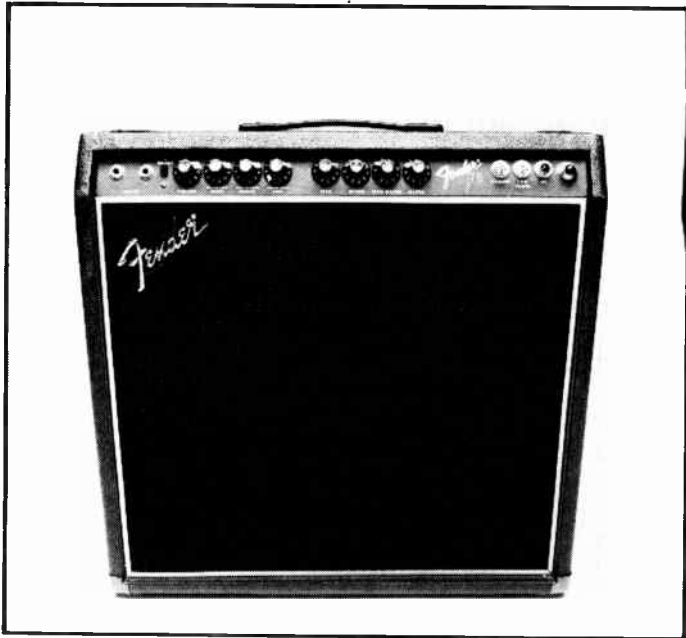
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Circle 840 on Reader Service Card

Soundcheck

FENDER 75 COMBO \$795



On test today is the Fender 1 x 15" Combo, I suppose that if everyone else brings out master volume amps then Fender might just as well do it too. That, I must admit, was my first thought when I saw this amp. Still, I mustn't be unfair about this Fender as it is basically a good amp although perhaps a little complex.

Construction

Firstly, down to the basic appearance and construction. As with all Fenders this one is certainly well-built and solid although to those of us used to transistorised combos it feels remarkably heavy (it being both a combo *and* a tube one at that — not unusual for Fender for of course!). The cabinet is constructed of what looks like half-inch plywood throughout, covered in tough black vinyl and with an open back. As is normal for Fender, the chassis is actually mounted upside down inside the cabinet so that the front panel (which is the right way around) appears at the top front of the cabinet.

A single 15" loudspeaker is fitted and protected by a tough black speaker grille. The black is relieved a little bit by silver piping around the outside of the grille and also by black and silver markings on the control panel. A black carrying handle is mounted top center but there are no castors fitted.

As mentioned already the chassis is "upside down" with output tubes and pre-amp tubes hanging out of their sockets. I have always been amazed that Fender have not more problems with their amps because of this, still, the chassis and electronics are certainly sturdy enough.

Without getting totally confused I will give a quick run down on the front and back panels facilities.

Front Panel:

From the left hand side there are two input jacks (both with individual input sensitivities). Next a "bright" slide switch, then four controls grouped together — volume, treble, middle and bass. The three tone

controls here also provide extra boost by simply pulling the rotary control out. (i.e. combination switch/(pot.) To the right of these controls is a second group of four; these being lead reverb, leadmaster and master. (I will attempt to explain these later.) Finally, on far right is a standby on/soildus off switch, low/high power switch and mains on/off switch plus red indicator lamp.

Back panel:

From the left (looking from the back) a captive power cord is provided with just to the right of it a power selector switch with fuse.

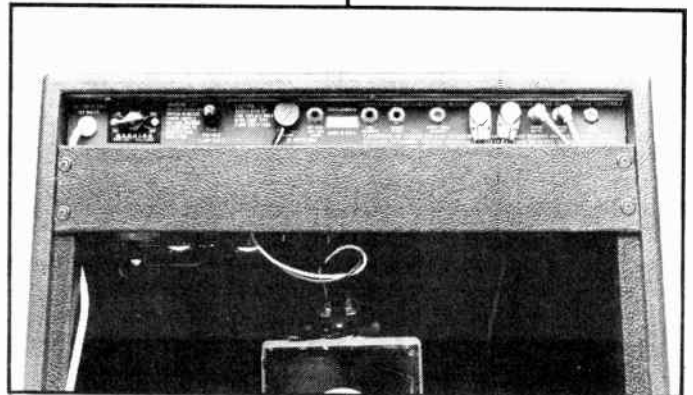
There are then a total of eight jack connectors and two preset pots. Two of these jack connectors are for speaker outputs — one to the internal speaker (jack plug already connected) and the other for an external speaker system. (One slight confusion here is the speaker impedance rating, but I will look at that later on.) Next, two jacks are provided, one as a mixer o/p (i.e. direct injection) and the other a stereo jack for effects in/out. Two jacks are provided for the footswitch (reverb and lead switching), and two more for connection to the internal reverb unit. Finally, two presets are provided — one for output tube matching and one for hum balance (heater supply).

Having got so far let me attempt to describe what this amp can do. The design idea behind this amp appears to have been to take the basic Fender sound and controls and then play around with them and add extra circuitry to make the amp more versatile.

Certainly the extra range now offered by each tone control with its own boost circuit is very impressive. The only thing I am not quite so impressed with is the mid-range pot, this appears to make only the slightest difference to the sound unless both bass and treble are turned fully down.

The footswitch provided with the amp has, in addition to reverb on/off, a second switch (and LED) marked lead on/off. When this second switch is activated in addition to volume and master, lead and leadmaster controls are put in circuit. This makes a grand total of four volume controls affecting the guitar signal. My first thought was why are there so many controls? However, if followed through logically it does seem to make sense.

In the normal position volume and master volume are set up to give the desired clean sound. When the lead footswitch is depressed without touching volume and master volume, tube distortion can be obtained — over-



drive distortion being adjusted by the lead control and output volume (balancing with the clean sound) by using the lead master. From that point on, once the two sounds have been balanced overall output level can be controlled using the master volume. Simple! In addition — if output stage overdrive is what is required at low volume then by reducing the HT to the output values (switching to low power position). A maximum of 14 watts RMS is obtained.

OK, what does it sound like? Well, to be honest I only normally like the typical Fender sound for certain types of instruments and/or playing. I think everyone must know what a Fender twin reverb sounds like. This amp comes pretty close — the difference being of course the provision of just a single 15" speaker in this version (slight loss of treble). However, to hear a Fender chucking out lots of nice tube distortion (at low levels) is quite a revelation. Playing around in the lab with various guitars produced some beautiful sounds; especially in the lead position a maximum I/P sensitivity of less than 1 mV can give stacks of overdrive distortion.

Of course, the real test came when the amp was tried out at a gig. I must admit that the normal lead switching and controls took a little while for each guitarist to sort out — however, once familiar it was possible to balance up the two sounds exactly and where they weren't quite right fine adjustment was simplicity itself. I have to hand it to Fender for providing what at first seemed a very complicated system of controls but which in reality is very versatile and easy to set up.

An additional plus was that



in quieter or less raunch numbers, switching to low power produced really nice O/P stage distortion without effort. Although using a 15" speaker I would normally expect a loss of treble, on stage it would have been impossible to tell as on occasions the top was very ear-piercing.

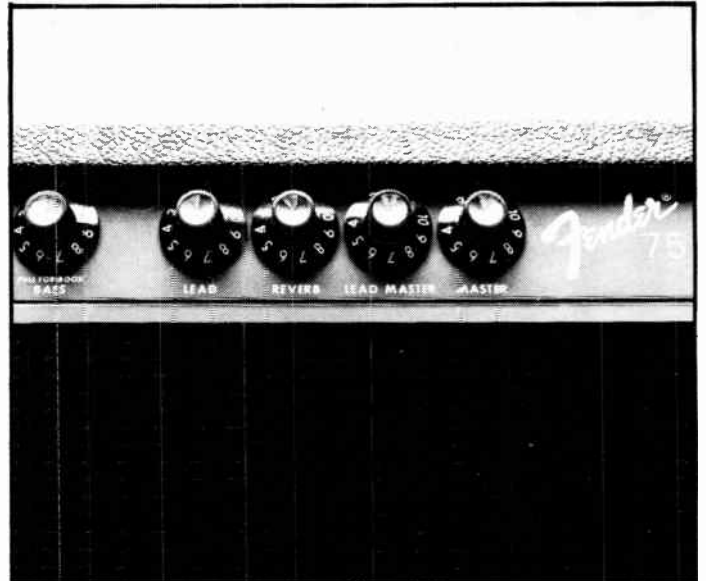
Now we come down to the one or two odd things about this amp that I did not like.

The first is the power selector switch. When first looking at the amp, I could not tell which way the selector was pointing. It seemed to me that it was selected at 100 volts but was in reality at 240 volts (I found out by turning the selector around-power (disconnected, of course). It was also too easy to change this selector switch — I would prefer to see this switch tucked away inside the chassis somewhere.

The second point has to do with speaker matching impedance. Both the internal speaker jack and external speaker jack have eight ohms minimum impedance marked on them. As the amp receives maximum power into eight ohms this seems a little strange. It does appear however that plugging an external speaker in should automatically disconnect the internal speaker, only on the test sample this was not the case.

Overall, I liked the sound of this Fender especially as it was able to produce some very unFender type sounds.

Dave Mann



Power Output: High Power

76.5w RMS into 8ohms before clipping

Low Power

14w RMS into 8ohms before clipping

Input Sensitivity Normal

— 23mV for full output

Lead

— 8mV for full output

Maximum Input Level

Both 1 & 2 — 1 volt RMS

Tone Controls Range

Bass

@70Hz — 28dB

Bass Boost

@70Hz — 10dB

Mid

@2kHz — 2.5dB

Mid Boost

@2kHz — 10.9dB

Treble

@3.5kHz — 29.5dB

Treble Boost

@3.5kHz — 9.4dB

Bright Switch

@3.5kHz — 14.5dB

Hum and Noise

Signal to noise ratio (referred to full output)

Master Down

* 75.5dB

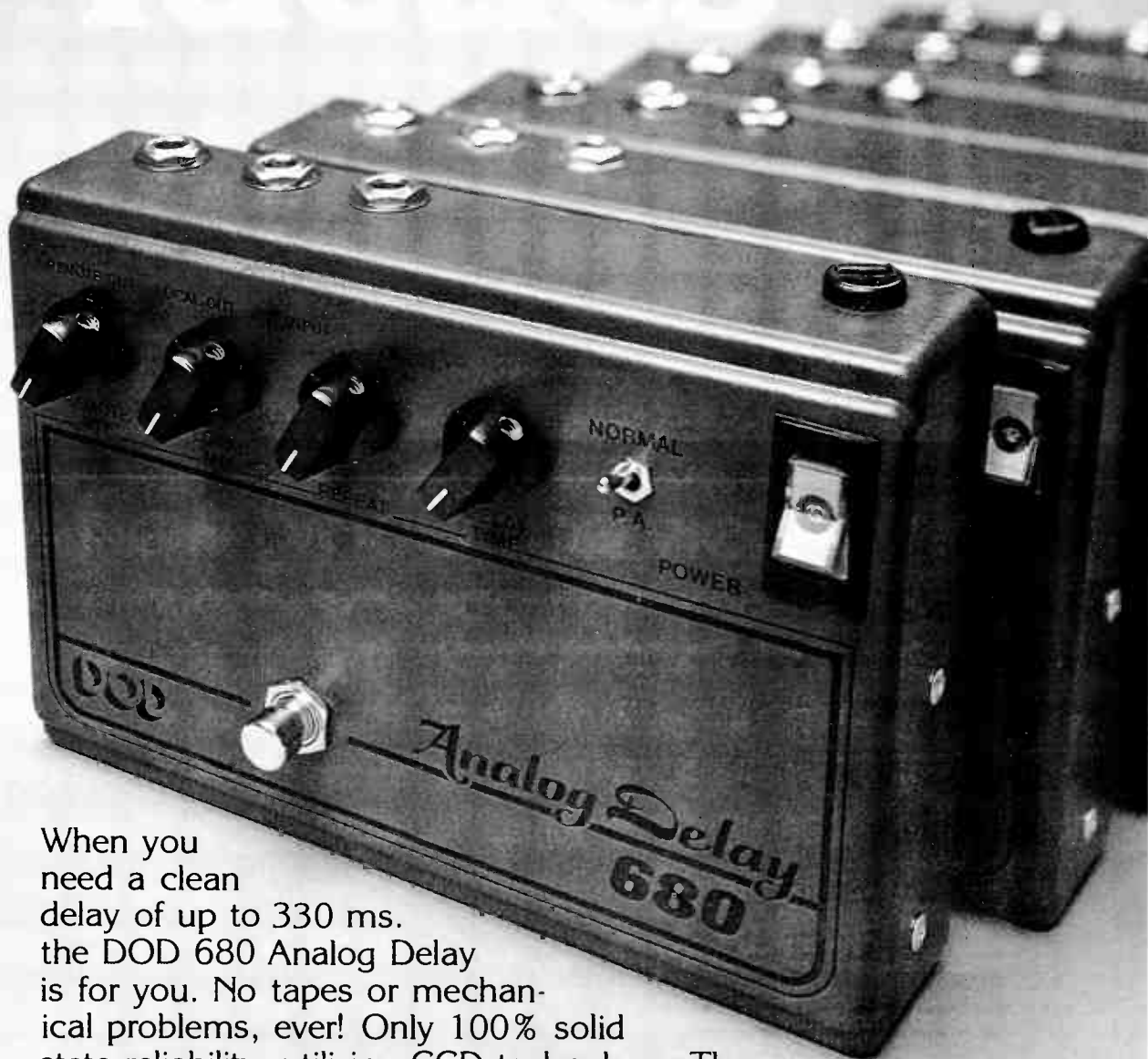
Master and Volume Up

— 64.4dB

All Lead and Master Up Full

— 36dB

Delaying Tactics

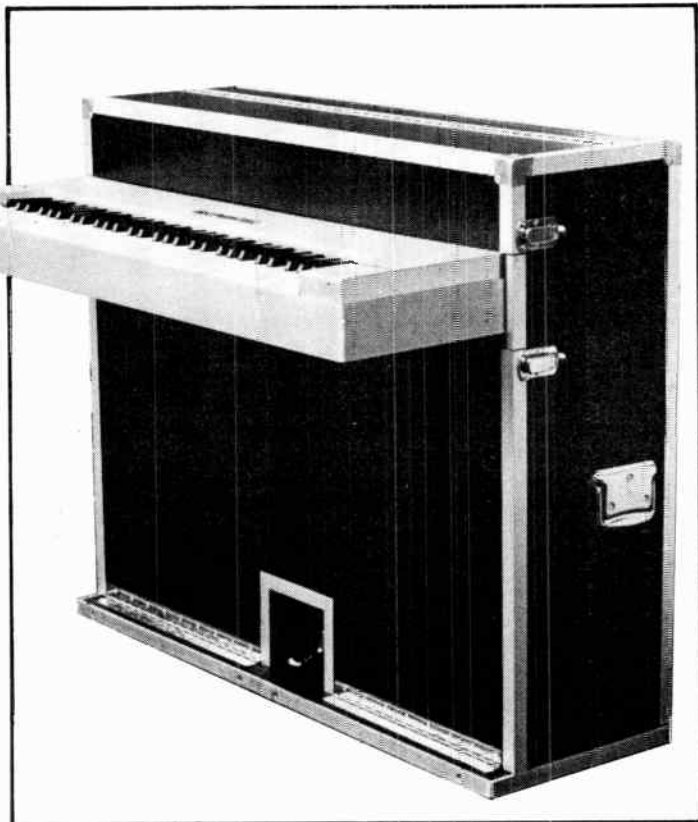


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Keyboardcheck

The Helpinstill RoadMaster \$1995



To the majority of us who cut our musical teeth on acoustic pianos, nothing was quite so frustrating as having a good instrument on stage and knowing that the audience were either not hearing it at all or receiving some distorted, semi-audible version of the true sound. Not only that but not being equipped with volume controls we could hardly compete with guitar players (or our acoustic brethren, the drummer) in the realms of level or quality of sound. Electric pianos, clavichets and synthesizers all played their part in restoring battered morale (and bloodstained hands), and for a couple of years, I for once, tended to ignore the acoustic piano as I revelled in my new found power.

It is a plain fact though, that the Signor Cristoforis 18th Century invention, gives us a range

of expression and an adaptability to every conceivable style of music that is in any other keyboard instrument. Thankfully, piano players of the world united in their demand for ways of being heard properly.

Simply sticking mikes inside a piano and feeding them through the PA does not work too well. Contact mikes made things slightly better, but again sound quality was poor. The biggest step forward came with the introduction of the piano pick-up, the Countryman and the Helpinstill pick-up improved quality and undistorted level appreciably.

I remember the excitement with which I approached the Yamaha Electric Grand only to be somewhat disappointed because of the instability of the tuning, particularly on the

thickly wound bass strings. Still, I thought then that it would only be a matter of time before all such problems were ironed out. I must admit I thought it would be Yamaha who would do it.

Quote: "I'm Charlie Helpinstill and I build pianos. I also play them professionally so I know how they should sound and how they should feel." That was from the handout of the Helpinstill RoadMaster, and Charlie speaks the truth.

The RoadMaster is a great instrument. As much as I admired the Helpinstill Portable Grand and the new Yamaha Electric Grand, I think the RoadMaster beats them all. It is a 64-note piano with dual stringing and the built in sensors reproduce every note evenly and truthfully. The action is as per any acoustic piano and the keyboard itself feels right. Tuning would appear to be particularly stable — we moved the instrument out of the warm store onto the street and we also opened, closed and generally subjected it to a good going over. Helpinstill claim tuning stability is guaranteed by the use of the "14-lamination pin-block". But whatever the reason for stability, it is a very vital element in designing any portable instrument.

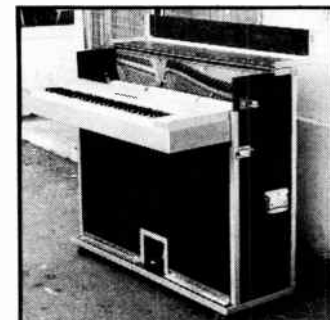
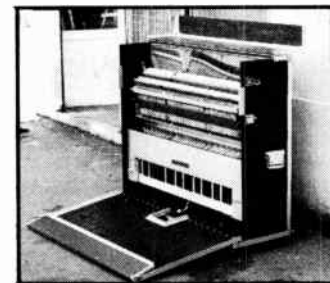
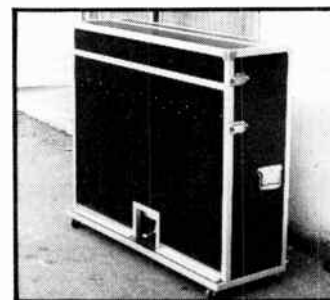
Portable is exactly what it is, weighing just over 200lb. The RoadMaster sets up fast and folds up neatly into its own flight case of very durable Formica over plywood with alloy extrusions and heavy steel corners. Its dimensions are: length, 43"; depth, 12 1/2" (38ins with keyboard extended); height, 38" including the integral castors. Just think, It's portable enough to be dumped into your hotel room on tour!

It is quite loud acoustically — about the same as a small upright — so you don't need to amplify it for practicing or low-

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When you think of its portability, cleanly reproduced sound and "real" piano feel, the Helpinstill RoadMaster is a great buy at \$1995.

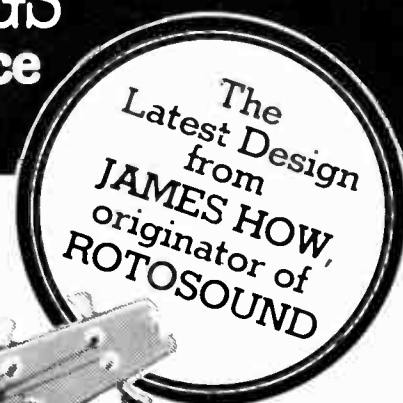
Mike Moran



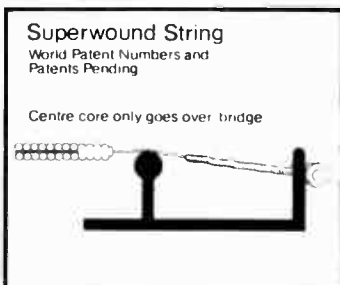
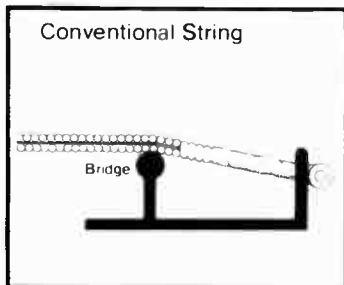
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Complete specifications and descriptions of the Stereo Graphic and EQ-27 are available upon request

by writing our Literature and Promotional Department, Peavey Electronics, 711 A Street, Meridian, Miss. 39301.

World Radio History



Drumcheck

Gretsch Grand Prix \$1495

At long last the Gretsch company have come up with the goods! They finally have a brand new tom holder and a new line of reasonably respectable, Japanese origin "giant" stands and pedals. The tom tom holder itself is excellent and should become, and hopefully remain, the definitive Gretsch tom tom mounting. As you can see from the heading Grand Prix is a newish name for the old Black Hawk set. This particular specimen was unveiled at the Frankfurt Trade Show at the end of February. Before I start this actual "check", I'll give you a short potted history of the company and its more recent past applications as I've seen them.

The Fred Gretsch company have been making drums since 1883, first of all in Brooklyn, N.Y. with a subsidiary in the early Seventies in Elmhurst, Illinois. After a fire in 1975, they moved to Cincinnati, Ohio, and now they reside in Booneville, Arkansas.

During the Fifties and early Sixties, they reigned supreme as *the* jazz set. Almost everybody in small group modern jazz has used a Gretsch set at one time or another. (The company were the first to produce a 20 inch bass drum with disappearing spurs and consolette tom holders — all of which became *de rigueur* for the modernists.) Gretsch's pinpoint sound is perfect for modern jazz where every instrument needs to be heard clearly and separately, even when played ensemble. As I've mentioned before, in *this* particular environment the more prevalent overtones of Ludwig or Slingerland made them not so fashionable, although big band jazz appeared to favor these other two makes more. The exception which proves this rule is, of course, Joe Morello who played Ludwig all the time he was with



the Brubeck Quartet.

Over the years I have enjoyed a love/hate relationship with "that great Gretsch sound" — loving the drums and hating most of the fittings. This set though, with its obvious "made in Japan" stands, is not so bad since they are at least some of the best available from the Orient.

So, the Gretsch Grand Prix set I saw comes with 22 x 14 inch bass drum, 13 x 9, 12 x 8, and 16 x 16 tom toms and 6 1/2 x 14 wood shell snare drum all veneered in mahogany plus two cymbal stands, a snare drum stand, hi hat and foot pedal.

Bass Drum

The Gretsch 22-inch diameter

bass drum has a six-ply electrically bonded hardwood shell constructed mostly of maple but sometimes of mahogany with their unique, matt grey, slightly absorbent interior finish. This coating helps to produce a slightly warmer more contained sound, which I personally feel ideally suited to jazz/rock applications. In my experience no Gretsch bass drum ever booms, they all have (especially the 20-inch) a round compact sound which is absolutely ideal for amplifying through a PA. Furthermore it's an ideal recording drum once its front head is removed.

The 22-inch bass drum has 20 nut-box/casing, timpani-type tuners and pressed steel claws.

These spring loaded, bullet type-nut boxes are still not padded (so I'm told) but I've never heard of them causing any rattle problems in the studio. Presumably their interior design is very good and they don't need any. (Either way it's not a difficult job to put cotton wool or sponge rubber inside them.) I've commented before upon how Gretsch's claw-hooks appear more solid than any other manufacturer's — they seem to be formed from extra heavy-gauge steel.

This dome is fitted with *wooden* counter hoops. I have been informed that their metal hoops (inlaid with plastic) are now to be discontinued which is something I like because metal

hoops definitely color the sound — mind you it's "swings and roundabouts" because the metal ones evidently stay more round whereas the wooden ones can warp. The Gretsch Rock Maple wooden hoops are also six ply and made just like the drums themselves.

As per usual, this drum has an adjustable strip damper which was invented in the Fifties by a guy called Jimmy Pratt. This device works on a parallelogram principle to adjust the pressure against the playing head — it's variable via a large round knurled-edged knob which also operates the tone controls on the other drums. The strip nowadays goes from bottom dead center up to about two o'clock which gives more coverage. Gretsch do indeed make a bass drum with a Pratt damper for *each* head. For me, this would be of dubious advantage since I invariably play single headed — however, some more jazzy players would obviously reap the benefit of them.

There are some new spurs fitted to the Grand Prix which feature a large cast retainer block to take the extra large half inch tube which has an optional spike or rubber end as usual. The spurs, obviously of the disappearing type, are angled sensibly forward and locked into position with the same cast wing bolts found on the new double tom holder.

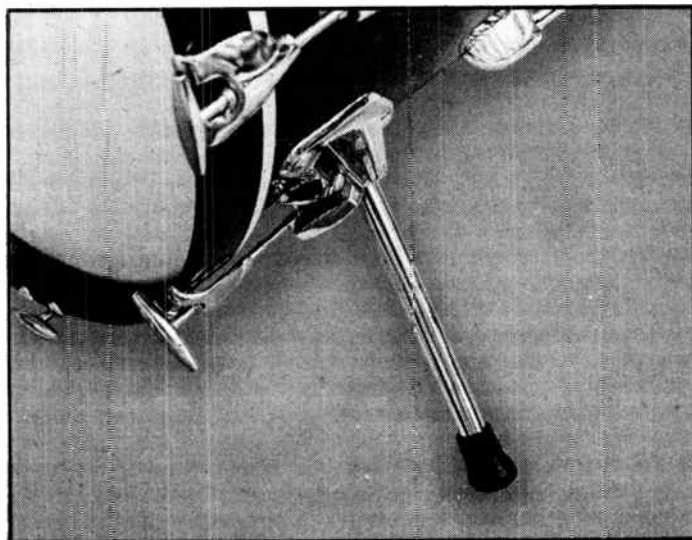
For some strange reason there is no backplate for the spur blocks inside the drum. Gretsch have just devised extra long spurs which I haven't seen as yet but I understand they go all the way up inside the drum and lock to the new holder. This serves two purposes — it strengthens the drum and gives you something to put extra padding behind.

Tom toms

The 12 × 8, 13 × 9 and 16 × 16 all have the characteristic clear,

solid wooden sound which, for me, hasn't changed at all over the years. (I know because I recently put a late Fifties set up against a brand new one). I've commented before that this solid sound is due to the cast counter hoops Gretsch have always used. All drums are factory fitted with these single-flange, edge headed, die-cast hoops. I once tried an experiment with a Gretsch drum and changed these hoops for the normal pressed-steel triple flange kit — the sound changed and became slightly less deep with a little more edge but thinner. Gretsch tom tom shells are usually made of three-ply material but, these ply thicknesses are not standardized and a three-ply might well be the same overall as a six-ply drum.

All tom toms (and the snare drum) have padded, double adjustable "tone controls" (dampers) fitted underneath each batter head. These are made from very solid material, have a substantial spring to them and are operated by a very large tasteful and solid knurled knob. They are good and possibly my favorites among the *internal* dampers available.



Gretsch's legs have changed yet again. So far they've used legs with single, then double bends. These ones are back to the single bend but it's situated two thirds of the way down the leg which is now made of much thicker material. These legs locate into completely semi-rectangular new cast blocks imprinted with the Gretsch logo. They have retaining indentations cast into them at each end to locate cast memory type drum-key operated clamps. This whole block is also the tom tom receiver fitment where it is important to have the height and angle the same each time — however, as of now the tom legs don't have this facility but I'm sure in time they will.

All the drums in the Grand Prix are fitted with Permatone Ambassador heads and sound fine. I prefer them these days with CS heads which give a little more edge to their sound. The 13-inch drum has 12 square-headed tensioners, the 12 has 10 and the floor tom tom has 16.

Snare Drum

I'm not sure if the wooden shell snare drum I saw is supplied as standard. It's a six and a half inch wooden shell job which

used to be called the "floor show." Nowadays though, it's fitted with 10 single nut boxes per head. It too has fully-flanged metal die-cast hoops with the Lightning throw-off snare strainer which has a curious swivel cam action which moves it away from (and towards) the drum.

This mechanism is quite an improvement on the earlier model which never really locked home properly. At one time I felt it wasn't locking-up properly against its rubber bumper stops so I removed them. This resulted in a noise as the unit locked into position which made me feel a little better. I tried to dislodge it when I played but couldn't honestly manage it. The snare tension is activated by a knurled thumb-screw fixed at the butt-end opposite the on/off strainer. According to my catalogue the drum is available only with a 42-strand Responso snare which is fixed to the strainer with plastic strips. (Gretsch were, I understand, the first to do this.) I don't really get off on these multi-strained snares since I feel they clog up the sound and make it "tubby" — the 20-stranders give a much more open and even sound.

The response of the drum with the latter snares is very good — it's not, though, a rock and roll drum, at least not in the live context. In the studio it has a strong sound which like the tom toms is clear, solid and wooden. The shell is six-ply with a sharp bearing edge and a shallow, yet wide, snare location area.

I see this as a concert drum, especially with the Ambassador head on, but with a CS or maybe a Duraline it becomes a good studio drum. It has of course one of Gretsch's internal dampers and also their snap in key holder, which I've said before is a good idea, providing

Drumcheck

one doesn't lose the key. It's made to take only a cast Gretsch drum key and nothing else I've found will fit the job.

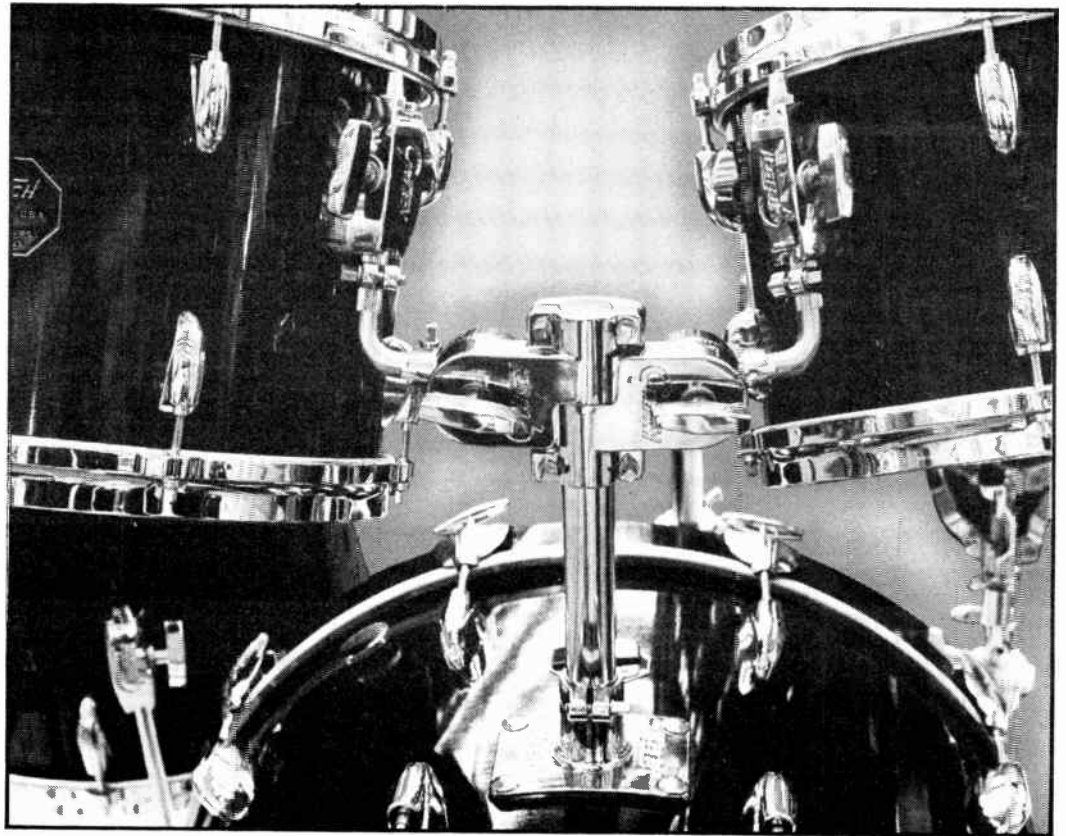
Accessories

Gretsch have, of late, been responsible for tarnishing their image a little by supplying a pretty crappy set of stands (at least within the last five or so years). Now, though, they appear to have their act together and have bought some substantial wide bore hardware from Japan.

The hi-hat has a large tripod base with wide spreading, flat double-strutted legs which are bent and joint in their centers. The pedal uses an external spring with a flexible plastic strap which is doubled around a horizontal rod which is joined to the center pull mechanism. There's a plastic ferrule at the top of the joining tube which fits into a cast metal octagonal, memory-type clip which serves to ensure the same height setting (and position relative to the player) each time.

The legs are finished off with large, wedge shaped rubber feet. The hi-hat's top tube is swaged for about three inches where the adjustable angle, plastic bottom cymbal cup fits. All the stands have new sand-blasted wing bolts, as has the new turned hi-hat clutch. This part is turned from hexagonal stock and the top of the clutch ingeniously unscrews from the bottom, leaving the top cymbal with the felts still on. To assemble, simply take the cymbal from its case, slip it on to the center rod and join the top hexagonal barrel (with the T screw) to it.

The spring itself works within an adjustable compression chamber like the old Pearl. I wasn't knocked out by the plastic strap pull — but Gretsch have kept theirs sensibly short so



there doesn't seem to be any off-putting play in it. It's more positive than anyone else's and has a good feel. Like most of the Japanese cymbal pedals, it has a two-piece cast footplate with a toe strap.

The snare drum stand with the GP set has the same double strutted tripod legs and the same cast locking block at the top of the down tube. The playing angle adjustment works on the same principle as the old Buck Rogers stand. It has a basket-type holding system to take the drum which locks via a capstan nut which runs up a solid thread just below the basket. I seem to have written thousands of words about these sort of snare drum stands —

they all work well and Gretsch's is no exception.

The cymbal stands are provided, both Japanese. They have three stages with plastic inserts at their joints. The legs are again double strutted tripods with wedged rubber feet. The top stage is swaged where it joins to the cast, splined tilter. It's not a very large tilter but is finished off with a large Swivo-matic type wing nut to lock down onto its cymbal protection felts.

The BD footpedal should really be called the Gretsch 810. As near as dammit the only thing missing from it is the word Pearl. Anyway, it's got a two-piece cast footplate with a toe stop, an industrial fiber strap and adjustable cam action which

allows the beater to go closer to the head without really changing the stroke (just the footplate's angle).

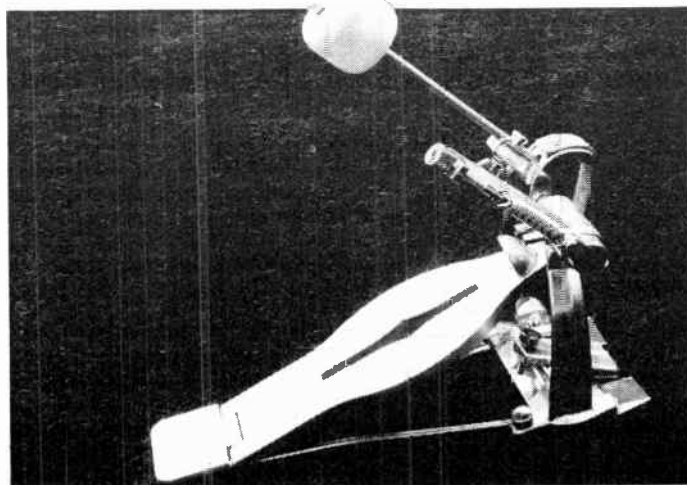
The unit fits to the bass drum hoop with the usual sort of rubber padded jaws and these are adjustable with a large knurled thumb screw half way down: the left hand side of the horse shoe shaped cast frame. Beneath this frame are two sprung sharp pointed spurs. The spring is of the expansion type which is screw adjustable on an arm which is *above* the pedal itself. That about sums it up. I find this pedal easy to use and it copes admirably — not only with double beats but any heavy use I put it to.

The tom tom holder is the

pièce de resistance. I was beginning to despair about whether Gretsch were ever going to get this particular important part of their equipment right. (Since they were the first to have a consolette holder years and years ago I couldn't understand why they seemed incapable of coming up with a good one for today's playing.) In retrospect, this new one is in many ways a heavily disguised consolette holder but with a substantial cast framework around it. It uses the same sort of receiver blocks fixed to the tom tom shell and the same sort of splined L-shaped rod arms and indeed come to think of it the same sort of eye-bolts to return them.

Anyway, the holder has, first of all a one inch diameter down tube which fits into a rectangular cast retaining block fixed to the bass drum shell with a felt between it. There's a metal plate beneath and inside the shell. This block is fitted with a large T screw which is cast and pressed indirectly against the down-tube. (There's a wear reducing piece of spring metal in the way.) The whole tube unit has a "memory" locking collar which is cast and has a protruding lip to correspond with a slot in the plastic ferrule fitted into the top of the block. This ensures constantly accurate set up.

The top part of the holder looks very complicated but isn't. It consists of thicker than usual (for Gretsch) L-shaped arms which retain into the cast block I mentioned before, which doubles as a tom tom leg holder. This block has an eye-ring bolt which locks at the front with a large wing nut. The splined L rod has two small DK lockable collars on it. One for tom height retention and one for distance out from center tube and, of course, playing angle retention. These small cast clamps too have



double lips to them opposite one another which correspond to slots at either end of the receiver or leg blocks. Another, larger eye ring locates into a cast radial-splined half cup which is sprung against more corresponding splines on the holder block proper which is fixed ultimately to the down tube.

The cast block is held in position with a drum key operated pipe-type clamp locked solid with two diametrically opposed screws. This gives us our *single* tom holder but the ingeniously designed unit is cut away where it joins the down tube and simply has to turn it upside down on the tube to make the other side of the double holder which then corresponds and makes a very strong, good looking *double* tom tom holder.

The unit is nowadays set sensibly far forward and I understand the old double holder base plate, the standard, will take the new tom tom holder's down tube so you could update your old beloved Gretsch set. As far as the tom's receiver plate is concerned there's no way the brand new ones will correspond directly with the more recent larger ones with the hexagonal hole in their plastic center since they us-

ed a very large fitment hole. (I suppose you could simply fit the new receiver block in another position and leave the old one *in site*).

Conclusion

What conclusion can one possibly draw about Gretsch — especially now that the new holder is available? Drummers will always buy these drums for their unique wooden sound. In my experience their owners appear to be absolutely faithful albeit fastidious to a fault. The drums look excellent — I saw their natural walnut finish — the other 15 finishes are nothing if not professional (except perhaps for their blue sparkle). There is yet another new badge fitted to the drums now. It's rubbed brass in appearance, octagonal with slightly longer center sides and another logo pressed into it. It's the bass drum head type logo with a new slogan: "Drum makers since 1883" instead of the old "that great Gretsch sound". Pricewise the drums are up in the top five or six but Gretsch aficionados tend not to worry about mundane things like money.

Bob Henrit

Circle 898 on Reader Service Card

Soundcheck

WESTBURY AMPLIFIER MODEL 1005M

Westbury is a name that is fairly new to me so I was rather intrigued when the opportunity arose to test a couple of their amps. There are two models that we shall be testing — both combination amp/speaker units and both with 100 watts output.

The first unit is the Westbury model 1005M single channel 1x12 combo. (This is the smaller brother of the 1000 2x12 combo). Considering that this combo delivers in the region of 100 watts it is very compact, in fact it is approximately 18 inches square and 10 inches deep.

Being so small and with such a hefty output, the cabinet has to be rather carefully constructed. The single 12 inch speaker is front mounted into a completely sealed box constructed from 1/2 inch chipboard. The amplifier chassis sits on a shelf in the top section of the box which is open both front and rear — to the front for the controls and to the back for the heat sink. The cabinet itself is finished off with a tough coarse grained black vinyl and corners are protected with large chromium plated corner caps.

A very sturdy carrying handle is provided in the top panel center — very necessary as you will appreciate, the combo itself is no lightweight. The speaker is protected by a rather Fenderish fret (very neat in silver and black) which is stretched across a sub-framework held in place with Velcro strips. Finally, four nylon non-slip feet are provided instead of the usual castors.

Next on to the amplifier chassis. This is quite a compact unit measuring only three inches high — but more than enough to allow good access to the single row of front panel controls. This front panel is also tilted very slightly and as the top of the cabinet is cut away sharply, the access to and visibility of the controls is exceptional while still

giving very good protection for these same controls. The back panel of this chassis is pretty well covered with two large ribbed heat sinks. At first sight these may appear to be a little over-generous. However, the heat sinking is recessed well into the back compartment of the cabinet and so is probably necessary. In addition, there appears to be no amplifier protection circuitry incorporated (again, hence the large heat sinking).

The chassis front panel is rather neat and blends in tastefully with the rest of the amp, being finished in black with grey boxes outlined in white splitting up control functions. The knobs are in black and white markings.

From the left there are two inputs one high and one low sensitivity. Then a batch of five rotary controls. These are (again from the left) volume, bass, middle, treble, presence. The volume control has a pull-out switch for extra high frequency boost. Finally, far right is a mains on/off rocker/neon switch. A captive mains lead is also provided from the back panel.

Now we come to the interesting part — what the amplifier actually does. As you will probably have worked out so far, this combo is basically very straightforward. No separate master/pre-amp controls are provided and so being completely transistorized it would be expected that the sound would be ultra-clean. That is not in fact totally true. The center frequencies and adjustments provided by the tone controls have obviously been chosen with great care in order to attempt to produce a really warm sound. This to a certain extent has been achieved. The range of sounds obtainable with this amp is not exceptional except those sounds it does produce are very good in-

deed.

Although the input sensitivities do not appear to be particularly good they are more than adequate for practically any guitar as the amp is not designed to produce distortion. Unfortunately, because of a shortage for time it was not really possible to use and test out this amp as much as I would have liked, still I did manage to get a few comments when the amp was used at high volume in a band rehearsal situation.

There were many favorable comments about the basic sound of the amp especially as it kept up in output level very well with several other 100 and 150 watt units. The 12 inch speaker seems to be fairly efficient and in a well-balanced infinite baffle enclosure gives a very nice bottom and — this probably accounts for the warm sound the amp achieves. Unfortunately, the one major problem is the weight of the unit. A lot of thick heavy chipboard and heavy speaker makes the amp just a little uncomfortably heavy for its size.

A complete circuit diagram was provided with the unit, and I must admit to being very surprised at the simplicity of the electronics. Both pre-amp and power amp stages seem to use the bare minimum of devices and components — however, it does work very well so it would appear some thought has gone into it. I always worry a little about unprotected output stages on power amps but in this case as access to the loudspeaker output is not provided it is not too serious a problem.

I was a little concerned initially though that the output power was well below 100 watts into 4 ohms. However the information received with the amp just indicated an output power of 100 watts without mentioning how it was measured (ie RMS or whatever) so the amp is pro-

bably well within specification.

I think generally all who used this amp appreciated its looks and liked the easy accessibility of controls (incidentally also easy to read) even though it did not provide extras such as reverb or sustain. However, one thing that was remarked on was that it appeared to be very well put together and built to last.

Dave Mann

Power Output

48W RMS into 8 ohms
79W RMS into 4 ohms
— measured at 1 kHz just prior to onset of clipping.

Tone Controls

Bass · 40 Hz range—28dB
Mid · 900 Hz range—21.8dB
Treble · 10 kHz range—
23.2 dB
Presence · 3 kHz range—
18 Db
Pull HI switch · 10 kHz—
18.3 dB

Input Sensitivity (tone controls flat)

Input 1 — 112mV RMS for full output (1 kHz)
Input 2 — 216 mV RMS for full output (1 kHz)

Maximum Input Level

Input 1 — 1.4 V RMS
Input 2 — 0.8 V RMS

Signal To Noise Ratio (with reference to full output)

Volume at 0 — 80 dB
Volume full — 63 dB

No provision for external effects or slave amps.

Circle 701 on Reader Service Card

WESTBURY AMPLIFIER MODEL 1000

This new amp from Westbury is the stablemate of the 1005M combo reviewed in this magazine. It is very similar in appearance to the 1005M, being covered in black coarse-grained leathercloth and finished off with chrome corner caps with a rather nice control panel color scheme of grey, white and black. This combo differs from the 1005M in that it has 2x12" speakers instead of one heavy duty one, and a rather useful two channel pre-amp, which I will explain more about later.

The cabinet is constructed from 1/2 inch chipboard throughout and is of the open-back type of design. The chassis holding all the electronics is mounted inside the top of the cabinet with the front panel and controls poking through the front. A Hammond-type reverb spring is mounted inside the bottom of the unit and the twin 12 inch speakers are fixed in from the rear of the cabinet. As with the smaller 1005M, the speakers are protected by a rather smart speaker fret (very similar to Fender-type fret) stretched across a framework held in place by Velcro strips.

The combo is not especially large at 19" high, 28" wide and 10" deep, but is not that light, being constructed of chipboard. It is not surprising therefore to find a hefty carrying handle mounted on the top with a set of four heavy duty castors for moving the thing around.

The electronics section of this amplifier is quite interesting as it incorporates footswitch operation of channel selection between the two input channels.

Three inputs are provided, channel one 1/P, channel two 1/P and a special mix input where the channel selection footswitch is used. Channel 1 has pre-amp volume and output volume (labelled as pre and post volume) in order to allow con-



trolled distortion as with other master volume amps, with simple equalisation comprising straight bass and treble controls. The pre-volume also has a pull out hi-boost switch.

Channel two is designed as a "clean" channel and as such only has one volume control. However, in addition to bass and treble controls, a middle control is also provided. Finally, master volume and master reverb controls are provided, with a neon mains on-off rocker switch.

A two-way footswitch is provided for switching reverb on and off and also for changing channels.

A guitar plugged into the mix input is fed straight through to both channel one and channel two. Plugging the footswitch into the back panel allows either channel one or channel two to be fed through to the power amp, depending on the setting of the footswitch. This allows, for instance, a distorted sound to be set up on channel one and a clean sound on channel two with changeover between one

and two effected by operating the footswitch.

In practice this is a very useful facility on stage, provided that a little time is spent mastering the various level controls in order to balance up channels.

The power amp in both combos is identical, producing a healthy 100 watts RMS into four ohms. Unfortunately no electronic protection circuitry is provided. Where no access is provided to the speaker output this is fine but on this unit two output jacks are provided, one for the internal speakers and one for an external speaker cabinet. I would have liked to have seen some basic protection for the odd occasions where speaker leads accidentally become shorted.

A cursory listening check using a '59 Les Paul reveals that the Westbury 1000 is a versatile amp with a warm mid-range overall sound and a certain amount of clarity at all levels and settings. The implicit EQ set-up of channel one allows the player to get a smooth even sustain with rich overtones. My only

minor complaint is that it's hard to get a lot of "break-up" distortion, even with the pre-volume at 10, but that is a question of personal taste. Suffice to say that the Westbury distorts cleanly, an option which is becoming more and more popular.

Channel two, optimal for Fender-style guitars, gives you that crisp, snappy sound that is an obvious prerequisite for country and certain new wave players. The three tone controls on this channel help expand on that basic sound without cluttering it up. The reverb unit is solid and efficient, if a little "crashy" at more forceful volume levels.

Output Power Measurements

O/P power · 120 volts:
 98 watts RMS into four ohms
 Just prior to clipping
 104 watts RMS · two per cent THD.
 O/P power:
 59 watts RMS into eight ohms
 63 watts RMS · two per cent THD.

Dave Mann and
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catalog write: **CALZONE CASE CO., P.O. Box 862, Norwalk, Conn. 06856 or call 203-853-7907.**

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The

BOSS MOPED CONTEST

BOSS Wants You to be the Winner!

If you've been wanting to try a BOSS Product you've never had a better reason to do it than you do now! During April and May anyone who tries a BOSS Product at a participating dealer stands a good chance to win a Moped. All you do is try out any BOSS product and you will receive a contest Entry Card to fill out, and drop in, The Contest Drawing Box. In June each participating dealer will draw the name of his winning customer and present the Moped. Scores of Mopeds will be awarded so you stand a good chance to win.

But in the BOSS contest everyone is really the winner because once you've entered the contest you will have tried the hottest new devices on the market today. And that's going to make you happy even if you don't drive home on a Moped.

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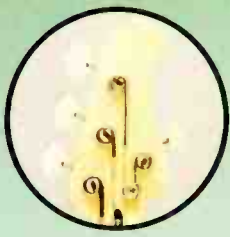
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AUTHORIZED DEALER



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\$1,149.65



ONE GOOD THING LEADS TO ANOTHER!



Three years ago, we introduced the StingRay Bass. It is a worldwide success story in which we take just pride. Such internationally famous artists as Joel Di Bartolo with Doc Severinson on the Tonight Show, Freebo with Bonnie Raitt, Patrick Djivas of P.F.M. in Italy, Louis Johnson of Brothers Johnson, Carol Kaye, writer, publisher and recording artist, Niels-Henning Orsted Pedersen of Denmark, Carl Radle with Eric Clapton and countless others have become enthusiastic users of the StingRay Bass.

With such prominent acceptance we could have easily been tempted to leave well enough alone, to sit back and bask in the sunshine of success. But it cannot be. One good thing leads to another. The crisp, tightly defined sound of the StingRay has now been incorporated into a sister model, the Sabre.

If you have not yet joined the ranks of the growing number of Music Man converts, make a trip to your Music Man dealer. Try both models. We can help contribute a whole new dimension to your sound. MUSIC MAN, INC., 1338 State College Parkway, Anaheim, California 92803.



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World Radio History

What's the best thing between you and your guitar?



D'Angelico's brand new smoothrounds possess the live ringability of round-wound strings. Yet they play with flatwound smoothness. That's because their windings are ground and polished to a satin-smooth finish. This process maximizes rasp free playing and minimizes fret wear. Wound strings have silked ball ends to muffle random vibrations at the guitar tail piece.

To satisfy string preference, S-50's offer smoother fingering; S-25's respond with greater brilliance.

Ask your music dealer for any string in D'Angelico's full line.

See us at the NAMM Winter Market — Booth 659

Circle 718 on Reader Service Card

World Radio History

If you play guitar...



Suggested List Price: \$550.

that's not all you can play.

YOU CAN GET OVER 2000 NEW SOUNDS WITH YOUR GUITAR USING THE NEW KORG X-911 GUITAR SYNTHESIZER

Imagine creating today's incredible synthesizer effects with your guitar. Or turning your guitar into a totally different instrument (for example, a flute, fuzz guitar, electric bass, violin, tuba or trumpet.)

The X-911 Guitar Synthesizer is designed specifically as a *performance* instrument – to enhance, not interfere with your playing style. Just plug in your guitar, (no special pick-ups or drilling required) and with the touch of a button, you can select from a wide range of separately adjustable instrument and synthesizer sounds, or *mix* them together *instantly*.

Even if you thought you could make a guitar do "anything" – with the X-911, you can make it do a whole lot more!

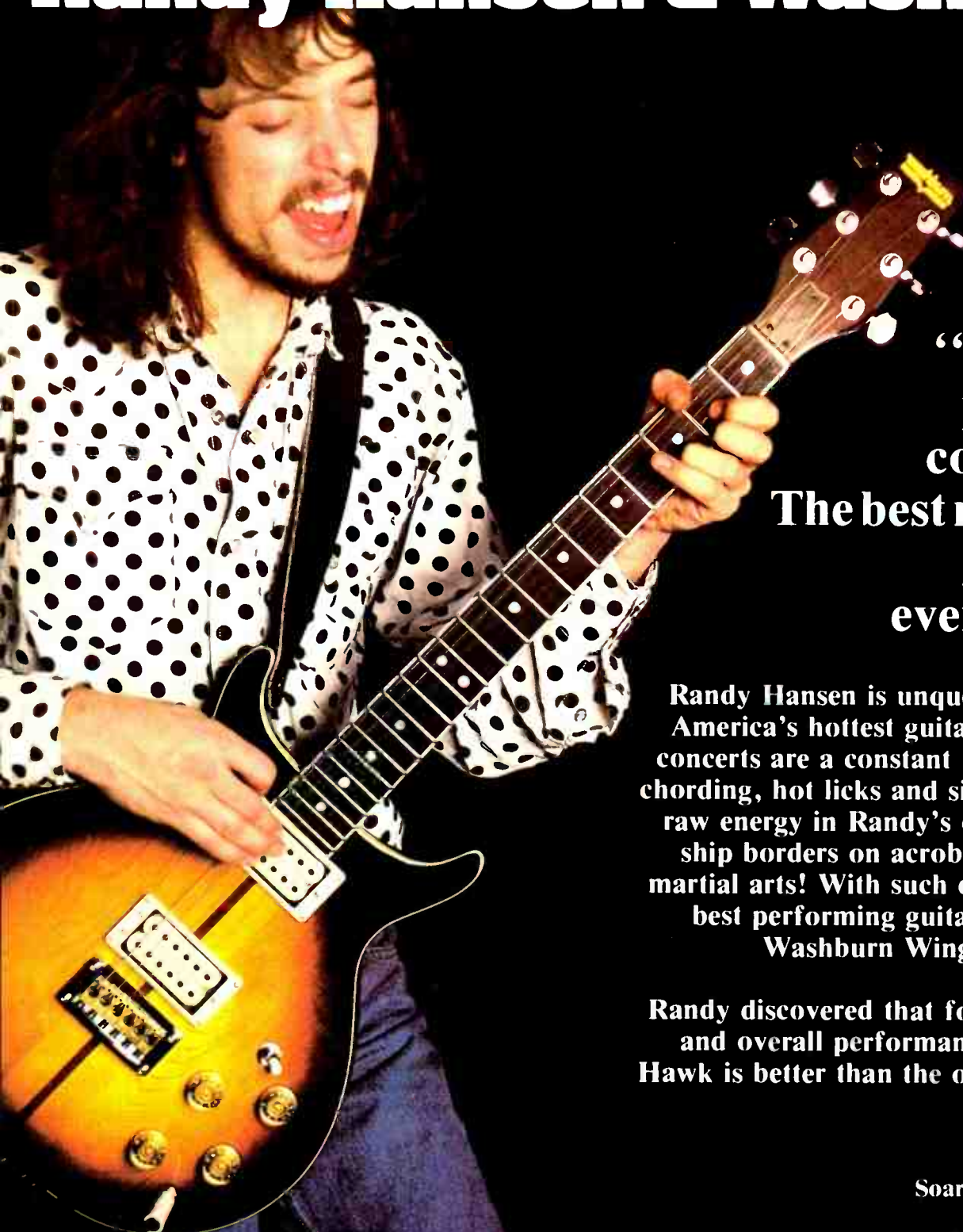
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ever played.’**

Randy Hansen is unquestionably one of America’s hottest guitar players . . . his concerts are a constant barrage of power chording, hot licks and sizzling leads. The raw energy in Randy’s daring showmanship borders on acrobatics and musical martial arts! With such demand, only the best performing guitars will cut it . . . Washburn Wing Series Electrics.

Randy discovered that for power, control and overall performance his Washburn Hawk is better than the other great names in guitars.

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washburn

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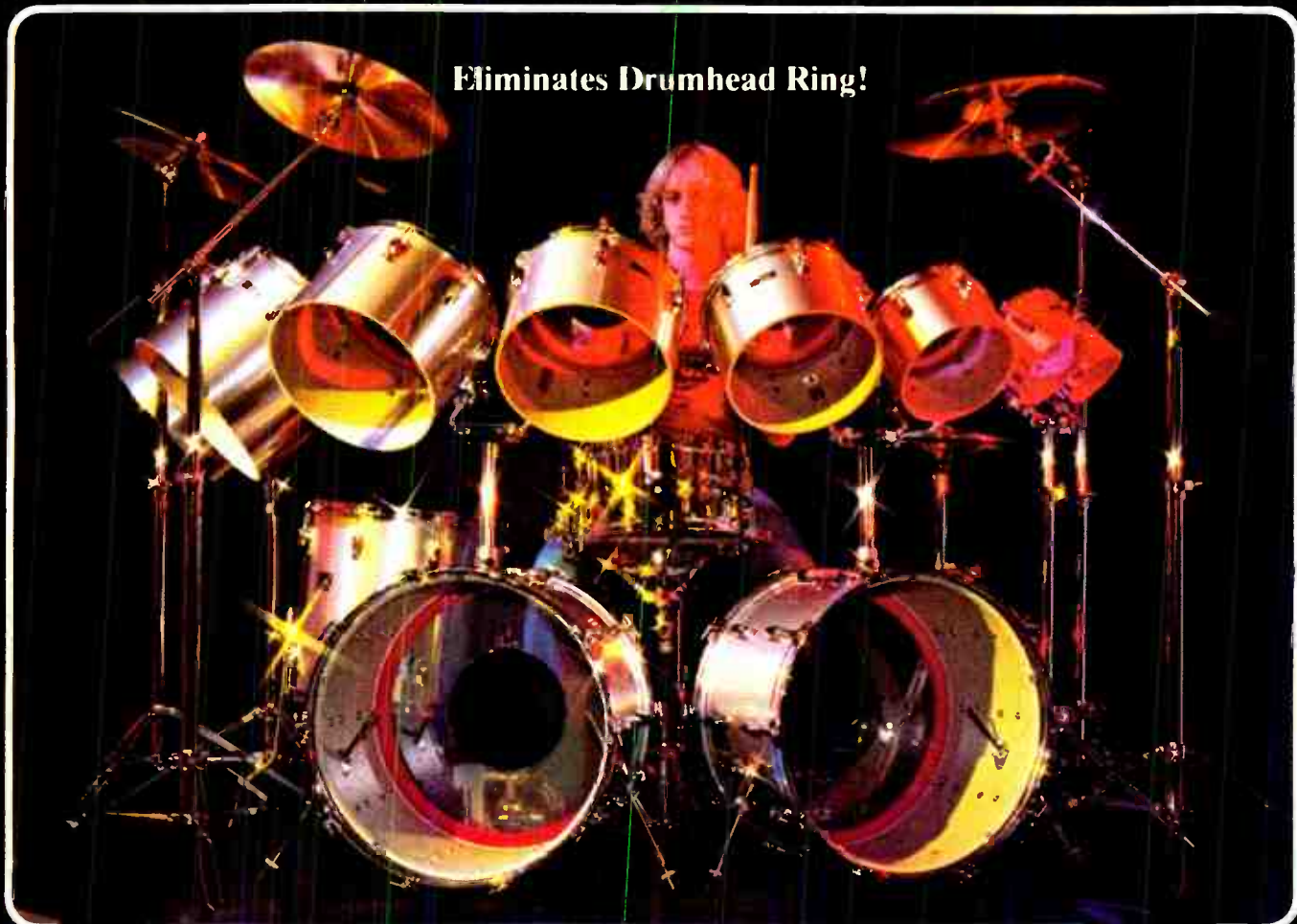
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World Radio History

ANNOUNCING THE END OF SYNTHESIZER INTRODUCING

The end of “realistic” sounds.
The beginning of sounds virtually undetectable from real instruments.

Synclavier II is a revolutionary advancement in synthesizer technology. Its patented digital method transcends “realism”. Many of its sounds are real, virtually undetectable from real instruments.

The violins and cellos are so true, you can hear the rosin on their bowstrings. The trumpets bell like real trumpets. The Hammond B-3 sound is indiscernable from a real B-3, right down to the simulated control of 24 separately adjustable drawbars. The xylophone gives you the distinct sound of mallets hitting the wooden bars. And the gongs and chimes are so resonant, you can actually feel the overtones.

Synclavier II sounds real because it accurately controls large numbers of very specific instrumental overtones. A unique new partial timbre method allows up to 96 overtones to be separately controlled. And they can be adjusted one at a time or in groups of up to 24.

Synclavier II offers the ultimate in live performance control.

With Synclavier II strings, you can go from smooth bowing, to staccato bowing, to a

plucked sound, in one musical passage, without stopping once to reprogram your string sound. You can also adjust the amount of breath blowing across the sound hole of your flute. Change the way your brass bells. Switch from hard to soft mallets on your xylophone. Or add pitch bend to your guitar. All these changes are easily made, *in real time*, without a single bit of reprogramming.

Two foot pedals change the overall volume, attack times, decay times, harmonic content, and portamento rate. Four foot switches control sustain, automatic note repetition, automatic arpeggiating, and portamento on/off. There's also a ribbon controller for pitch bend and an optional velocity sensing keyboard.

Synclavier II is not limited to real instruments.

Synclavier II goes far beyond the world of real instruments, offering you an endless universe of new sound combinations which have never been possible on any synthesizer before.

You can create sounds which have up to four different sets of harmonics, sliding

around at four different rates at the same time. You can add vibrato to just the fundamental frequency of an instrument, without adding vibrato to its other overtones, or vice versa.

One key depression can trigger up to four completely different instruments at the same time. Or it can trigger one instrument, which automatically changes into three additional instruments one after the other.

You don't have to be an expert to use Synclavier II.

Over 64 sounds have been carefully pre-programmed for you. Including over three dozen real instruments, and over two dozen sounds unique to Synclavier II. Any of these sounds can be recalled for immediate use with just the push of a button.

And once you have a sound on Synclavier II, there's no limit to what you can do with it. Because Synclavier II offers more programmable and real time control than any other synthesizer in the world.



SIZERS AS YOU NOW KNOW THEM. SYNCLAVIER II

The end of the giant limited system.
The beginning of the compact limitless system.

Synclavier II is the first truly portable synthesizer to offer limitless programmable control. Its keyboard unit tucks under one arm. Its computer is so compact, it fits into an Anvil case less than 20 inches square.

Up to 32 fully programmable voices

Synclavier II is available with 8, 16, 24, or 32 voices. The control you have over these voices goes beyond anything you've ever experienced.

Up to 96 separate harmonics can be used for one polyphonic voice. Six stage envelope generators feature an added peak function, which permits unheard of control for brass and string attacks. Four separately adjustable vibratos can be used simultaneously in one polyphonic voice. Four individually controllable portamento functions can produce four different rates of portamento on the keyboard at one time.

Two unique frequency modulation generators enable you to make extremely fast changes in timbres for all 32 voices. A decay adjust button enables the notes played on lower keys to have longer decays than the notes played on higher keys. Special output

filters provide additional sound shaping and special effects, like "wah wah", "filter echo", and "wow". But here's the real "wow!":

16 track digital memory recorder

Synclavier II is equipped with the largest and most versatile digital memory recorder in the world. It's like having a 16 track tape recorder at your disposal.

You can record up to 16 entirely different instruments, playing 16 completely different lines on 16 separate tracks, and play them all back at the same time in perfect sync.

On just one track, you can record up to 32 voices at once, or overdub one instrument as many times as you wish. You can also punch in and out instantaneously. Go fast forward and reverse. Transpose entire recordings instantly from the keyboard. And repeat any set of recorded notes automatically.

A digital metronome is built into the recorder for accurate overdubbing. Effects from a "real time effects" pedal and five foot switches are memorized by the recorder. A sync pulse enables Synclavier II to record or play back in sync with a multi-track tape machine. And Synclavier II doesn't stop here.

Unlimited sound storage

There is no limit to the number of different sounds and finished 16 track recordings that can be stored on Synclavier II's floppy discs.

When you recall a sound from a floppy disc, it's always the exact sound you stored. Nothing ever has to be reset. And even after you've stored a sound, you can recall it, modify it, and restore it, without erasing the original sound from the floppy disc.

Send for Synclavier II's free demo record.

If, after reading this ad, you don't believe your eyes, send for Synclavier II's extraordinary demo record. After hearing it, you may not believe your ears!

Send record requests to New England Digital Corp.

For further information contact:
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(802) 649-5183
Denny Jaeger, Western U.S.
N.E.D. Rep.,
6120 Valley View Rd.,
Oakland, CA 94611
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BOTH OF THESE DIGITAL DELAY LINES HAVE GREAT SPECS. ONE COSTS \$200* LESS.

Specification	New Mu-tron Digital Delay	MXR Digital Delay
Bandwidth @ 160 ms delay:	10KHz	5KHz
Dynamic Range:	85dB	80dB
Total Harmonic Distortion (T.H.D.):	<0.2% 40Hz - 7KHz	<0.5% 40Hz - 7KHz
Maximum Output Level:	+20dBm	+18dBm
Gain Range:	-∞ to +30dB	0dB
CMRR (Common Mode Rejection Ratio):	40dB Typical	36dB Typical
Variable Delay Range:	4:1	4:1
Regeneration Range:	0-100%	0-100%
Input Connectors:	¼" & XLR	¼"
Outputs:	(1) Mix, (1) Dry	(1) Mix
Manufacturers' Suggested List Price:	\$795	\$995

*Prices and specifications are based upon those published by manufacturers, and are subject to change without notice.



In addition to great specs, the new Mu-tron Digital Delay offers live performance extras that make it an unbeatable value. Like a "natural decay" bypass footswitch, a front panel "freeze" control with LED indicator and optional footswitch, an external control voltage jack for synthesizer interface, low noise circuitry, silent range switching and power-up for quiet stage operation, and high-visibility wink-indicator switches for delay selection.

A look inside reveals a rugged single circuit board construction for high reliability, plus a built-in FET preamplifier allowing direct instrument input. The heavy steel chassis is solidly built in the Mu-tron tradition. And it takes up less rack space!

See your Authorized Mu-tron Dealer and compare.

The new Mu-tron Digital Delay. Another hard-working effect for hard-working professionals.



MU-TRON

45 Hartwell Avenue, Lexington, Massachusetts 02173.

World Radio History

**NEW FROM
MU-TRON!**

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The CF Martin Company Introduces The **MARTIN D-25K**

Koa wood—Not a mystery to the guitar makers at Martin. For years we've known koa as the finest Hawaiian natural hardwood. As a matter of fact, we introduced various smaller body koa instruments as early as 1917.

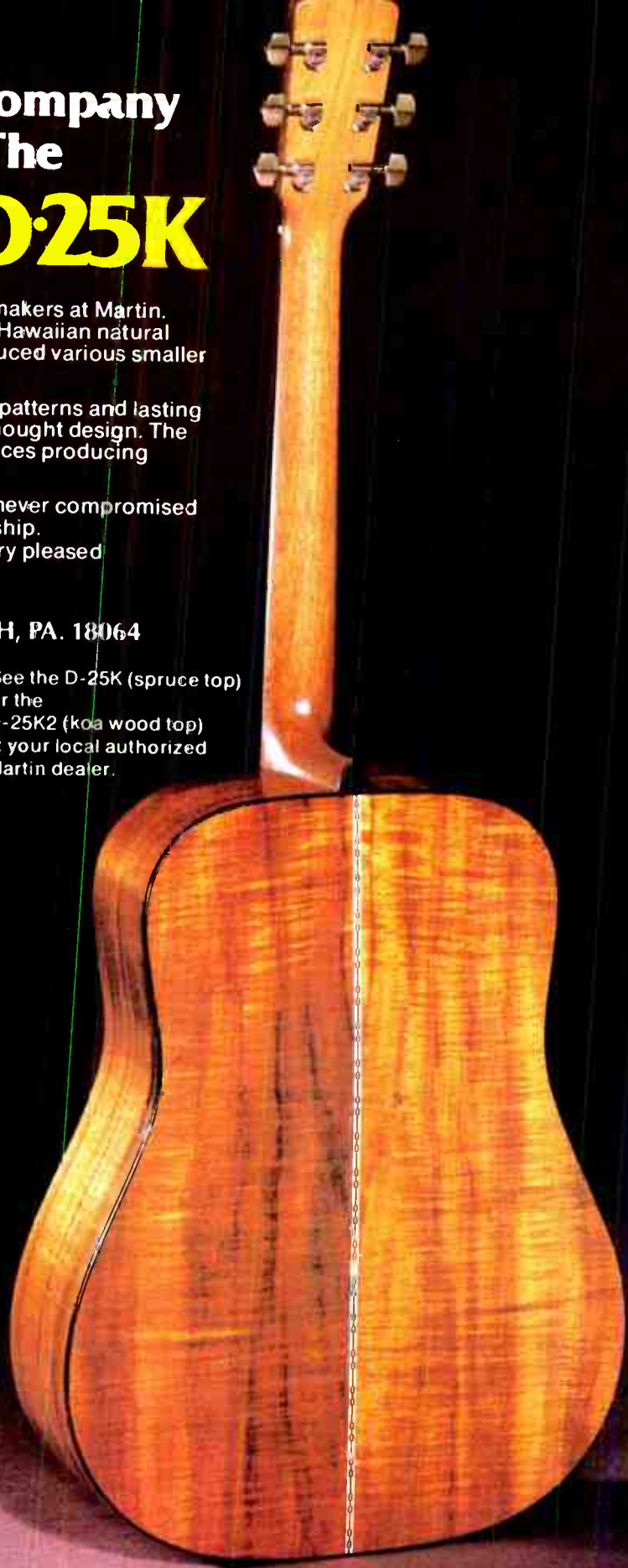
In our D-25K we combine the distinctive patterns and lasting durability of koa with our original dreadnought design. The result is a guitar with deep rich appearances producing splendid crisp sounds.

For nearly a century and a half, we have never compromised our philosophy of quality and craftsmanship. We at The CF Martin Organisation are very pleased to introduce the D-25K.

CF MARTIN & COMPANY NAZARETH, PA. 18064



See the D-25K (spruce top)
or the
D-25K2 (koa wood top)
at your local authorized
Martin dealer.



MARTIN & SIGMA GUITARS ARE THE OFFICIAL GUITARS OF OPRYLAND U.S.A.

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HOHNER INTRODUCES THE FULL-BODIED SOUND OF AGED ALL-WOOD GUITARS.



From aging of the wood to the last handcrafted detail, each guitar in our Arbor Series takes 5 years to make.

Like a fine wine, producing a truly fine guitar requires nature's choicest materials, the mellowing of time, and years of experience in the art.

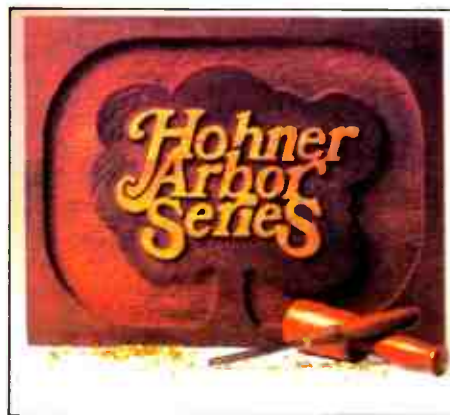
Hohner has handcrafted such guitars in the all-wood Arbor Series dreadnoughts. Their tones are full-bodied like vintage wines, yet these instruments cost hundreds of dollars less than others of comparable quality.

Tops are solid close-grained spruce from Canada and Alaska. Necks are solid Honduras mahogany. The rosewood fingerboards come from Brazil. Bodies are selected mahogany, rosewood and makassa. And all woods are subjected to long aging, making them free of instabilities that can affect long-term performance.

No detail is overlooked. Instead of the celluloid used on most guitars, bindings are natural maple, greatly improving tone and acoustic qualities. The "X" bracing, usually found on only the most expensive guitars, has slim spruce braces hand-scalloped so that tops resonate better. Necks are dovetailed into the body, not doweled. Routing for inlays is deeper to avoid cracking. Trim is handset wood inlay. And fingerboards are solid hand-sanded rosewood with polished nickel silver frets.

The Arbor Series: one of a full line of acoustic and electric guitars made by Hohner. Hear them at your music dealer's now.

M. Hohner Inc., Andrews Rd.
Hicksville, New York 11802.



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THE NEW WESTBURY MODEL 1000 "DUAL-VOICED" REVERB TWIN.

In "Blind Playing Tests" against a Fender Twin Reverb, the biggest difference the experts could find was the price.



Richard Cerniglia, lead guitarist, formerly with Hall & Oates, The Illusion, Barnaby Bye



Mickey Marchello, lead guitarist of The Good Rats

Richard Cerniglia reported, "During the blind tests I preferred the amp that turned out to be the Westbury 1000 over the Fender Twin in terms of overall sound-tone, overdrive characteristics, etc. Extended playing tests after the amps were identified confirmed my test impressions."

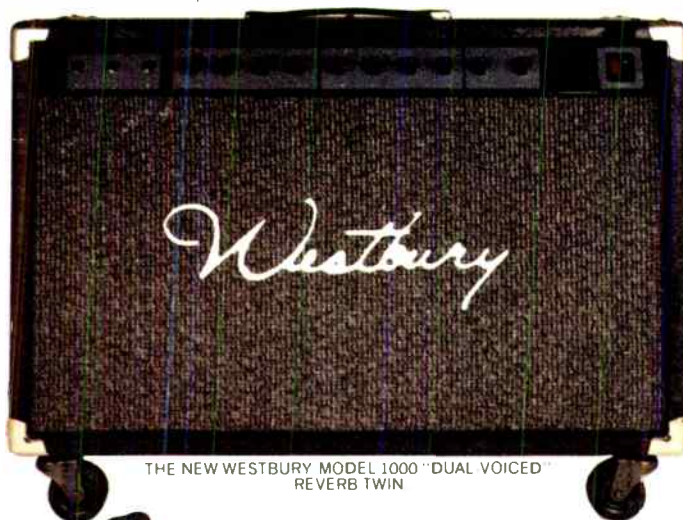
The Westbury approach to building an amplifier is unique in today's market, concentrating total engineering effort on quality reproduction of sound, durable construction and performance reliability. The result is an industry first... a line of amplifiers offering musicians maximum sound value without compromise.

Before you buy any new amplifier, play one of the new Westburys at your dealer and see if you don't agree with the experts.

It's easy for a manufacturer to claim an amplifier sounds good. So, instead of asking you to take our word, we invited experts, people who make their living playing amps, to give you their impressions.

In "Blind Playing Tests," a Westbury 1000 "Dual-Voiced" Reverb Twin and a Fender Twin Reverb were hidden behind acoustically transparent screens. The experts were allowed to request any control changes necessary to enable them to make fair comparisons between the amplifiers.

In Mickey Marchello's own words, "Both in the blind test and then later when I played with both amps uncovered for a long time, the biggest difference I could find was \$210!"*



THE NEW WESTBURY MODEL 1000 "DUAL VOICED" REVERB TWIN

Westbury

The \$ound Value.

*Based on Manufacturer's Suggested List Prices of \$785 for the 100W Fender Twin Reverb and \$575 for the Westbury Model 1000, effective 4/1/80

Westbury is designed and manufactured by Unicord, 89 Frost St., Westbury, N.Y. 11590

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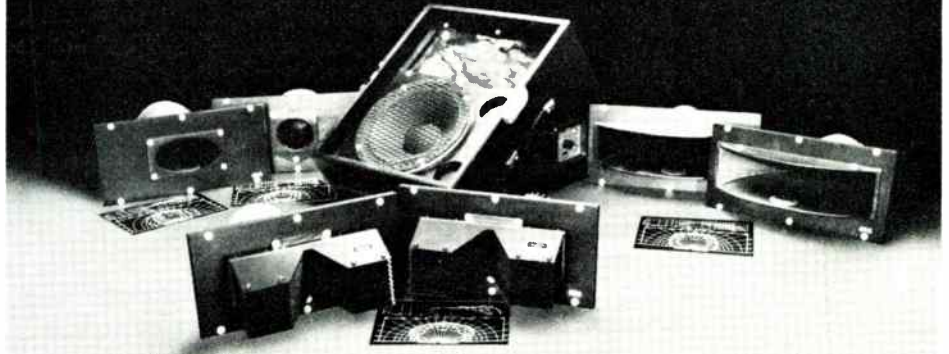
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The measurable characteristics of mid to high frequencies, such as horizontal and vertical dispersion, acoustic sensitivity, etc., require several predictable methods of control in order to accommodate the varied acoustical environments confronting every performer. McCAULEY's lensed-horn, which delivers wide, smooth dispersion for consistent coverage, is necessary in moderate stage-volume settings. If increased "punch" and narrow dispersion are required, the exponential horn will provide the tightest possible pattern. And finally, with very similar "cut-through" characteristics as the exponential, the radial horn with increased horizontal dispersion is for the vocalist on the move.

Whatever your particular situation calls for, MODULAR SYSTEMS by McCAULEY will fit the bill. Ask your local sound dealer where his are.

McCAULEY

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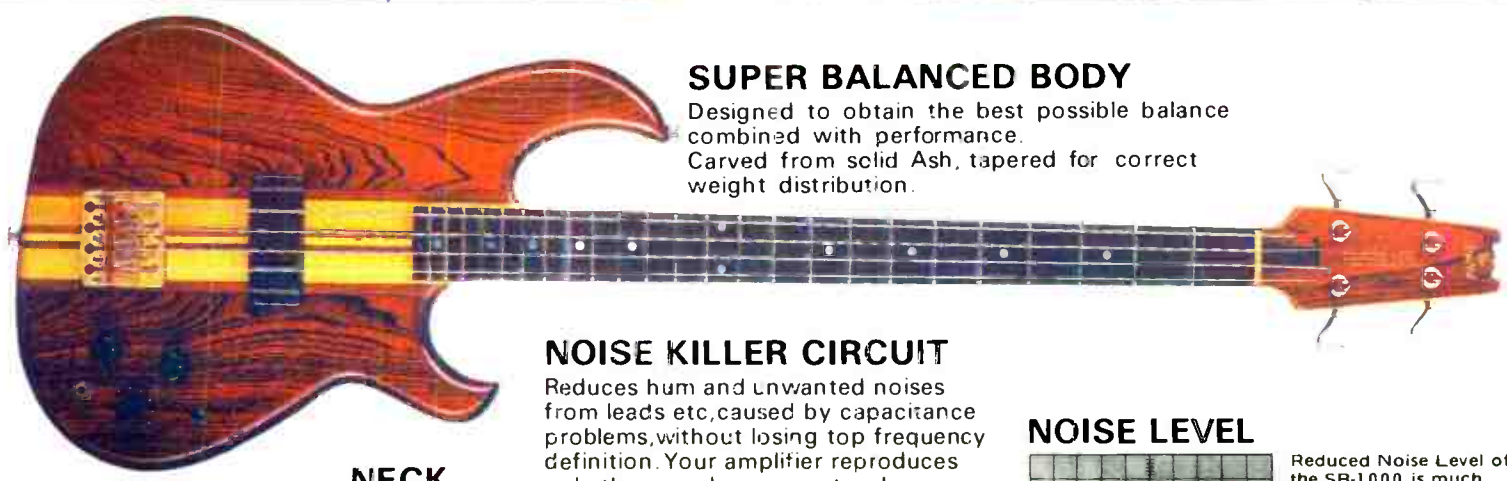
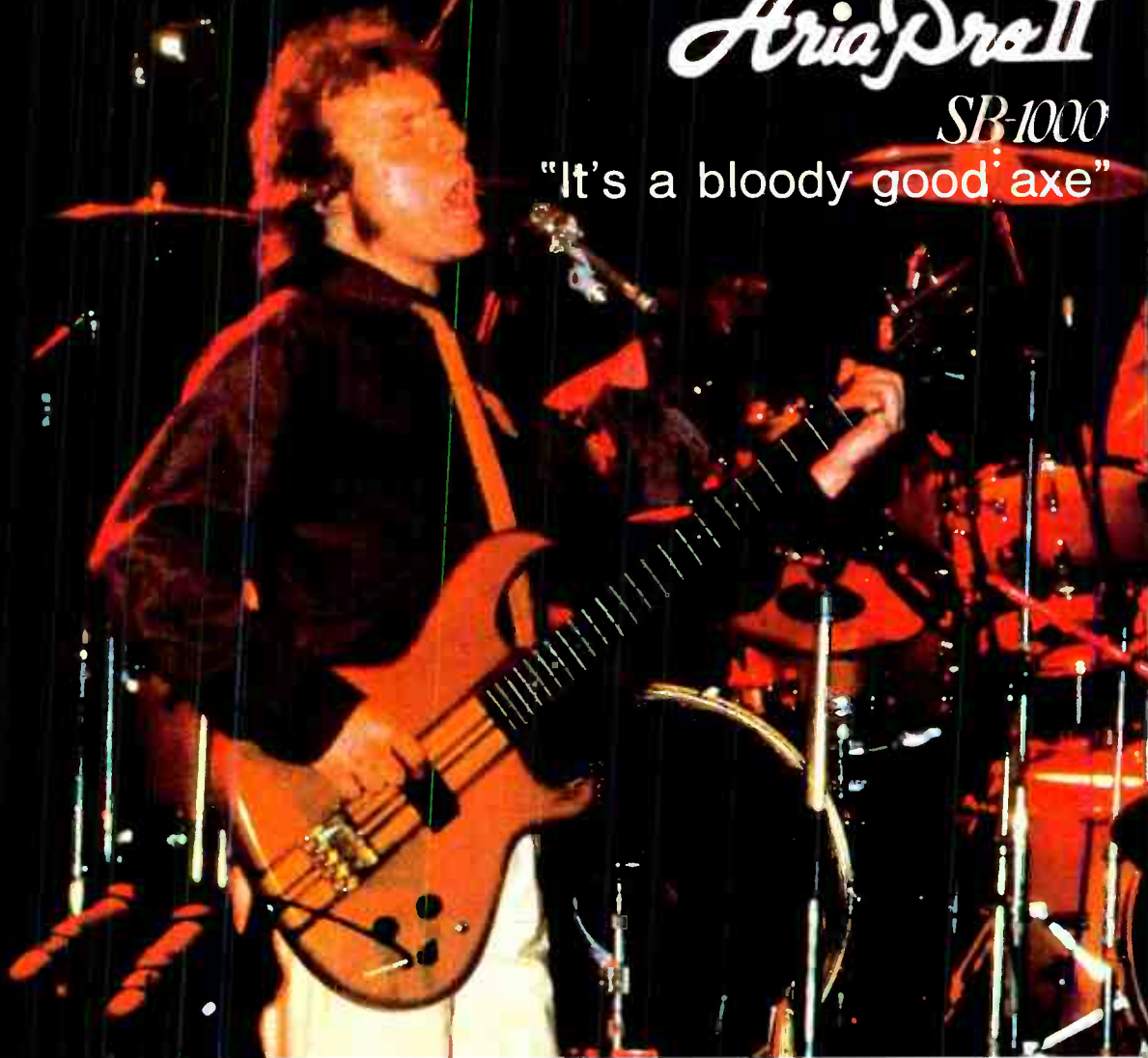
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Jack Bruce chooses and uses

Aria Pro II

SB-1000

"It's a bloody good axe"



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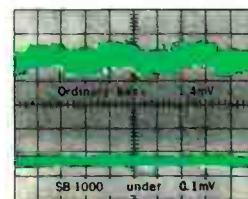
NECK

Long scale with 24 frets. Built with alternate 5-ply laminations of maple and walnut running right through the body for transmitting maximum string vibrations to the pickups mounted in solid timber.

NOISE KILLER CIRCUIT

Reduces hum and unwanted noises from leads etc, caused by capacitance problems, without losing top frequency definition. Your amplifier reproduces only the sounds you want to hear... without external noises. Ideal for studio conditions (the Noise Killer is driven by 9 volt batteries and switches on when Jack Plug is inserted. Life approximately three months with 2-3 hours per day use).

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Reduced Noise Level of the SB-1000 is much lower than in other guitars without active circuits. It is ideal for D.I., where very clean sounds are essential.



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World Radio History

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THE BASSICS

Bass players are demanding more from their instruments and not getting it. That's why the new line of Ibanez basses has been designed from the ground up — for today's bass player. Here's a sample of what we've done:

The most common problems faced by electric bassists are notes that are too dead or too live — virtually every bass has a few.



No Pains In The Neck—The Ibanez TR Tuned Response Neck.

The Ibanez TR Tuned Response Neck is calibrated with tuned steel bars to eliminate these trouble spots. This revolutionary concept (Pat. Pend.) gives you a bass that's smooth and even from the nut to the 24th fret.



500% More Tone Control—The Ibanez EQ-B and EQ-B2 Tone Systems.

And how many times have you wished that your bass was just a little deeper, a little brighter or a little punchier? The Ibanez EQ-B Tone System expands the range of tone

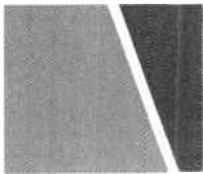
control by 500% over conventional circuitry. That "absolutely perfect" sound is now within your grasp.

But the real proof is in the playing. All of the innovations in our new Ibanez basses work together to give you an instrument that's a leap ahead of all the others. See for yourself — get on down to your local Ibanez dealer and get down with one of our basses.

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Ibanez

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fact:
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- It's smaller & lighter
- Works with 150 watt amps
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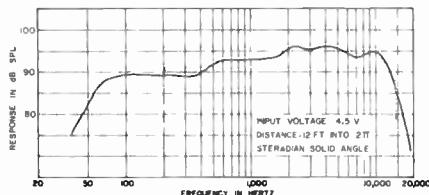
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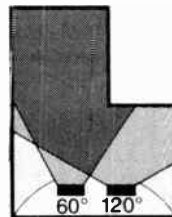


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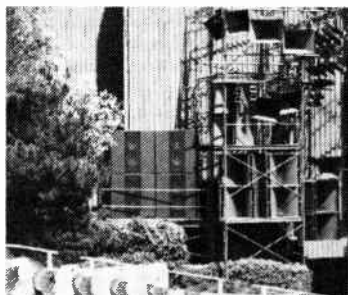
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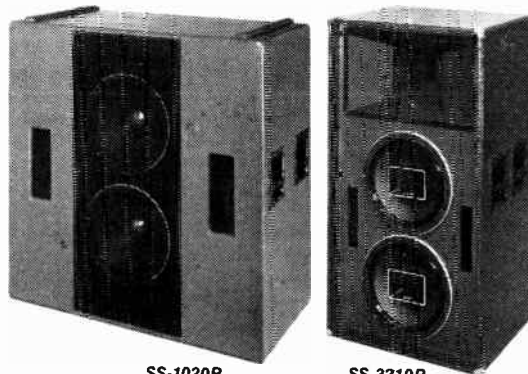
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On page 48 of this issue we have supplied a new kind of form. Limited to six choices and valid for only two months, the system will ensure that those readers genuinely interested in receiving material will do so.

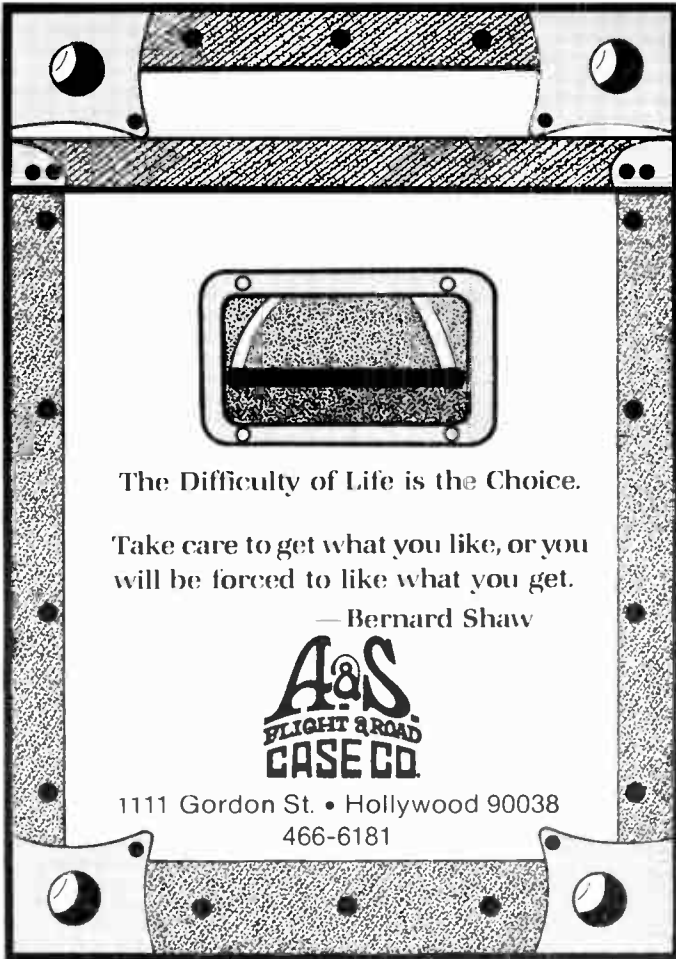


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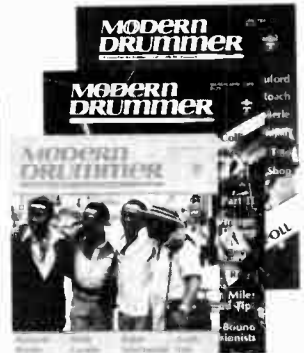
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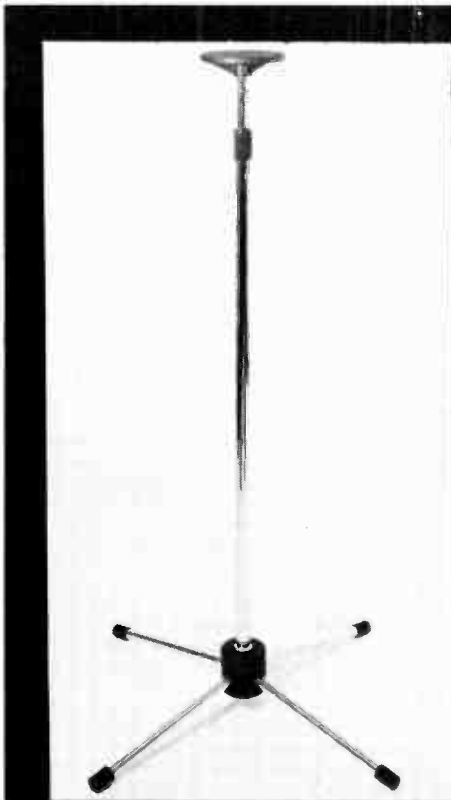
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PRETENDERS

*James Honeyman-Scott
brings melody to a
"raunchy punk band"*



Chrissie Hynde rates him as a "shit hot guitarist." Nick Lowe thinks he's great. Ronnie Lane bought the debut Pretenders album despite the fact that he doesn't own a record player. Dave Edmunds has been trying to learn the guitar part to "Brass In Pocket." Pete Townshend specially requested him to play at a recent Wings charity concert. His name is James Honeyman-Scott. He's 23 years old and plays some of the tastiest guitar you're likely to hear.

Of all the bands to emerge from Britain within the last five years, the Pretenders must certainly rank with the best. And Scott is only one fourth of this remarkable quartet. Ms. Hynde is a transplanted American living in Britain who plays rhythm guitar, sings and writes the bulk of the material. Bassist Pete Farndon and

drummer Martin Chambers share a rhythmic sympathy sadly lacking from today's groups. And then there's guitarist Scott.

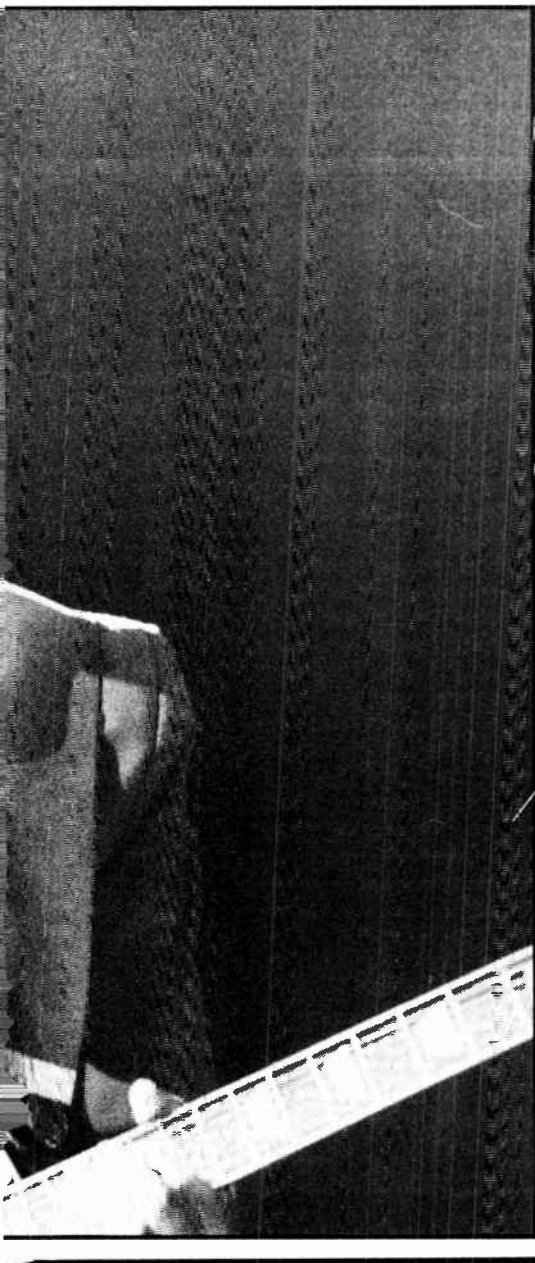
The rise of the Pretenders hasn't been as rapid as it now seems. Over a year ago they released their first British single, "Stop Your Sobbing." Several months later they released the exquisite "Kid." Both songs reached the bottom end of the Top 30. Suddenly the Pretenders came of age. "Brass In Pocket" graced the number one position in Britain two weeks before the release of their album which went straight into the charts at number one. American success is happening even quicker.

In the beginning there were two; Hynde and Farndon. They called Scott up from the country to rehearse with them in

London. Scott had previous experience and always dreamed of being the proverbial rock star.

When Verden Allen quit Mott the Hoople, he formed a band that included Martin Chambers and Scott. The band lasted four years until Jimmy grew disillusioned with their lack of success. "When I joined I thought it was gonna be all money and roses. Verden used to tell me he knew it all because he had a number three in the charts. Well I've got a number one now and I don't know it all. Now *he's* asking *me* for a job."

James Honeyman-Scott became a rock & roll addict at the age of four when he heard the Shadows' "Apache." Hank Marvin was his hero. Telstar is his favorite record. He even remembers "Calcutta" by the Lawrence Welk Orchestra.



by Barbara Charone

"My older brother took me around to his friend's house who had this bright red electric guitar. Nothing has impressed me more except for seeing Rockpile the first time.

"At that age I actually thought you needed a license to play guitar," he laughs. "I thought you had to be 17 to play guitar legally. At school we were asked to write an essay. At the age of six I wrote one on guitars, amps, the lot. In high school they wanted an essay on an object you were completely familiar with. I wrote an entire essay on guitars right down to the screw heads.

"The teacher didn't know what the fuck I was writing about but thought I'd taken a lot of care. In poetry class I once wrote a poem using all the lyrics to 'Life On Mars' and put my name on it. The

teacher thought it was brilliant."

At the age of 10, Scott was given an acoustic guitar on which he learned "House Of The Rising Sun" and most of Dylan's songs. One of the first chords he learned was Gmaj7.

"A few years ago Ian Hunter was looking for a guitarist and called me. I never could remember the names of chords. He asked me to play a Gmaj7 and I said 'what's one of them?'. I think that's why I didn't get the job."

He became a roadie at 15 after being thrown out of school. "Rehearsing at the local youth club was more important than doing homework." While other students studied, Jimmy practiced "Sunshine Of Your Love" having obtained a bass guitar and become a blues fanatic.

Eventually he was sent to another school where he admits "the kids were much groovier. They were into the huge blues thing. I went straight from being a Beach Boys, Dylan fanatic into worshipping Peter Green and Eric Clapton. Seeing Cream's farewell concert on TV was a turning point of my life."

At this juncture in his adolescent life Scott obtained a Rosetti Airstream, listened intently to singles, copying classics note for note. "I always had a big mouth," Jimmy says of his confident attitude. "I knew I could talk my way into anything. Now I just concentrate on my own style of playing rather than try to play all those awful Thin Lizzy licks."

Despite the fact that he's now 23, James Honeyman-Scott is still a kid at heart. Recently on tour he purchased a complete boxed set of Beach Boys singles and enthuses wildly about the sound.

At 16 he talked himself into recording with the Enid. A keyboard oriented band, Scott convinced them they needed a guitar. Not surprisingly he got the job. By 17 he'd joined up with the former Mott the Hoople man Verden Allen. He knew all of Mott as they lived nearby in Hereford, England and watched them lead "the pop star life." With drummer Chambers and Allen, they formed The Cheeks. Despite offers from numerous record companies, Verden turned down all deals because he wanted to sign with EMI, home of the Beatles. His dreams never came true.

Eventually Jimmy quit The Cheeks because he "couldn't handle the psychopathic Welshman." This followed by what he refers to as his "Keith Richards, Ron Wood period of abuse." He also sold guitars at a local music shop. Now he restricts himself to playing one.

Attempting to get healthy, he quite playing and took a job as a gardener. He'd already developed what he calls "a jangly sound" on guitar when he heard Nick Lowe for the first time. He soon traded his spade and shovel for guitars.

"I had the radio on while I was digging in the garden and all of a sudden 'So It Goes' by Nick Lowe came on the radio. I

thought he'd ripped by guitar sound off. Then they played a song by Elvis Costello. All of a sudden this guy named Nick Lowe changed my whole life. Finally, there was light at the end of the tunnel.

"I got my guitar out of the closet, dusted off the strings and stopped gardening. I began to rip off what Nick had ripped off only adding more to it."

By August of 1978, Farndon and Hynde had become serious about forming a band and called Jimmy. "There was this wild woman with her amp cranked up. I was full of pop music and she had all these raunchy riffs like 'The Wait' and 'Precious.' Her timing wasn't at all disciplined. Pete knew the time changes through watching her twitch.

"When I told Chrissie I liked 'You're The One That I Want,' she bit me" Jimmy laughs. "But I told her she didn't have a chance hit wise because her material was too wild and raunchy. We were driving home from a rehearsal one day and suddenly she started singing 'Stop Your Sobbing.'"

"She was very serious about forming a band and offered me a job. But I still thought she was too punk. We did a demo of 'Stop Your Sobbing' and it sounded good. It started to prey on my mind how good the band could be. I was having sleepless nights because I was so excited."

Despite his hesitation, one phone call from Hynde cemented the band. Chrissie had met Nick Lowe who wanted to produce 'Stop Your Sobbing.' "That was the calling card."

Jimmy moved to London. On a wet Monday morning they recorded 'Stop Your Sobbing' with Nick Lowe producing. History was made. "I brought this melodic guitar sound to a raunchy, punk band," Scott laughs. And he continued to do so through numerous club tours and album rehearsals.

When Martin Chambers joined, the Pretenders were four. To celebrate, Jimmy got "rip roaring drunk" and passed out at their first photo session. However, problems arose. Lowe was already committed to producing albums for Costello, himself and working with Rockpile. Consequently, he didn't have the time to produce the Pretenders. Chrissie had, however, worked with Chris Thomas on a Chris Spedding album and suggested him. Having produced the Sex Pistols, Roxy Music, Wings and Pete Townshend, Chris Thomas seemed a logical addition.

"Chris tends to bring out the sound of the band more rather than put his own mark on it," Jimmy says comparing him to Lowe. "Chris will take six backing tracks and choose the best.

"After working with Chris I knew there was a Pretenders sound that didn't sound like any other band. You can't compare us to Blondie or anyone. We developed it and Thomas brought it out."

Continued on page 92 • 89

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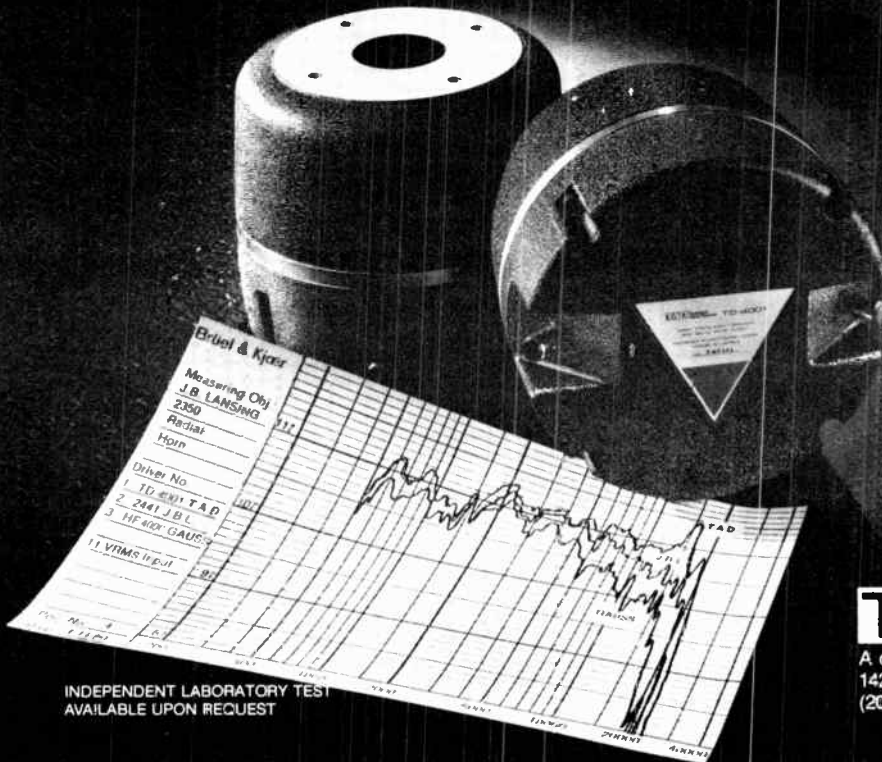
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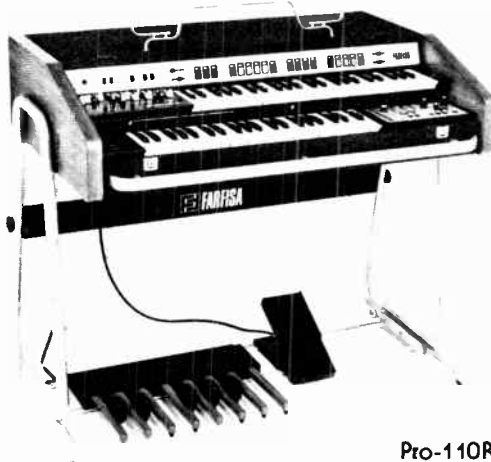


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At the same time Chrissie became more a member of the band than a star. "At first she was telling us what she wanted. Later she started to ask. We began to work like a *band*. Chrissie plays guitar more like Brian Jones, Neil Young and John Lennon. It's all feel. I think more about getting the right notes."

Although the album sold well instantly both sides of the Atlantic, it was hard work. "We'd finish a 30 date tour and go right into the studio. When the album came out people were saying it was gonna be one of the albums of the Eighties. That made all the nightmares worthwhile. None of us expected this kind of success. I still find it hard to come to terms with. It makes me feel a bit pressured by the responsibility."

What makes the Pretenders great is their feel, both in material and as a band. Chrissie tends to come up with "crazy chords" which she builds her songs around. Meanwhile, she and Jimmy have begun to write together.

"You can't call us musicians half the time because we don't know the proper notes. We've got a lot of rough edges. But we've got the feel. All my heroes like Ron Wood, Ron Laine and Pete Townshend aren't musically perfect but their feel is dynamite. It's a *band* sound we achieve rather than a lead guitar standing out."

During 1979 Scott grew depressed because melody seemed to be absent from mainstream hits. Yet when tunes like Edmunds' version of Costello's "Girls Talk" made the top five in Britain, Scott became optimistic.

Family reactions to his success are fairly staid. "I'm still told to cut my hair and get a proper job. I tell my mother I can afford to buy a house and she still tells me to sort myself out, settle down and get a job."

Recently, Jimmy has gotten the chance to play with his heroes but he's got the proper perspective not to get too conceited. He's maintained a boyish enthusiasm and respect that makes him a candidate for a definitive rocker. When

Townshend invites him to the studio, he treats it as a compliment, not an ego trip.

"We're still treating it as fun but we realize that the band has a lot of potential. We've started to pull ourselves together." But then the pretenders have lots of class.

Having just finished a lengthy British tour, they're off to America where the Boomtown Rats and Chris Spedding are supporting them. The only band they're supporting are the Who. And you can't get any higher than that.

For guitar fans, James Honeyman-Scott uses a standard 1977 Les Paul, two custom

made Zemaitis guitars, a 1962 335 cherry red Gibson, a 1966 Firebird and an acoustic Yamaha. He plans to purchase several Fenders in America. He uses Road amps because Marshall amps are too raunchy for his more melodic sound. With the Road he's got a "showing off" channel and a clone pedal that makes the guitar sound like a 12-string.

If you want to copy most of the Pretenders' licks, James Honeyman-Scott has some solid advice. "Drink a lot of cider." ■

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World Radio History

by Stephen Delft

Part 15 Glueing neck to body and fretting



Glueing the Neck to the Body — Fretting

If you have followed the series so far, you should have the neck to body joint fitted nicely and ready for glueing. It only remains to trim any surplus wood off the bottom of the neck heel until it fits nicely with the radius (if any) around the back edge of the body. You should retain enough heel to allow for a step up from

the back of the neck tenon of 2 to 3mm. How much wood you have to remove will depend on how many tries you needed at setting the angle between neck and body earlier on. The depth of the heel is not critical. A small step makes the neck joint easier to align and stronger: a deep heel will make access to the top frets unnecessarily difficult. Anywhere between these limits, which looks right, will do nicely.

Take a small piece of dowel, and trim it until it is a tight push fit into the hole drilled from the neck socket into the body. Fasten this plug in place with a smear of any convenient glue. It will stop glue from the neck joint running down into the wiring channels. Trim it flush with the end wall of the joint, so that it will not interfere with the fitting of the neck.

Sand the front, back and sides of the body to a flat clean surface, with a cork block and 3-0, 4-0 and 5-0 Garnet papers. Leave the inner half of the sides of each cutaway until the neck is glued on, but pay particular attention to the front of the body. This is difficult to work on after the neck is fixed.

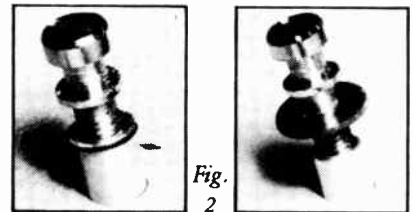
It is advisable to have two fine cotton threads, in place of the 1st and 16th strings, while the neck is being fitted, and later, while the glue is setting.

This gives a final check on neck alignment, both forwards and sideways, and on the possibility of the joint slipping, shortly after it is clamped. To provide for these threads, you will need a rough nut and a temporary fixing for the bridge. I use a variety of cheap molded plastic nuts for this job, but a scrap of plastic with two slots 37mm apart will serve as well. The temporary fixing for the bridge is a little more complicated.

The standard threaded bushes which support the bridge pillars are heavily knurled, so that when pressed into their holes they can only be removed with some difficulty. This is desirable in a finished instrument, but if you fitted the bushes at this stage, you would need to remove them before final sanding and lacquering of the body. They have small flanges which project above the body and would make subsequent sanding and polishing rather difficult.

Gibson-type bushes need no flange, because they fit more tightly. However, they are difficult to obtain and very difficult to install properly by hand. Any error in hole sizes brings a real risk of splitting the body, or of loose bridge-mountings. The Japanese bushes are a little more tolerant, and easier to fit with only hand tools, but they present a problem of temporary bridge fixing at this stage.

I solved this problem by drilling out two pieces of light alloy tube to be a loose fit on the threaded part of the bridge pillars (5/16 inch is a convenient size), and turning the outside down until they would just slide into the holes in the body. You could file them to size, or mount each one with a 5/16" bolt and nut, in the chuck of an electric drill and (carefully) turn it down with a coarse file. The file *must* have a secure handle. Otherwise, if it catches on the work, the sharp tang can easily stab your hand. Obviously, the drill should be securely fixed in some sort of bench stand. Another possibility is to find a piece of tube just under size, and wrap it with a layer of paper or adhesive tape.



In either case, you will also need a washer 2 or 3mm thicker than the flange on the Japanese bridge bushes. This arrangement is shown on the right of photo No. 2. If you have a metalwork lathe, you may prefer to make the alternative temporary fitting shown on the left of the same photo. This is just like the Japanese bush, except that it has a 5/16" clearance hole inside, and a smooth outside which slides easily in the mounting holes in the body. This version is neater, because it has its own flange and does not need a washer. Both versions work well enough. Mine are 25mm long and 9.8mm outside diameter. The flange is what was left between 9.8mm and a nominal half-inch tube. Depth of flanges or washers is 2mm more

than depth of flanges on your bridge mounting bushes. If your neck does not have an adjustable truss rod, allow 3mm more than the bush flanges.

With these temporary bushes in place in the body, insert the bridge support pillars and see whether the bridge hooks on them easily. If it does not, you probably have a hole in the wrong place. Clamp the neck in place (with shims if you need them) and with a straightedge, check your marking out for the bridge mountings and determine which hole is wrongly placed.

Turn up a wooden plug to an exact fit in the hole. Groove the side for pressure relief, and glue it in. Next day, trim the top of the plug level and drill the new hole. As the error was probably very small, it is unlikely that any of the plug will show on the finished instrument, but wood and glue must be thoroughly dry before you drill the next hole. Also, the plug should be made of wood about as hard as the body, and you should drill a substantial pilot hole to prevent the drill wandering as it overlaps two different pieces of wood.

Before doing all this, it would be a good idea to check that the holes in the temporary bushes are concentric with the outside diameter. (In other words, that the holes are truly down the middle of the bushes.)

Clamp the neck in place and fit the bridge and temporary nut, with thin cotton for the 1st and 6th strings. The cotton will stay straight with very little tension. You should immediately be able to see whether the 1st and 6th strings will be at a suitable distance from the edges of the fingerboard and running roughly parallel to them. Remember to allow for the bevels on the ends of the frets.

It is a little more difficult to check minimum action. Look back to your plans and to the article dealing with string actions, and make a slip of plastic or metal the same thickness as your intended fret height. (That is fret height — not string height above frets.)

If you don't have the necessary information, allow 1mm, or 0.8mm if you like low frets. Adjust the depth of the slots in the temporary nut until the "strings" just leave clearance between the slip gauge and the fingerboard, next to the nut. That is all the setting up required at the nut end. Place the slip gauge over the 12th fret slot. Press it firmly onto the fingerboard under each "string" in turn. The clearance between the cotton and the slip gauge will be the minimum action possible on first and sixth strings when the guitar is finished. I would accept 0 to 1mm for the first string and 0 to 1.5 for the sixth string.

If things look very wrong, there is still

time to re-set the neck-to-body angle. Remove the shims under the fingerboard. Take off the neck and scrap a few light shavings from one end or the other of the underside of the neck tenon. The tenon and the socket must always be free from dust and shavings when you fit them together. To lower the action, scrape the end of the tenon nearest the guitar head. To raise the action, scrape the end nearest the bridge. Keep the middle third just hollow, by not more than 0.55mm, so that the joint will not "rock". After adjusting the angle again, you will need to re-trim the outside of the joint where the neck joins the body. Don't try to hold the work in your hands: clamp it down securely when trimming with sharp tools.

You will also need to trim something off the two shims which fit under the ends of the fingerboard.

Gluing The Neck

When you are satisfied, the neck can be glued on. There is a hard way and an easy way to do this. Photo 3 shows the easy way, which takes a few minutes longer and a few meters of masking tape. The hard way is to hope that you can wipe off the surplus glue runs and chips, at the same time as adjusting the clamps, checking that the neck is seated properly in the joint and keeping the workshop cat from standing in the glue-pot. Mask off everything around the joint to within 0.5 to 1mm of the joint edges. Fit some turned-up edges of tape to catch any drips until you have both hands free to clean them up. If you really have trouble with glue, put the whole body in a plastic bag and tape it down to the masking around the joint. Mask the edges of the fingerboard careful-

ly. Any glue in the fret slots will have to be sawn out, and it is never a pleasant job. Leave the front of the fingerboard clear of tape around the 12th fret slot for checking action after assembly.

Glue

If your joint fits perfectly, it is hard to beat Hide glue.

However, as many repairers will tell you, Hide glue is not much use in a sloppy neck joint. It will not reliably fill gaps. For loose-fitting neck joints, my favorite glue is a slow-setting, 2-pack epoxy which was (and may still be), made by Dunlop. I have yet to see a fast-setting epoxy glue which has adequate penetration of wood surfaces for this sort of highly stressed joint. (It may not be highly stressed now, but it will be, if the instrument is ever dropped.) Even some of the slower epoxies are not ideally suited to wood joints. If you cannot get the Dunlop slow epoxy, you might be better using catalyst-cured resin adhesive such as Aerolite (Ciba) or Cascophen. (There may be suitable epoxy adhesives available in the USA.)

Assembly of the neck to the body is completely straightforward. Check that you have not masked the parts of body and underside of fingerboard where the two small shims are to fit, and that the shims are labelled "right" and "left" and slide into place without any stiffness.

Clamp the body upright as shown in the photograph. Apply mixed glue firmly, in a thin layer, to all mating surfaces. Spread a second layer on the sides and bottom of the socket and the neck, in any place where the fit is known to be poor. Slide the neck into place and clamp, while applying a downward pressure to the

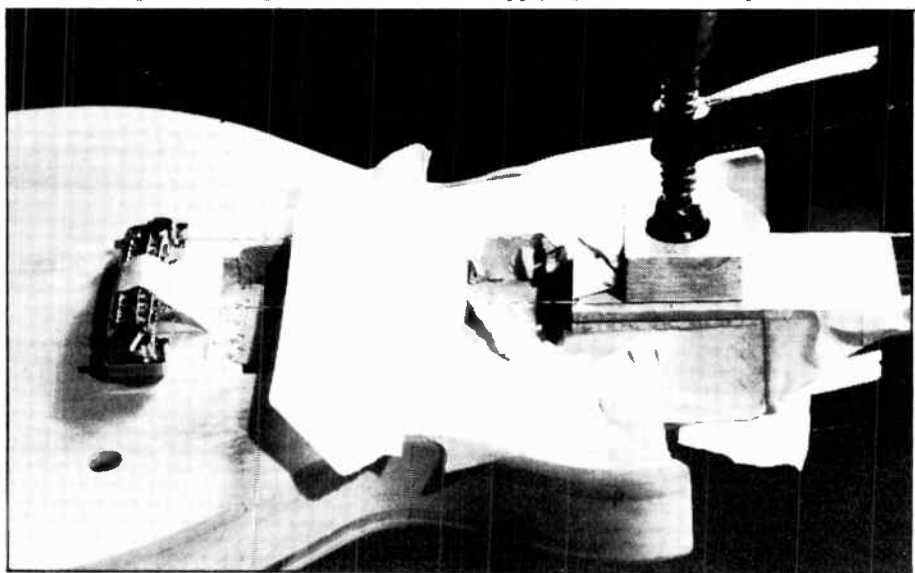


Fig. 3

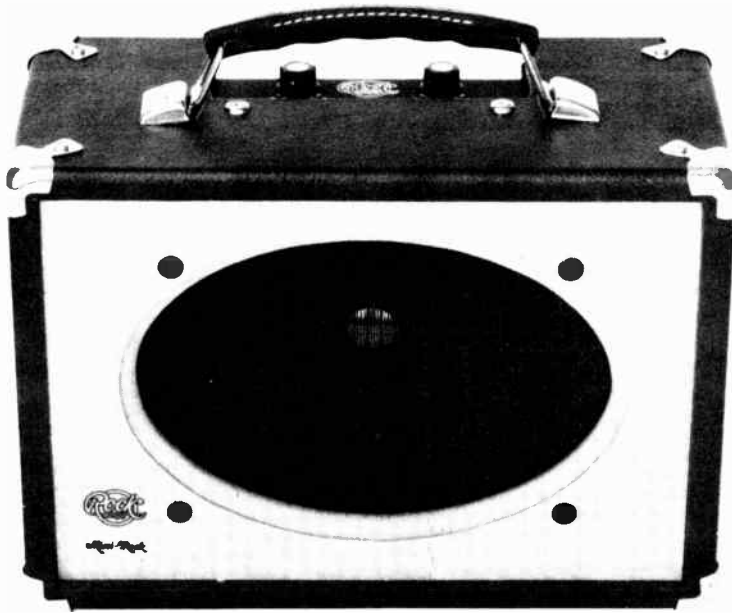


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neck. One clamp and two small blocks, arranged level with the center of the joint is usually quite enough, if the joint fitted without rocking, when assembled "dry". Check the joint around the outside, between neck heel and body end, for any gaps. If you can find any, loosen the clamp(s) and apply harder downward pressure to the neck until the gaps close. Retighten clamp(s) and check again. If it fitted "dry" but won't fit with glue, you may need someone else to maintain pressure while you tighten the clamp, or you may have a small splinter, or other obstruction in the joint. Take it apart, and if necessary, scrape the joint clean and try again. This is only necessary on infrequent occasions, and care in fitting a joint before gluing usually repays the worker with a trouble-free glueing job.

When the joint is securely clamped. Lightly smear the two shims with glue and push them into place. If you are using a viscous glue such as epoxy, you may need something like a small block of wood to assist you in pushing the shims fully into their places. Slow, steady pressure works best with such viscous materials.

If the front clamping block is made narrower than the fingerboard, it will be possible to string up the instrument with cotton thread as before and check that the neck is aligned as intended, while there is still time to open the joint. If the joint must be re-opened after it has been clamped, apply a little more glue when you re-assemble it, or you may produce a joint with large, thin air bubbles where there should have been glue.

Leave the clamped guitar undisturbed for at least one day and in the case of the Dunlop adhesive, for three days, or preferably up to one week, in a warm room. Peel off the masking tape carefully, and remove any remaining hardened glue with a sharp chisel and abrasive paper over suitably shaped blocks. You can now finish the inner parts of the body cutaways to fit the width of the neck and fingerboard, where they join the body.

Finishing Inlays

If you have put inlays in the fingerboard, finish them level with the wood. Use various grades of abrasive paper, such as 120, 220 and 320 on a hard block like the one used to shape the fingerboard. The block should preferably be of metal or a wood such as ebony, so that it cuts only the high spots (the inlays) without touching the rest of the fingerboard. Such a hard backing will encourage the paper to clog with dust from the inlays, and also to

Fig. 4



lose its grit particles as it hits the sharp edges of hard inlay material such as Pearl. The solution is not to rub harder and irregularly, but to use a tough, "production" paper such as "Hermesit" Open Coat Aluminium Oxide paper, or similar. This wears well, and does not easily clog.

When the inlays are level, the whole surface of the fingerboard may be smoothed with a 320 Wet and Dry paper with one layer of thin felt between it and the hard block. All "sanding" operations should use only movements *along* the fingerboard. If you use abrasives across the fingerboard, at any stage, some scratches will probably remain after the fine finishing.

Before you can progress further, you must have some suitable fretwire. I have discussed this in a previous article in this series. If you have not already deepened the slots in the fingerboard to just over the depth of the tang on the fretwire, do so now. You may prefer to do this operation before the use of 320 papers mentioned above. Then if the saw should slip and scratch the fingerboard, there is at least a chance that the finer papers will remove most of the scratch.

At this stage, the fingerboard may be rubbed with a cloth, just moistened with Almond Oil, Raw Linseed Oil, or Boogie Juice, which is a proprietary fingerboard dressing. The slots should be cleared of dust and oil with the tip of the fretting saw or any suitable piece of metal sheet of similar thickness.

When I read Arthur Overholtzer's book on Classical Guitar making, I saw that he puts a slight bevel on the mouth of the fret slots, with a 3-cornered file. I tried this on half the fingerboard of this guitar, and it took about a third less time to fret, than the other half. One learns something new every day! Just a touch with the file is enough. If you want measurements, the bevel should enlarge the mouth of the fret slot by not more than 0.55 on each edge. That is what I mean by "just a touch with the file", and the 0.5mm dimension is to prevent anyone over-doing it, rather than

to emphasize a need for great precision.

Fretting is an acquired skill, and in my experience, requires the right tools, good fretwire and a peaceful state of mind. It also requires plenty of practice. Driving pieces of fretwire into slots with a hammer is relatively simple. Persuading them to stay there is something else altogether. Ideally, you should watch an experienced craftsman fitting frets. If anyone is willing to let you watch, I would advise you to remain completely silent during the entire operation. Although *IM&RW* is beginning to produce some of its pages in glorious color, we have not yet quite worked out how to print moving pictures.

The nearest I can come to this is shown in photos 4 and 5. The last few frets are shown in various stages of fitting. Photo 6 shows a neck support, clamped in the bench vise and in photos 4 and 5 you will also see some tools which I find suitable, and the method of holding down the ends of the frets in the slot, so they do not jump out as the middle part of the fret is tapped down. The fretwire is cut in pieces, curves *more* than the fingerboard and the ends tapped in first, almost into place. Then the curve between them is slowly straightened out until all the fret is fitted into the slot. The projecting ends are cut off with "flush cutters". These cutters (Bahco 2221-5) are specially modified by the manufacturer, for the English company Fletcher and Newman Ltd (134 New North Road, London N1), to suit some particular operation in the piano trade. Other cutters of the same number 2221-5 do not cut flush to the edge of the fingerboard.

These cutters *will* cut steel guitar strings, but they will then be of rather less use for trimming frets. At about \$15 each, there are cheaper ways of trimming your strings. If used only on frets, they will last for years. I would warn you that the short off-cuts of fret ends have very sharp edges, and will readily embed themselves in your hands and in the back of your guitar. They can also fly about at great speed when cut off, so wear eye protection! I



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usually rest the guitar body on an old thick telephone book, as it is easier to ensure that at least this part of the work surface is kept free of sharp bits of fretwire. As you put the frets in the fingerboard, you should move the guitar so that the leather-padded neck rest is always under the fret slot in question. For those frets over the heel and over the body, the neck should be left unsupported, or perhaps held lightly by an assistant. The same telephone directory makes a suitable pad under the body, when fitting these highest frets.

Next month, I shall deal with finishing off the frets and lacquering the guitar, which as you may have realized, is nearly finished. Soon, you should have something which looks like the heading photo this month.

Stephen Delft

The Roberts and Lee number 252 Saw recommendation for fret slots can be obtained from the Buckingham Tool Company, P.O. Box 25, Farnham, Surrey, England. Prices are: 8" (Cat. No. 2521) \$32.50 inc. p&p
10" (Cat. No. 2523) \$35 inc.

Fig. 5



Fig. 6

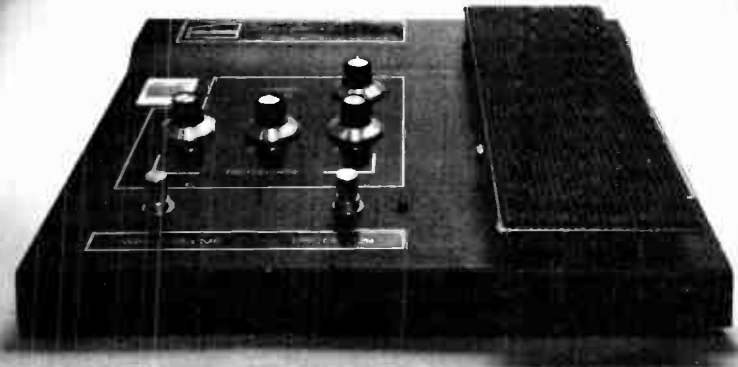


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Compression Drive Units Part 3

Having reviewed a handful of moderately priced general purpose drivers in last months "Speakercheck", we now move up-market to see just what you get for your money when you buy professional compression units costing anything up to \$600! This month we have samples from Altec, Electrovoice and TAD in the States — although the TAD units are actually manufactured in Japan by the giant Pioneer Corporation, two more Japanese units from Coral, and one from Vitavox in the UK. Quite an interesting collection with some interesting test results as we shall see.

The drivers included this month are considerably larger than the general purpose units and this is largely due to the

fact that bigger magnets are used. In fact, more compression drive units consist of little more than a magnet assembly with a hole at one end as the diaphragm and throat assembly take so little space by comparison. The use of larger magnets can usually be expected to result in higher efficiency. This is substantiated by our test results. Whereas the average sensitivity for the general purpose drivers was 106dB for 1 watt at 1 meter, the average for the professional drive units some of which are included here and some which we shall be reviewing next month, is a staggering 112dB. A difference of this order means that you would need four times the power to achieve the same sound level using an average general purpose driver as com-

pared to an average professional driver! Averages are of course all very well but there is an overlap between the two groups, as the sensitivity range for general purpose driver was 103dB to 109dB and for the professional group the range is 106dB to an incredible 119dB and this is generally accounted for by the considerable similarity between the more expensive purpose units and the cheaper professional units.

Another difference between the two basic types is that, with the sole exception of the Vitavox S3 driver, all the professional units have bolt-on flange mounting arrangements. All the general purpose drivers, with the sole exception of the Emilar EC-175, have the European screw

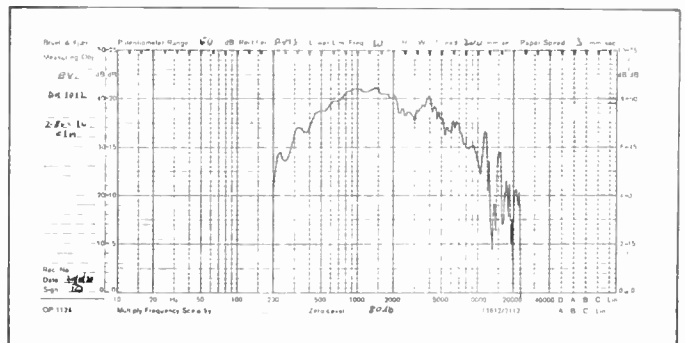
ELECTROVOICE DH10 Retail Price \$279

Mounting: 1.3" Flange — 4 bolts, 0.25" x 20 tpi, on 3.5" pcd.

Parameter	Manufacturer's Rating	Test Result
Power	60w RMS sine wave above 400Hz — short term	Not confirmed — see text
Distortion	Not stated	20% at equivalent sine wave power of 4w RMS, 30% at 60w RMS
Sensitivity	106dB @ 1w @ 10ft coupled to EV HR4020 horn	119dB @ 1w @ 1m averaged between 500Hz and 10KHz
Resonance	Not stated	2KHz coupled to std. test horn
Impedance	8 ohms nominal	5.5-70hms
Recommended c/o freq.	400Hz min.	500Hz
Useful freq. response	400Hz-10KHz (Essentially flat 400Hz-2.5KHz, with 6dB/oct rolloff to 6KHz, 12dB/oct rolloff to 10KHz, rapid rolloff beyond)	300Hz-10KHz @ 12dB — see graph

In appearance, this unit looks rather like a model tractor tyre. It consists of a massive, 7" diameter ceramic magnet carrying a 3" diameter aluminium diaphragm on its rear face, and enclosed by a cast alloy finned housing. It is very heavy and is of substantial construction. Unfortunately, the mounting arrangement does not conform to any standard practice, and as far as I am aware, only the Electrovoice HR series horns are directly compatible. For our tests, it was necessary to clamp the driver to our test horn and great care was taken to ensure accurate alignment and a good seal.

Performance-wise, it can be seen that apart from the high levels of distortion measured, the unit performed very well indeed. It returned the highest sensitivity figure yet measured, over a usefully wide bandwidth, and the maker's frequency response figures are, as usual, confirmed. Without doubt, it is the distortion figure which give the only real cause for concern with this unit. It is apparent from its performance at 60w sine wave that power handling capability itself is not a problem — the unit has an inherently high distortion figure, with substantial levels of third, as well as second harmonic overtones present. This is unusual for this manufacturer. However, for our reviews, we have adopted a distortion-related criterion, and on this basis the DH1020 does not come up to our requirements for confirmation of the maker's power rating. In all other respects, this is a very nice unit indeed, if somewhat expensive.



thread system. The whole business of coupling arrangements was discussed in our February 1979 issue so I will not go into all that again here. Because of the added difficulty of dismantling a heavy flange mounted driver from its horn in situ, most of these professional drivers are designed so that the diaphragm assemblies can be replaced from the rear by simply removing the back cover, removing a blown unit and screwing the thing back together again with a replacement diaphragm.

In most instances it really is as simple as that. The replacement diaphragm assemblies are usually self aligning and replacement requires no special skills other than

care to ensure that no dust or foreign particles get into the air gap and that the delicate replacement diaphragm assembly is not damaged in the process of being fitted. In most cases, you do not even need a soldering iron, just a screwdriver and sometimes a small hexagon socket wrench. Another point to watch with these larger drivers is that you cannot generally expect the horn flare to carry the incredible weight of some of these magnetic assemblies without some additional support under the driver itself. To give some idea of the size and weights we are talking of, the TAD (Pioneer) TD-4001 measures 7 inches in diameter, is 6½ inches deep and weighs 30lb.

As the results published this month represent only about half the drivers submitted for review, I will wait until we have published the whole set of results next month before I make any comments or overall observations on comparisons between the various units. In any event, I would think that each individual report is reasonably detailed to the extent that the reader should be able to assess the merits of the various drivers for himself. Next month we look at half a dozen JBL drivers and two from a little known Spanish manufacturer.

By Ken Dibble

VITAVOX S3 No price available

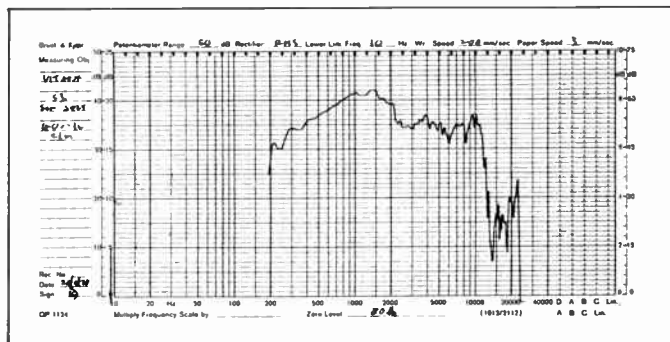
Mounting: Screw thread — 2.62" x 16tpi.

Parameter	Manufacturer's Rating	Test Result
Power	100w RMS pink noise above 500Hz	Confirmed at equivalent sine wave power of 10w RMS above 400Hz.
Distortion	Not stated	10% @ 10w as above
Sensitivity	118dB @ 1w @ 1m coupled to 200Hz horn	117dB @ 1w @ 1m averaged between 400Hz and 10KHz
Resonance	Not stated	1.5KHz coupled to std. test horn
Impedance	15 ohms	15-20 ohms
Recommended c/o freq.	Not stated	Above 400Hz
Useful freq. response	200Hz-15KHz unqualified	200Hz-12KHz @ -12dB — see graph

This unpretentious unit — not unlike a flying saucer in appearance — is essentially similar to the EV DH1012 in construction, except that the outer casing is of plastic and is bereft of fins or other cosmetics. It simply consists of a large and very heavy ceramic magnet assembly, to which is fitted a field-replaceable 3" diaphragm and a threaded throat coupling, which, as far as I am aware, is peculiar to Vitavox — although a variety of adaptors are available to enable the unit to be coupled to various more standard horn entries. The unit is of substantial proportions and is nicely made.

The measured sensitivity figure of 117dB is very good indeed and is among the best achieved — especially taking into account the large bandwidth over which the figure was averaged. The frequency response is also very good indeed and as the plot published shows, is nicely uniform over most of the useful range, though it falls a little short of the maker's upper figure. The unit confirmed the maker's power rating, and withstood subsequent sine wave tests at 20w RMS and 40w RMS without damage — although distortion increased to about 20% at the higher levels.

This is without doubt a first-class compression drive unit from a British manufacturer, and represents excellent value at this price. It is equally suitable for use as a mid-range driver, or for high-frequency use, and can usefully be crossed over at any frequency between 400Hz and 4KHz, depending upon the characteristics of the horn flare with which it is used.



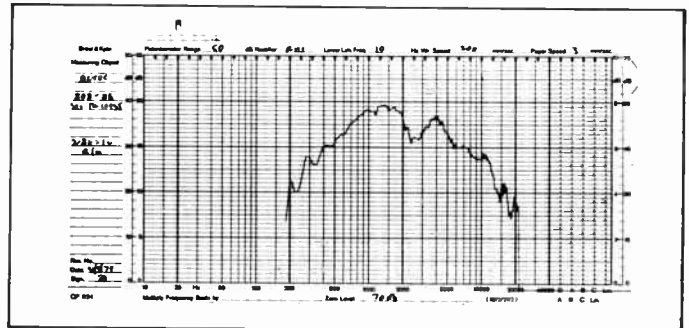
Speakercheck

ALTEC 808-8B Retail Price \$271

Ser. No 10935 (USA)

Mounting: 1" flange, 2 studs, 0.25" x 20tpi on 3" pcd.

Parameter	Manufacturer's Rating	Test Result
Power	100w cont music 200w inst peak 30w cont pink noise	Confirmed at equivalent sine wave power of 10w RMS above 500Hz
Distortion	Not stated	10% at 10w RMS sine wave
Sensitivity	104dB at 1w at 4ft coupled to Altec 90 sectoral horn	106dB at 1w at 1m averaged between 700Hz and 5KHz
Resonance	Not stated	2KHz coupled to standard test horn
Impedance	8 ohms nominal	8-11 ohms
Recommended c/o Freq	Not stated	Above 500Hz
Useful Freq Response	500Hz-15KHz	350Hz-12KHz at



This is another no-nonsense compression drive unit of exemplary manufacturing quality and simplicity. It is of the usual construction found at the professional end of the market, and consists of a large Alnico/Alcomax type magnet, with its front face drilled to accept the horn mounting flange, the rear face fitted with the diaphragm assembly and a cast alloy back cover. In this instance, the back cover does not form the acoustic loading chamber into which the diaphragm is working, as a separate, moulded plastic housing is incorporated into the diaphragm assembly for this purpose. The diaphragm itself is easily replaced with a pozi-drive screwdriver only, although there do not appear to be any polarity markings on the diaphragm assembly to identify which wire goes where. The mounting system, although of the 1" flange variety, is to Altec's own, long established, twin-stud pattern which is not compatible with the JBL 1" flange system. In practice, due to the use of a large pitch circle diameter and of two studs instead of three bolts, the unit is far less fiddly to assemble than most flange coupling arrangements, the studs being far easier to align than bolt-holes. It can be seen that the unit came up with a good set of results, with a usefully wide frequency response, good sensitivity and full confirmation of the maker's power rating as interpreted in our testing procedure. In fact, there was little increase in distortion on a re-test at 20w sine wave, indicating that at its 100w programme rating, the unit is under little, if any, stress, even if crossed over as low as 500Hz. The frequency response is not as smooth as some included in this review, but it would seem that smooth response and high sensitivity go hand-in-hand with high levels of distortion. Here, we have a sensible compromise between the three parameters in a unit that should give a good account of itself in practice.



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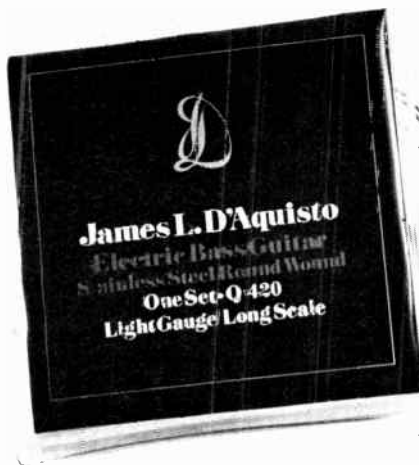
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Speakercheck

CORAL M100

Mounting: 1" flange, 3 bolts, 0.25" x 20tpi.

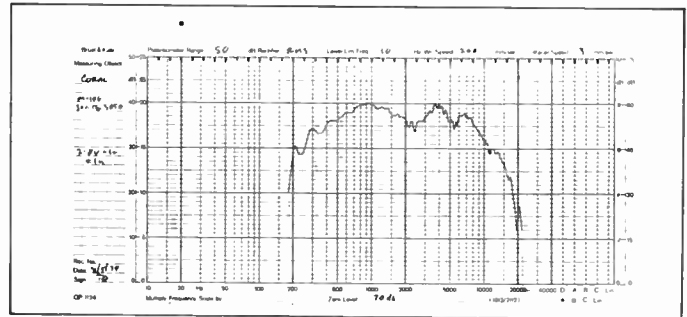
Parameter	Manufacturer's Rating	Test Result
Power	50w RMS	Just confirmed
Distortion	Not stated	10% above 500Hz rising to 20% above 3KHz at equivalent sine wave power of 15w RMS
Sensitivity	105dB at 1w at 1m coupled to Coral AH-500 horn	107dB at 1w at 1m averaged between 500Hz and 8KHz
Resonance	Not stated	1.5KHz coupled to standard test horn
Impedance	8 ohms*	7-17.5 ohms
Recommended c/o Freq	Not stated	Above 500Hz
Useful Freq Response	500Hz-18KHz unqualified	200Hz-15KHz at -12db

CORAL M103

Mounting: 1" flange, 3 bolts, 0.25" x 20tpi on 2.25" pcd.

Parameter	Manufacturer's Rating	Test Result
Power	30w RMS 100w programme	Just confirmed
Distortion	Not stated	10% above 500Hz rising to 15% above 3KHz at equivalent sine wave power of 10w RMS
Sensitivity	104dB at 1w at 1m coupled to Coral AH-501 horn	109dB at 1w at 1m averaged between 500Hz and 5KHz
Resonance	Not stated	1.5KHz coupled to standard test horn
Impedance	8 ohms*	7.5-14 ohms
Recommended c/o Freq	500Hz or 800Hz depending on horn	Above 500Hz
Useful Freq Response	500Hz-18KHz unqualified	200Hz-15KHz at -12dB — see graph

*Also available in 16 ohms impedance.

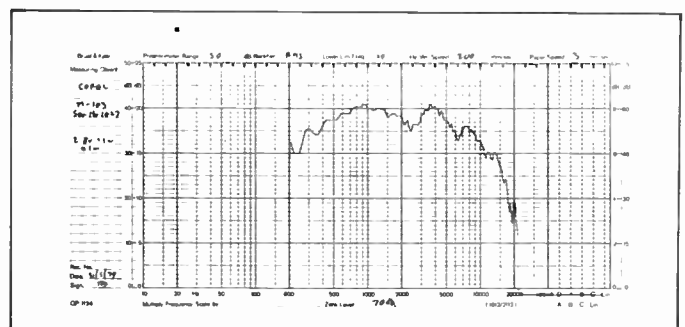


These are two very nicely made compression drive units from a Japanese manufacturer who would seem to be better known for Hi-Fi products than for professional components.

Both units are of similar basic construction. The front of the magnet is drilled to form a mounting flange and fitted with a cork gasket to permit mounting to any horn flare, having the standard JBL type 1" flange coupling arrangement. There is a tapered bore through the pole-piece of the magnet, with a diaphragm assembly fitted to the rear face under a nicely cast alloy rear housing. The diaphragm assembly is field replaceable with an allen key and screwdriver with the unit in situ. The manufacturing quality is of a very high order and the units are nicely, but unpretentiously, finished in polished alloy and grey stove enamel. There are no 'cooling fins' or other nonsense. From a physical inspection, and from the manufacturer's description, it would seem that both models utilise a similar diaphragm assembly, and the similarity of results between the two would support this observation further. In fact, it would seem that the only significant difference between the two is that the M-103 is built around a large ceramic magnet, while the magnet fitted to the M-100 is of the expensive Alnico or Alcomax type which is based on Cobalt.

It can be seen from the result tables that the two units have returned a very similar set of performance parameters as well. The frequency response curves are virtually identical and the distortion patterns are very similar indeed, the only difference being that the levels of second and third harmonic present in the upper frequency band is somewhat higher on the more expensive M-100. It is also surprising that the M-103 also has a higher sensitivity than its 'big brother', the difference of 2dB being sufficient to negate the M-100's advantage of a 50 per cent higher power rating. Both units were tested at the maker's RMS power rating of 30w for the M-103 and 50w for the M-100. In both instances, the drive units withstood this punishment, but distortion levels increased to over 30 per cent, with the M-100 under considerably more stress at 50w than was the M-103 at 30w.

The sensitivity figures are good, the frequency response is exceptionally wide and smooth and the power rating is certainly confirmed in both bases. However, it seems to me that if there is any difference between the two units, then the M-103, which is considerably less expensive than the M-100, comes out favourite, with its higher sensitivity. Perhaps there is some small difference in power rating but if there is, it is not apparent from our results and in any event, the increased sensitivity of the M-103 is sufficient to compensate for this. These are a pair of very useful drive units at a competitive price, nicely made and of excellent overall performance capability.



TAD TD-2001 Retail Price \$260

Mounting: 1" flange, 3 bolts, 0.25" x 20tpi on 2.25" pcd also 2 studs, 0.25" x 20tpi on 3" pcd.

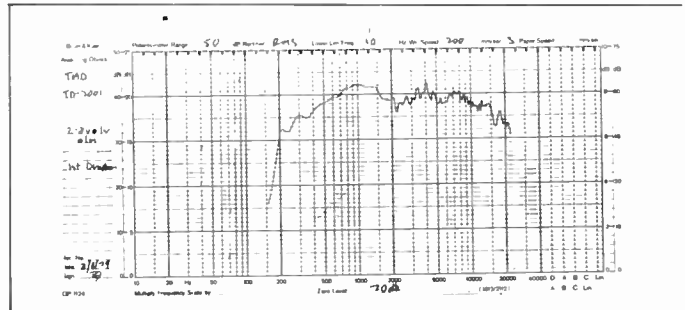
Parameter	Manufacturer's Rating	Test Result
Power	20w prog at 800Hz c/o 30w prog at 1KHz c/o 60w prog at 2KHz c/o	See text
Distortion	Not stated	6% above 500Hz rising to 25% at 7KHz at 10w RMS sine wave
Sensitivity	107dB at 1w at 1m coupled to 250Hz radial horn	100dB at 1w at 1m averaged between 500Hz and 10KHz
Resonance	Not stated	1.5KHz — suppressed
Impedance	8 ohms	7.5-12.5 ohms
Recommended c/o Freq	Above 800Hz	Above 800Hz at 12dB/oct
Useful Freq Response	500Hz-22KHz unqualified	200Hz-22KHz at -12dB — see graph

TAD TD-4001 Retail Price \$575

Ser. No. ZAO105 (Japan)

Mounting: 2" flange, 4 bolts, 0.25" x 20tpi on 4" pcd.

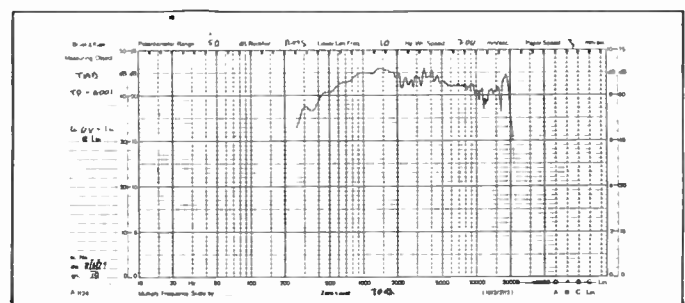
Parameter	Manufacturer's Rating	Test Result
Power	120w prog at 600Hz c/o	See text
Distortion:	Not stated	6% above 500Hz rising to 20% above 2KHz at 10w RMS sine wave
Sensitivity	109dB at 1w at 1m coupled to 250Hz radial horn	113dB at 1w at 1m averaged between 500Hz and 10KHz
Resonance	Not stated	1.5KHz coupled to standard test horn
Impedance	16 ohms	9.5-17.5 ohms
Recommended c/o Freq	Above 600Hz	Above 600Hz
Useful Freq Response	400Hz-18KHz unqualified	400Hz-20KHz at -6dB — see graph



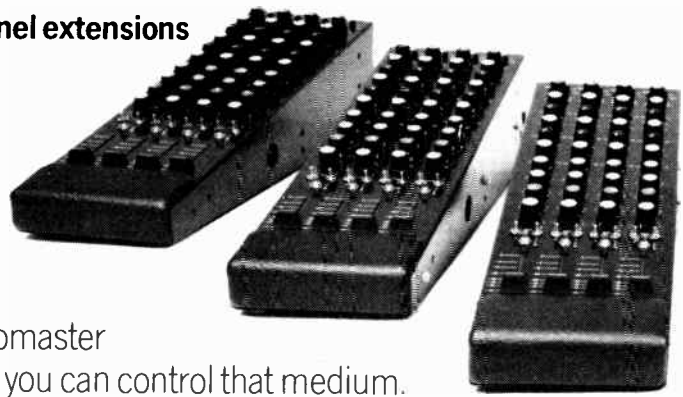
These superbly made and finished units are manufactured in Japan by the Pioneer Electronic Corporation, and marketed in the USA by Technical Audio Devices of Moonachie, NJ, a division of the Pioneer Corporation.

Both these drivers are of very substantial proportions indeed, the TD-2001 being quite the largest driver I have yet come across for coupling to a 1" flange entry and the TD-4001 the largest and heaviest I have yet encountered — period. The bulk of these units is the massive Alnico/Alcomax type magnetic structure employed, which as is usual for this type of unit, has a tapered bore down its centre pole, is drilled on its front face to accept the horn coupling, and carries the diaphragm assembly at the rear, under a cast alloy rear housing. The units are finished to a particularly high standard, even for this end of the market, in black crackle stove enamel, with a polished machined edge to the faceplate giving a most professional, beefy aspect which is totally functional. In fact, the TD-4001 is very similar to the Gauss HF4000 in appearance. I am surprised that no one has previously thought of the dual-coupling arrangement employed on the TD-2001 before — it is so simple, and only requires the drilling of two additional holes in the mounting face to enable the unit to be compatible with any JBL or Altec pattern 1" flange horn. I can personally vouch for the fact that the diaphragm assemblies are field replaceable, as we did in fact blow the TD-2001 during testing. Fortunately, TAD had the forethought to include a spare in the shipment, as there would have been no chance of getting a replacement in the UK where the "Speakercheck" tests are conducted. Performancewise, these transducers are without doubt superb. The frequency response of the TD-2001 is within +5dB from 500Hz right up to an amazing 22KHz, while the TD-4001 has virtually a ruler straight response to 20KHz. In fact, the TD-4001 is only the second unit we have yet tested that could be quoted at -6dB in our frequency response figures given in the results table — the other being the legendary JBL 2440. Also, the sensitivity figures are among the best measured, with the TD-4001 being battered only by a handful of units including the Electrovoice DH1012, the Vitavox S3 and the JBL 2410. How one should interpret the power ratings given in the maker's literature is not at all clear without further testing, but with the results we did obtain, and the high sensitivity figures measured, I would expect the TD-2001 to compliment a 200w bass section, and the TD-4001, 400 or even 500 watts of low frequency power. We still have the old bogie of increasing distortion at the higher frequencies, but otherwise, the performance of these drivers is faultless, and will permit the construction of a two-way loudspeaker system with a linear frequency response right up to 22KHz at high frequency. Can't be bad.

As you may have gathered, I am impressed. In fact, these units must go to the top of the class, despite the price.



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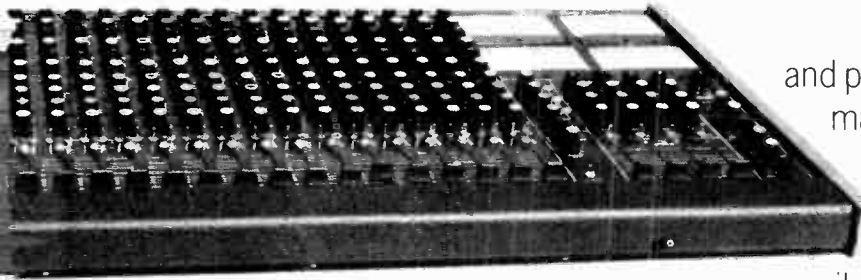
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Understanding Synthesizers

PART 14

By Tony Horsman

In this article, which is the last in the *Understanding Synthesizers* series, I describe how a digital computer can be used to control a synthesizer. Although it may appear otherwise from some advertisements, the application of digital computers in the field of sound synthesis is not in fact a particularly new development. Electronic music studios associated with broadcasting companies, universities at home and abroad have been exploring the potential of computers both as synthesizer controllers and as generators of sound for over 20 years. However, the enormous cost of computerized systems and their consequent rarity has previously meant that only a few composers, let alone performers, have had access to them. Furthermore, in these studios (particularly those associated with universities), the emphasis has tended to be on the composition and performance of abstract as distinct from popular music.

Nowadays, however, the situation is changing, largely because the cost of computer hardware (i.e. components) has decreased to incredibly low levels. The microprocessors a miniature "computer-on-a-chip" which forms the heart of many of today's computer systems, and are already incorporated into certain kinds of polyphonic synthesizers. So whether they are aware of it or not, some keyboard players are already using digital computers!

As I implied at the start, the possible applications of digital computers in sound synthesis are many and varied. One of the simplest is the use of a computer as a "super-sequencer," an approach which has been commercially developed both by EMS and Roland, and which I have adopted in my own studio. The last two articles described at some length how conventional sequencers work, so let's start this month by identifying the most important limitations of conventional sequencers before moving on to computer-sequencers and computer-controlled synthesizers.

A Synthesizer Band

In Fig. 1, two independent synthesizers are shown being played by two separate musicians. Each keyboard produces one control voltage and one gate pulse, the former varying the frequency of a VCO and the latter triggering an ADSR module which in turn controls the gain of a VCA. It is easy to imagine that this scheme could be expanded to any number of players, each playing an independent part, forming in effect a synthesizer band.

A dotted line divides Fig. 1 into two parts: to the left, the controlling devices

(including the players!) and to the right, the synthesizer modules. As I explained last month, a two-channel sequencer can provide independent control voltages and associated gate pulses; so the left part of Fig. 1 could (technically speaking) be replaced by a two-channel sequencer, as shown in Fig. 2. The resulting set-up, which could, perhaps, be regarded as an automated synthesizer, would have very limited capabilities. For a start, the number of voice lines (i.e. parts) would necessarily be restricted to the number of channels on the sequencer (usually less than four), whereas a band can contain any number of instrumentalists. Far more serious, the content of each voice line would be severely constrained by the number of steps on the sequencer, which is always relatively small. Although the set-up shown in Fig. 2 would be very useful as an *aid* to performers in the various ways I described in Parts 12 and 13 (for example, in the synthesis of complex rhythm patterns), no such set-up involving conventional sequencers could play even one complete part in a typical jazz-rock number of any reasonable length.

A Computer-Sequencer

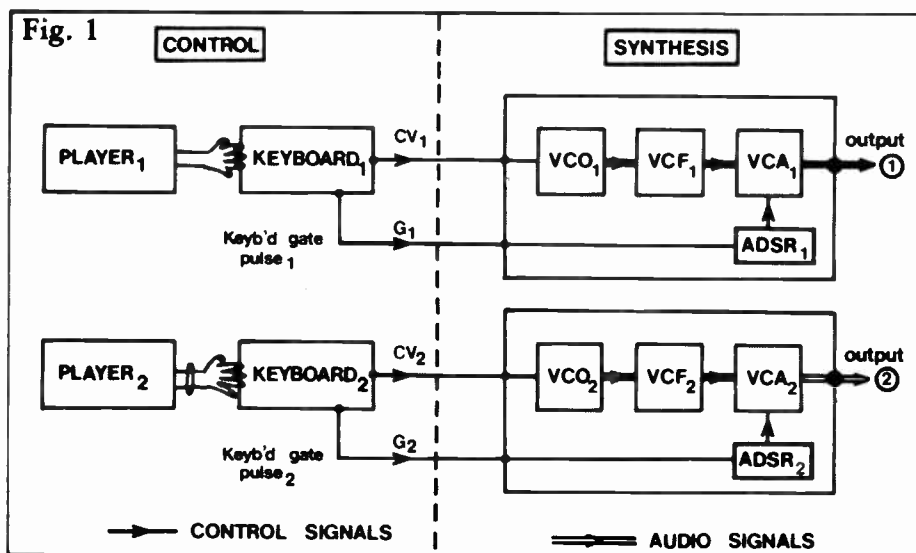
It is possible to overcome the technical limitations of sequencers by designing a special-purpose computer which (like synthesizer keyboards and sequencers) provides control voltages and gate pulses for the synthesizer modules. Such a device, outlined in Fig. 3, is in principle capable of providing control voltage sequences of

almost any length on a large number of independent channels. In the illustration, a computer-sequencer having four control voltage and gate outputs shown, which could be used to control four independent synthesizers i.e. four VCO-VCF-VCA/ADSR chains. So provided, it could somehow be told what the control voltage and their relative durations were to be, that is, which notes each synthesizer should play and for how long, this computer-sequencer would in principle be capable of making the synthesizers "perform" a four part composition of any length. (In case all this should seem more fantasy than fact, such a device called the "Microcomposer," is already manufactured by Roland in Japan: it has eight output channels and is potentially capable of totally automating an eight part arrangement a few minutes long!).

Musical Numbers

In a digital computer, all information is stored as numbers in its memory. As shown in Fig. 3, part of the memory contains numbers which specify what tasks the computer will perform (i.e. the computer "program"), while another part contains numbers known as "data" which, in the case of a computer-sequencer, determine the control voltage and their durations for every channel.

In some systems, the data are fed into the computer memory from a typewriter-style keyboard (see Fig. 4 top). To make this kind of computer-controlled synthesizer play, numbers first have to be



A synthesizer duo. Each keyboard produces one control voltage (CV) and one gate pulse (G), the former varying the frequency of a voltage-controlled oscillator (VCO) and the latter triggering an ADSR module, the output of which controls the gain of a voltage-controlled amplifier (VCA).

entered from the typewriter which effectively mean "on channel one, play A for 10 seconds, then B for one second . . ." and so on. This is very tedious, of course, and the user has to work from a written score. However, once the score has been typed in, all the "performances" are note perfect (assuming there were no typing errors!). Remember too that the voicing of each part has nothing to do with the computer, so the actual *sounds* the synthesizers produce can be altered at will between, or even during, performances.

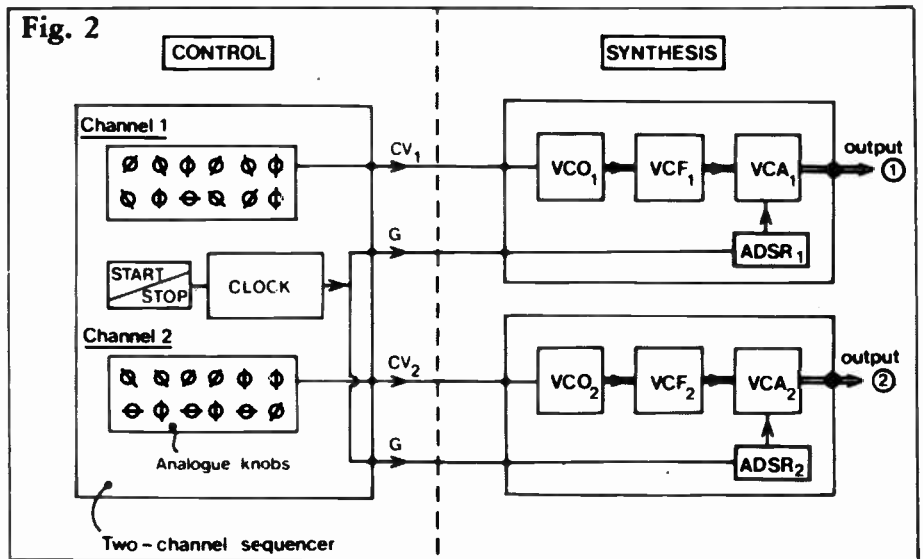
Such a system does not have much appeal for a keyboard player but is potentially a very powerful tool for the arranger/composer. However, an alternative approach is possible, much more appealing to most performers, whereby the computer actually memorizes the events (i.e. key depressions) that occur on a musical keyboard (see Fig.4 bottom). My own 16-channel system uses this approach. The computer in effect "looks at" the keyboard, remembering each key depression as and when it occurs. At the same time as the computer is memorizing the keyboard events, the synthesizer is made to work in the usual way (as far as the player is concerned). After a live performance the "data" can be replayed, the synthesizer producing a new performance under computer control. The computer and synthesizer in effect re-enact the original keyboard performance, but if required with modified sound qualities.

Final Remarks

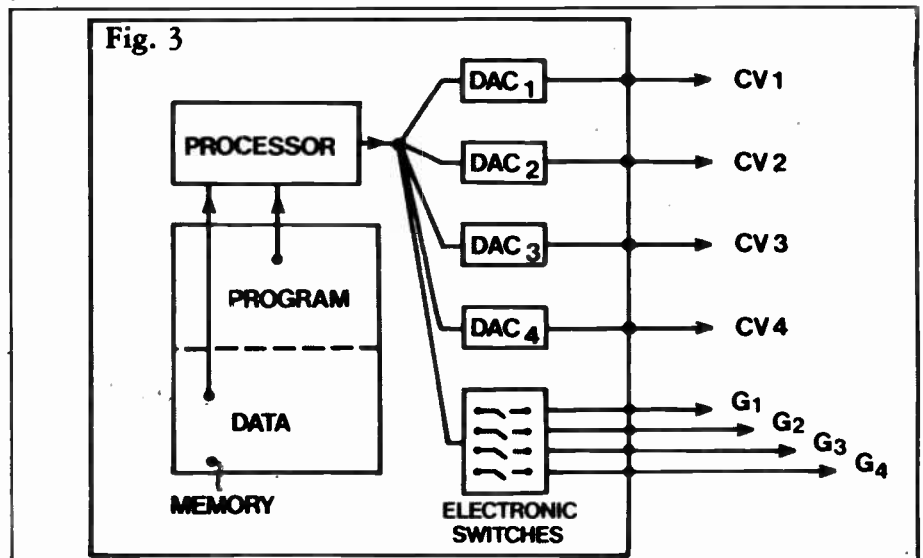
As I have already stressed, the use of a computer as a powerful sequencer is just one of many possible applications of modern digital electronic technology in the field of sound synthesis. In fact, computers can already synthesize music and speech without resorting to conventional synthesizer modules. To the pop musician of the future, present-day synthesizers may look as appealing as serpents to Rick Wakeman! But for most of us, now, voltage-controlled synthesizers remain fascinating and challenging musical instruments whose potential is still largely unexplored.

A Personal Note

This series would never have existed but for the personal encouragement and help of several friends. To them, in particular Margaret Simpson who has painstakingly prepared over 70 diagrams, Dick Milner who carefully checked the articles for technical accuracy and Malcolm Green, *IM&RW's* Market Development Director, who continually provided useful sugges-



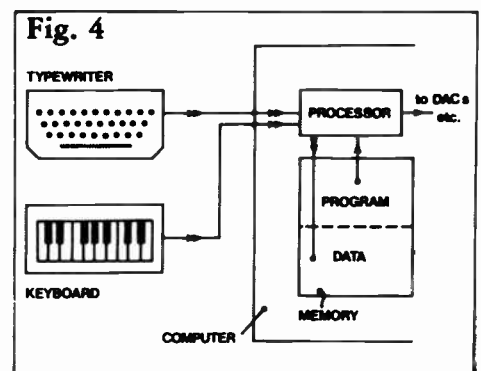
An automated two-channel synthesizer in which the role of the keyboards has been taken over by a sequencer (compare with Fig.1). The control voltages produced by the sequencer (CV1 and CV2) are determined by the settings of the analogue knobs. The gate pulses (G) are derived from the clock, the speed of which determines the duration of each step in the sequence.



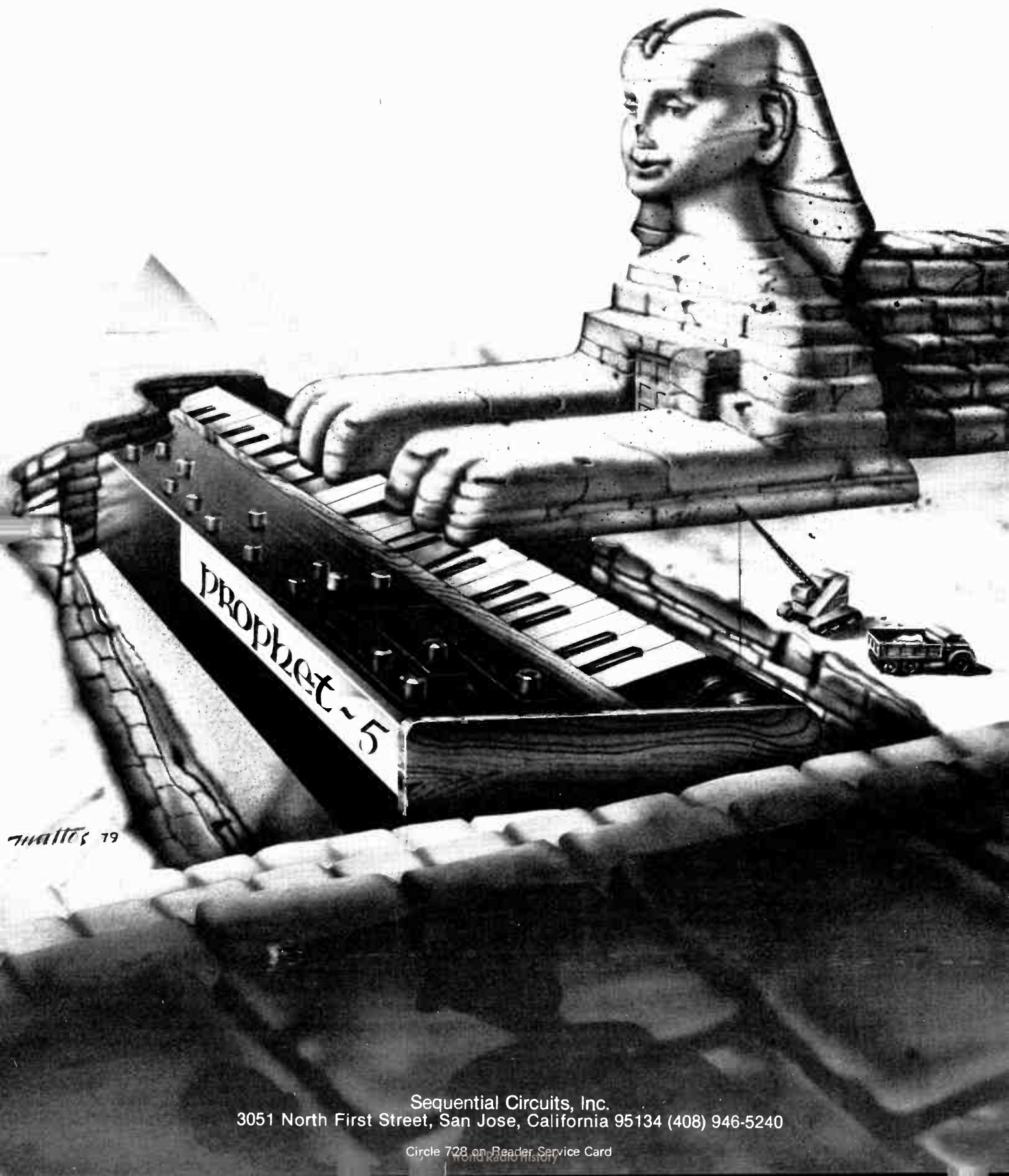
Outline of a four-channel computer-sequencer. Data in the computer's memory are fetched out sequentially by the processor, then turned into control voltages (CV1 to CV4) by electronic modules called "digital to analogue converters" (DACs). The gate pulses (G1 to G4) are generated by electronic switches which are turned on and off by the processor.

tions and guidance, I am particularly indebted.

Next month, I will be starting another series, taking a musical rather than technical view of sound synthesis. In it, I will be explaining step-by-step how any small synthesizer can be used to produce multi-track recording with only a minimum of keyboard technique and without any special knowledge of musical theory.



A Legend In Its Own Time



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World Radio History

AKG: In the Factory

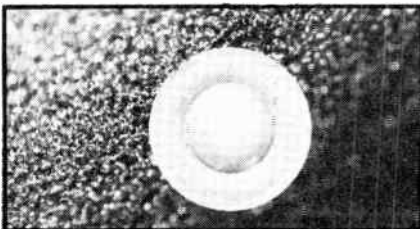
AKG's philosophy is to design microphones for specific purposes. This philosophy has the practical effect of making it easier for the musician to get exactly what he wants by recommending certain types of microphones for specific types of amplification.

AKG developed two types of vocal microphones, the D-12 and the D-2000, but they took on different uses from the one they were designed for. The D-12 has been very successful as a bass drum mike, and the D-2000 is getting more and more popular for the use in amplification of rotor-organ cabinets.

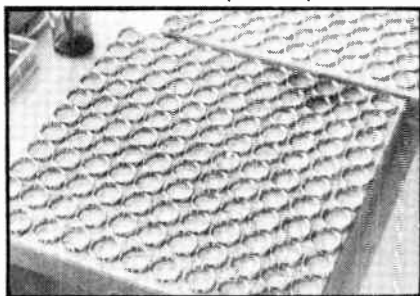
There has always been a large range of excellent microphones available for the various types of instruments, but until very recently there was a lack of a high quality vocal microphone.

This gap has been filled by the D-3000 series of three types of vocal microphones — the D-310, the D-320 and the D-330BT.

We got on a plane to Vienna with our cameras.



Small is the word: this cone was shaped and stencilled from a heated plastic tape.



The moving coil does not look like much...



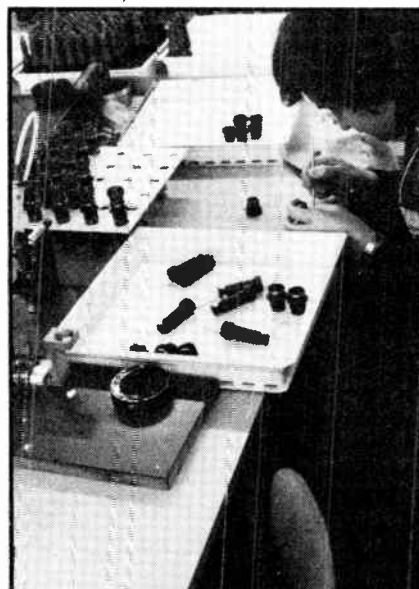
...until it is glued to the cone



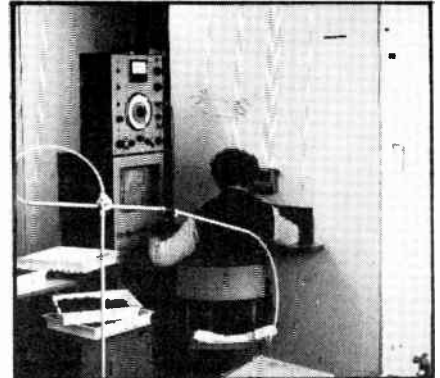
Meanwhile, the enclosure has been prepared using a different procedure. Here the magnetically-neutral Alnico plates are being magnetized within the enclosure.



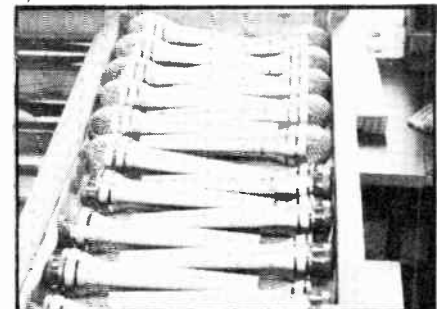
A very steady hand is required to put the cone with the moving coil onto the enclosure; not only are the two twin connecting wires of the coil not supposed to break, they also have to be set in a wavy shape so as not to hinder the movement of the cone.



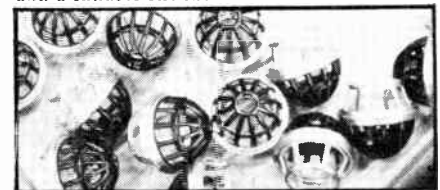
In this picture the enclosure, the suspension and sound for hand noise compensation are being glued together. (You can see very clearly the elastic ring which damps the hand noise.)



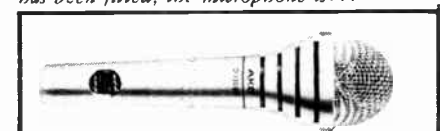
Now the enclosures are being checked in a small anechoic chamber before they are used any further. The measuring device shows if the cone moves freely and it shows up any malfunctions of the enclosure.



At this point the core of the microphone is ready to be connected to a microphone previously fitted with an XLR-type connector and a suitable switch.



After the protective grille has been fixed on the inside and the steel grille with the two filters has been fitted, the microphone is...



...ready to go. In this picture it is a D-330 BT.

Celestion team up with *Randall*



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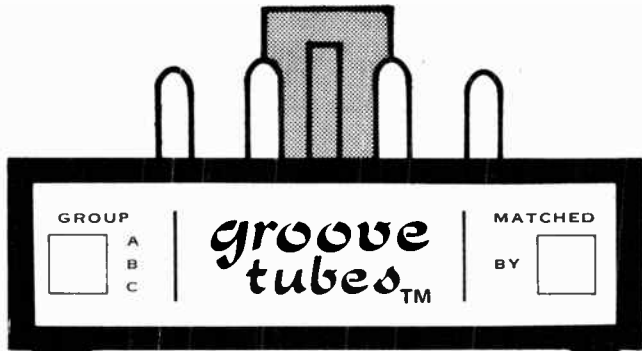
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Apologies to Morley

We would like to offer our sincerest apologies to the Morley company for two errors which appeared in last month's issue of IM&RW. Firstly, the company's name was incorrectly given as Motley in the Advertisers Index, and secondly the price of their new "Bigfoot" multi-purpose pedal amplifier was given as \$110 when in fact it should have been \$300. We accept full responsibility for these mistakes and regret any inconvenience caused to Morley and our readers.



ASPEN & ASSOCIATES (215)
 362-1551
 13994 SHIMSHAW AVENUE • SYLMAR, CA 91342 • PHONE TO FOUR (PST)



(THE INSIDE STORY)

TUBES ROLL 'n ROCK

It started soon after TV, and just before "dual headlights". Musicians discovered something new with a sound all its own — *Rock'n Roll*. Just who, when, and where, no one seems to agree. But we do agree on the "how". At a minimum it took drums, a bass, and, of course, the electric guitar and amp . . . a tube amp. Almost twenty-five years later it still takes those same basics to Rock'n Roll. The music has evolved, but the "sound" is much the same . . . and players still love tube amps. Despite millions spent to "convert" them to transistors, the overwhelming choice of musicians is tubes. Why? If you listen, you'll *hear* the difference. If you play, then you can *feel* it. Tubes have the "sound" and the "touch". Many transistor amp companies have given up and now offer tube amps (or soon will). So it would seem that the tube amps' future is at last secure. Wrong, it's looking worse than ever, and here's why. Tube amps need tubes. The "tube sound" comes from tubes, not a Brand Name, and that's the big problem. Tube quality is at an all time low, and the reason is obvious. The few remaining tube makers today sell a lot more transistors and simply don't care about tubes. As a result, less and less is spent each year on re-tooling. Without tight tooling, consistency is impossible. Sound hopeless? It was. Now there's a company in California who does care, and they've got the problem solved.

MATCHED FOR MUSIC

GROOVE TUBES is a company formed by musicians who own tube amps. They are quite familiar with the tube problem. They test thousands of tubes, obtained from the best current source (it changes), toss-out the "lemons", and package the remainder into closely "matched" sets. The GROOVE TUBES matched sets will greatly improve any amps tone and sustain — here's why. Tube amps use a circuit called PUSH/PULL. Half the tubes PUSH, the other half PULL, amplifying the sound "wave". An unmatched set of tubes work against each other, losing sustain and wearing out fast in the process. The GROOVE TUBES sound fantastic and since they outlive an ordinary set many times, they'll save you money.

WHERE TO GET THEM

Musicians in California have been buying GROOVE TUBES from a few hip pro shops, but it will take 12 to 18 months before GROOVE TUBES can provide general distribution. ASPEN & ASSOCIATES has obtained a supply of GROOVE TUBES and will be offering them for sale direct to you starting in November. The matched sets currently available are for Fender amps using two or four output tubes, and they will work nicely in amps with similar circuits (most amps). The GROOVE TUBES pre-amp set (six to a set) also fit those amps, and in addition, allow for various tonal options depending on placement (directions included).

GROOVE TUBES are packed and shipped inside crushproof plastic pipe containers, and can be mailed at no cost or shipped UPS Blue Label for an additional charge of \$5 per set (recommended).

ASPEN & ASSOCIATES guarantees GROOVE TUBES to your satisfaction or we'll refund the purchase price plus shipping. To order GROOVE TUBES just call us Monday through Friday, 9:00 a.m. to 4:00 p.m. (PST), and use your VISA or MASTERCARD. Or fill out the form below and return it by mail. Cashier's Check or Money Orders bring faster delivery.

*Fender is a registered Trade Mark of CBS Musical Instruments

Send me the following quantities:

- _____ matched output set, 50 wt. (2-6L6 GC) @ \$40.00 per set
- _____ matched output set, 100 wt. (4-6L6 GC) @ \$80.00 per set
- _____ matched pre-amp set, fits both (4-12ax7+ 2-12at7) @ \$45.00 per set.
 (California residents add 6% sales tax.)
 (ADDITIONAL MODELS COMING SOON!)

Enclosed please find the total sum of \$ _____ . : : : \$ _____ for UPS Blue Label charges (\$5.00 per set and worth :)

Name _____
 Address _____
 City _____ State _____ Zip _____

Mail to: Aspen & Associates • P.O. Box 4753 • Sylmar, California 91342

Circle 739 on Reader Service Card

SIGMA—a sound success story

Four years ago Sigma Sound Enterprises didn't exist. Now the Nottingham, England PA firm has 20 kilowatts of gear to rent out and is rapidly expanding its production of PA equipment. Its turnover last year was a half million dollars and it is hoping to double that figure this year.

A symbol of Sigma's "rags to riches" story is the new premises it moved into August of last year. The HQ is located on a grimy industrial estate and from the outside looks like it is no more than a small garage. But appearances can be deceptive, and behind the blue doors lies a spacious complex containing a warehouse, wood-working shop, repair shop, showroom, storeroom and offices.

Roving IM reporters visited the Faraday Road premises this month and were surprised by the size of the place. The front of the building contains a spacious warehouse used for storage of the PA side of the business. Most of the gear was out on two tours — the Planets and the Original Mirrors — when we dropped in, but Sigma boss John Penn reckoned there was still enough equipment left for another tour.

"We try to be different to other PA rent firms by using JBL," he said. The firm also rents out an Amek mixing desk which is one of only two in existence. "The thing that is different about us is that we are involved in every stage of the PA process," said John, as he showed us the repair shop where he claims Sigma has developed a revolutionary passive crossover system. The workshop repairs amps, re-cones speakers, etc. for local bands, shops and firms.

The woodworking shop next door is expansive and now employs five full-time staff in building speaker cabinets and bins.

Sigma is concentrating its resources on promoting a product which John Penn claims will revolutionize PA — the turbo-system, developed by Tony Andrews and Tim Isaac of Turbosound.

John Penn says the main advantage of the turbo system is that it is compact, which in turn leads to reduced transport costs for bands and easy handling. We heard a demonstration of the turbo gear in the upstairs showroom and found it hard to believe that the baby-sized bins could produce such a large sound.

The premises are a testimony to Sigma's rocket to fame in the PA world. Little more than three years ago John Penn was still at college, but his interest in the rock



The woodwork shop for Sigma's cabinets and bins.



Just some of the extensive range of PA gear available.

world led him to save up enough out of his student grant to buy a 400-watt rig to rent out at gigs.

He set up Sigma at home and then transferred to a small base in Hartley Road, Nottingham, where he ran PA rental and repairs and started building his own equipment. The firm's first major breakthrough came when John was working on a Jerry Lee Lewis tour with Darts as the support band. He told the Darts about his gear, they decided to use it and the PA

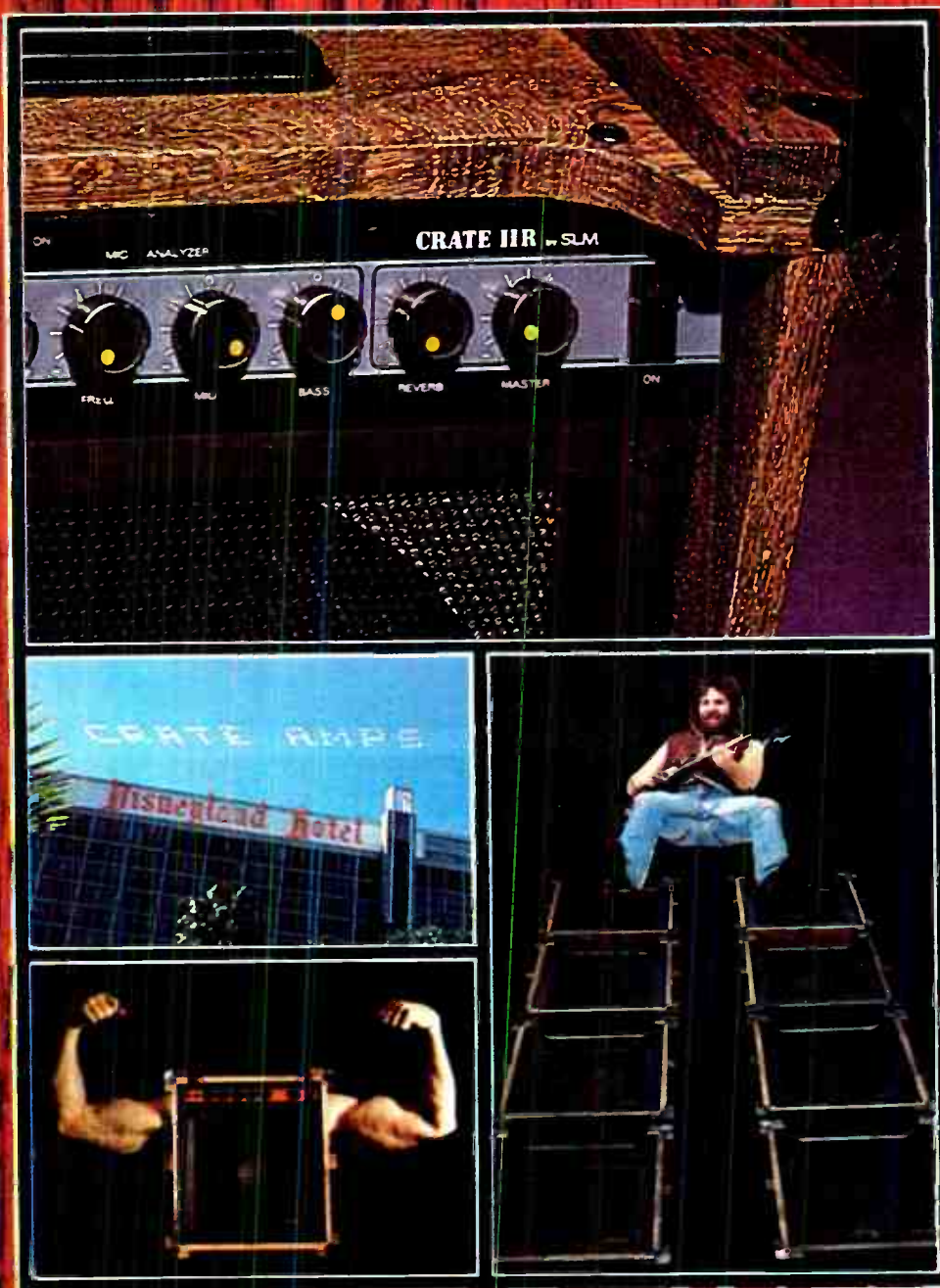
was praised in several reviews of the band's shows.

The business was rapidly growing and in August last year moved to the expensive new premises in Faraday Road. Many people were cynical about Sigma's ability to pay the expensive rent and thought it would go under. But six months later it is going from strength to strength and John Penn is optimistic about the firm's prospects.

Lynden Barber

CRATE AMPS

Small and Powerful Packages



Exclusive creators and distributors

SLM Electronics

1400 Ferguson Avenue St. Louis, Missouri 63133
314-727-4512

CRATE AMPLIFIERS



Crate amps are built by electronic engineers and technicians who are also musicians. Crates are small enough for backstage warmup as well as practice, powerful enough for stage performing, versatile enough for the studio. Crates can be combined to create different sized systems to fit any job requirement. With this "Crate System" concept, musicians have the advantage of portability. You no longer have to haul around a two hundred pound monster amp to play at 1-10h its capacity. If you play in a small club, you can simply use as many speakers and amps that you feel are necessary, without altering your basic sound. You can now play large auditoriums, small clubs, or record with the same system. You just balance the number of Crates and speakers to fit the room.

CRATES SAVE YOU MONEY!

To the beginning musician, the new Crate System makes good sense. You start with one amp, add a speaker, add another Crate for bi-amping or add more amps for more power. You no longer have to worry about losing money by trading in your old amp for a new one in order to progress musically. You simply add whatever Crate components you feel necessary as your pocketbook and ability grows.

CABINET CONSTRUCTION FEATURES THAT ARE YEARS AHEAD . . . COMPARE US!

1 Solid Wood Cabinets.
Only solid 3/4" wood is used in Crate cabinets—which look even better after a little "road wear". The overlapping corners are a full 1 1/2" thick with steel reinforced caps for added protection.

2 Solid Steel Handles.
The handle is heavy gauge steel (not plastic) to hold up under the toughest road conditions. Handle is spring loaded to snap neatly back into place when not in use for easy "Crate System" stacking.

3 Solid Steel Speaker Grill.
The grill cover is also heavy gauge perforated steel (not a thin plastic or cloth mesh as on most other amps). Grill is mounted with a wood frame against foam rubber for maximum speaker protection without vibration or buzzing.

4 Solid Steel Chassis.
The amplifier components are protected in a solid 18 gauge steel chassis (not weaker aluminum as used on many other amps). Chassis is firmly mounted at the top of the cabinet and is easily removed for quick servicing.

CRATE I SERIES I

Five competitively priced amplifiers built for studio, practice, or small club work. These 20 watt RMS amps all feature solid Ponderosa Pine cabinets with 10" or 12" Magnum Projector Crate speakers. Each amp has a lineout for use as a preamp, with a separate power amp, or plugging into a console mixing board.

CR-M Crate Mini Amp

A low cost solid wood Crate with separate gain control, treble, bass, and master volume. Other features include two inputs (one high, one low), a separate lineout, and a 10" Crate Magnum Projector speaker, 20 watts RMS. Overall Crate Mini Amp dimensions are 15 1/4" wide, 16" high, 7 3/4" deep.

CR-I Crate Standard

20 watts RMS with 12" speaker, two inputs, gain, treble, bass, and master volume control. Separate lineout. Ponderosa Pine cabinet.

CR-IR Standard/Reverb (not pictured)

Same as CR-I standard with the addition of an Acutronix reverb suspended in vinyl bag.

CR-ID Deluxe/Distortion

Features 20 watts RMS with 12" Magnum Projector speaker. Special bright switch boosts treble frequencies. A separate distortion control in back can be activated with an optional foot switch for added tone variation. Gain, treble, bass, master volume, lineout.

CR-IRD Deluxe/Reverb/Distortion

Same as CR-ID with the addition of reverb and variable foot switchable distortion. Foot switch extra.



CR-M CRATE MINI



CR-I CRATE STANDARD



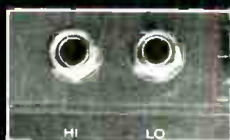
CR-ID DELUXE/DISTORTION



CR-IRD DELUXE/REVERB/DISTORTION

CRATE SERIES I General Performance Features

CR-I series overall dimensions are 17 1/2" wide x 19 1/4" high x 10" deep.



Two inputs (one high, one low). Allows a choice of either tube type distortion from high input—or a cleaner sound from low input.



Preamp Gain Control. Can be combined with master volume to induce tube type distortion at low volume levels.



Speaker Lineout. Allows use of Crate I series preamp section for mixing. Signal can then be sent to a separate power amp, mixing board, or other reinforcement.



G10 Fiberglass Circuit Boards. Stronger than regular phenolic circuit boards. G10 boards last longer which lessens the likelihood of annoying service hassles.



Separate Internal Heat Sink. Output transistors are attached to a separate aluminum heat sink for efficient cooling. Many other amps use the chassis for heat sink.

CRATE II SERIES

Small and Powerful Packages

Added power with extraordinary tone shaping capability. These compact 60 watt RMS amps have all the features demanded by the working musician. Bi-fet low noise integrated circuitry delivers the tonal warmth of a tube type amp. Mid range frequency analyzer acts like a mid range parametric. Line in, line out for effects looping and a bright switch that gives a 20 db treble boost. Main speaker disconnect. Available with a standard 12" Crate Magnum Projector speaker or optional British Celestion speaker (56 oz. magnet).



CR-IIH

CR-IIH 60 watt Lead/Bass Head
Now you can buy the Crate II "brain" separately. This rugged 60 watt RMS chassis comes complete with the same performance features as the Crate II lead amplifier with speaker. Solid Ponderosa Pine cabinet. Can also be used as a bass head. Overall CR-IIH dimensions are 17½" wide, 10" high, 9" deep.



CR-II

CR-II Crate Lead Amp
Ponderosa Pine cabinet. 12" Magnum Projector speaker. Extension speaker jack plus line in, line out. 60 watts. Bright switch, mid range parametric plus active bass and treble controls. Gain and master volume.

CR-II-C (not pictured)
Same model as CR-II but equipped with 12" Celestion speaker with 56 oz. magnet

CRATE II SERIES PERFORMANCE FEATURES



Active Tone Equalization Controls

All tone controls on the Crate II series provide for active cut and boost of all frequencies from 40 hz to 20 K hz—giving more tonal variety. Many amps have only passive tone controls.



Mid Range Analyzer Circuitry (Frequency and Mid Range Controls)

Acts like a mid range parametric equalizer by letting you actively cut or boost the mid range frequency of your choosing. Guitars are basically mid range instruments. You now have more control over a guitar's most fundamental tone spectrum, for maximum tone shaping and sound control.



Bright Switch (located over treble control)

Provides you with an immediate 20 db boost of the higher treble frequencies and produces piercing crisp power lead highs.

OTHER CRATE II SERIES AMPS AVAILABLE

(all with the same performance capabilities as the Crate II but featuring Acutronix reverb)



CR-IIRN

CR-IIRN Natural Oak with Reverb
Lead/Reverb amp in natural oak cabinet. This compact Crate is housed in a natural oiled solid oak cabinet. 60 watts RMS.

CR-IIRNC Celestion Natural Oak
12" Celestion speaker with 56 oz. magnet. Reverb. Same specifications as CR-IIRN.



CR-IIRS

CR-IIRS Stained Oak with Reverb
Stained solid oak cabinet with reverb. 60 watts RMS. 12" Magnum Projector speaker. Same specifications as CR-IIRN.

CR-IIRSC Celestion Stained Oak
12" Celestion speaker with 56 oz. magnet with reverb. Same specifications as CR-IIRN (not pictured).



CR-IIRH 60 Watt Lead/Reverb Head
This rugged 60 watt RMS chassis comes complete with Acutronix reverb. All other controls are the same as on CR-IIR series. Can be used as PA head, especially when combined with a separate mini-mixer. Ponderosa Pine cabinet.

CR-IIRP Ponderosa Pine/Reverb
12" Magnum Projector speaker with Ponderosa Pine cabinet. Same specifications as CR-IIRN. (not pictured).

CR-IIRPC Ponderosa Pine/Celestion
12" Celestion speaker. Same specifications as CR-IIRN (not pictured).



Bi-Fet Pre Amp Circuitry

These low noise integrated circuit chips achieve the soft clipping normally associated with the tonal warmth of a tube type amplifier.



Modular Printed Circuit Board Design

Three G10 all fiberglass printed circuit boards are used in each Crate II series amp. Each board can be individually tested. If servicing is required, it is faster and easier to isolate trouble in three smaller boards than one large board commonly used in many other amps. Average servicing cost is less, and you get your amp back faster.



Massive External Heat Sink

Black anodized aluminum finned heat sink cools heavy duty silicon power transistors which prolong transistor life. Many amps use the chassis for cooling.

CRATE SERIES CR65 Series New Crate Compacts with Channel Mix

This ultimate compact professional amp has two channels which have been designed to produce two entirely different tonalities. There are two independent sets of equalization controls. The front channel has Bi-Fet integrated circuits, while the rear channel has C-Mos integrated circuits which produce an entirely different tonal texture. Controls for the C-Mos channel include gain, treble, bass, master volume and combine volume and are located on the rear panel of the amp. Channels can be activated or mixed with a heavy die cast foot switch. Front channel controls include gain, treble, bright boost, mid frequency, mid level, bass, reverb, master volume. LED status lights on the front panel let you know what channel you are in. 60 watt RMS. 12" Celestion speaker.

CR-65C Stained Oak/Celestion
60 watts, 12" Celestion speaker. Reverb. Two channels. Solid oak cabinet.

CR-65DLC Dovetail/Celestion
12" Celestion speaker. Solid Elmwood dovetail cabinet. 60 watt RMS. Two channels. Reverb.

NOTE: These CR-65 series amplifiers come standard with dual foot switch for channel mix.

Featuring 5 separate volume controls for "gain stacking" which gives you complete control of the pre-amp and power amp.



CR-65 C



CR-65DLC

CRATE CR65 Series

Detailed Specifications:

FRONT PANEL

- 1 **Two Inputs**—Left Input—normal high gain. Right Input—low gain (minus 6db).
- 2 **Gain Control**—Volume control in preamp section. Allows player to overload pre-amp stage to induce tube type distortion.
- 3 **Low-High Switch**—Adjusts preamp gain structure to suit various inputs and playing styles
 - A. **LOW POSITION**—reduces gain of preamp section to allow for easy dialing of clean settings. Good for the clean player or full volume rocker.
 - B. **HIGH POSITION**—decreases gain of preamp and changes tonality slightly to allow for easy dialing of distortion settings. Good for rock settings, particularly low level distortion.
- 4 **Master Volume**—Controls the volume in the power amp section. When used in conjunction with the "gain" control, player can induce tube type harmonic tones at low volume.
- 5 **LED Indicator Lights**—
 - A. Left light (red) indicates rear channel in operation.
 - B. Right light (yellow) indicates combining of front and rear channels used together in series.
- 6 **Active Bass Control** ± 22 db Boost or Cut at 40 hz.
- 7 **Mid Analyzer Circuit (like a Mid Range Parametric)**—Control of the mid range tone spectrum has most dramatic effect on shaping the general tonality of the guitar. This circuitry consists of:
 - A. **Frequency**—Select the frequencies in the mid range spectrum you wish to boost or cut.
 - B. **Level**—Governs the amount of boost or cut in the mid range frequency you have selected.
- 8 **Active Treble Control** ± 18 db Boost or Cut at 20,000 hz.
- 9 **Three Stage Bright Switch (located over treble control)**—Provides you with an immediate boost of the higher treble frequencies.

Switch to left—off

Switch to center— ± 15 db @ 10 khz
low bright ± 5 db @ 1.5 khz

Switch to right— ± 20 db @ 10 khz
high bright ± 15 db @ 1.5 khz
- 10 **Reverb Control.**
- 11 **Lighted Power On-Off Switch.**

CRATE
CR-65 SERIES
FRONT PANEL



**CRATE
CR-65 SERIES
BACK PANEL**



BACK PANEL

- 12 AC Convenience Outlet.
- 13 External Fuse Holder.
- 14 Three Wire Grounded Power Cable.
- 15 Polarity Switch—helps eliminate line noise.
- 16 External Heat Sink—cools power transistors providing longer life to amplifier.
- 17 External Speaker Outlet—4 ohms minimum impedance.
- 18 Rear Channel Control Section.
 - A Continuously Variable Bass Control.
 - B Treble Control.
 - C Gain Control—A volume control which also allows player to overload pre-amp stage to induce distortion.
 - D Master Volume.
 - E Combined Volume—Adjusts overall volume of amplifier when both channels are used simultaneously (in series) without affecting the general tonality.
- 19 Channel Mix Foot Switch Jack—Allows you to use either Channel 1 pre-amp or Channel 2 pre-amp separately, or combine the two in series for the largest selection of tone combinations available in a self contained amplifier of this size.
- 20 Line Out / Effects Out—Allows you to use the pre-amp section for tone mixing and then connect directly into sound reinforcement equipment, or allows for external effects looping in conjunction with line in.
- 21 Line In / Effects In—Sensitivity 16 VAC RMS input level required for 50 watts. Allows for external effects looping for foot pedals and tape echo without using front end (pre-amp) section. This provides a noiseless signal for effects.
- 22 Reverb Foot Switch Jack—Located under chassis.

By Popular Demand...
CRATE BASS AMP



CR-IB CRATE BASS AMP

CR-IB CRATE BASS AMP

By popular demand, here is the moderately priced Crate Bass which delivers a driving punch through a specially designed ported cabinet. The Crate Bass has 20 watts RMS

and a 12" speaker with a 30 oz. magnet. Controls include gain, bass, treble, master volume and line out. Housed in a Ponderosa Pine closed back cabinet.

CRATE EXTENSION SPEAKERS



CR-KSH Crate 60 watt Power Amp
Now you can buy the Crate Kicker "brain" separately. This rugged 60 watt RMS chassis is housed in a solid Ponderosa Pine wood cabinet. Good power source for monitor speakers.



CR-EX



CR-KS 60 watt Crate Kicker
Excellent for add-on power to your present amp. Ideal for a powered monitor speaker at an incredibly low price. This 60 watt RMS power extension speaker has a 12" Crate Magnum Projector speaker. Three LED's let you know if your amp is coasting, at normal, or in a clipping mode. Separate volume control for power regulation. Front panel input and output jacks for daisy chaining.

CR-KSC Celestion/Crate Kicker
Equipped with 12" Celestion speaker. Otherwise, same as CR-KS.

CR-EX Extension Speaker
Use this budget priced separate speaker enclosure to increase your sound level. When used in conjunction with any Crate II series amp, you get more power and a marked increase in punch with the addition of the 12" speaker enclosure.

CR-EXC
Crate extension equipped with Celestion speaker.

The Flexible CRATE SYSTEM

Design your own Sound at a Modest Cost

The CRATE SYSTEM — the only real answer for the musician who is looking for a flexible amplification system at a modest cost. Now you have the ability to add as much power, and as many speakers as you need to fit the job. No need to initially invest in larger, more expensive gear. You can later add more power, achieve bi-amping, or get the sound of a super stack as your ability and pocketbook grows. Write for our booklet that gives complete details. Listed are examples of a few systems.

Exclusive creators and distributors

SLM Electronics

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Twin 12" Mini Stack
(CRATE II and Extension Speaker).
Satellite speakers can be positioned
anywhere sound is needed unlike
"fixed" twin 12" speaker amps.



120 Watt Twin 12"
(CRATE II and 60 watt Kicker).
Combine the 60 watt CRATE II with
the 60 watt Kicker Slave and speaker
and use the slave as your own monitor.



Bi Amp 120 watt
Most efficient sound control. Two 12"
speakers for bass side, two 12"
speakers for the treble side.



Bi Amp 180 watt Six Pack
Starts with 180 watts rms, drops four
ohm speaker load to two ohms
providing "360 watts of sound".



EXPLORE YOUR FUTURE

The Omega School of Applied Recording Arts and Sciences announces an intensive workshop/seminar for the summer semester, beginning on June 23, 1980.

This special session has been designed to instruct amateur, student and semi-professional recording enthusiasts in the fine art of making better tapes.

Beginners will be thoroughly trained in the logic, theory and economics of professional recording.

Super Session '80 will feature lectures and seminars by internationally acclaimed professionals, including Mack Emerman, owner of Criteria Recording Studios in Miami, Florida. Other leading producers, engineers, educators and equipment manufacturers will lecture and conduct seminars.

The Basic and Intermediate 7-day Intensive Course covers Electronics, Studio Management, Record Production, Acoustics, Sound Reinforcement, P.A., Concert Recording, Demo Production, Studio Effects, and Multi-Track Theory.

Advanced seminars and workshops are available in Radio Production, Automated Mixing, Music Production, Jingle Production & Studio Maintenance.

Qualifying advanced students will get hands on experience in Washington's newest and most sophisticated 24 track automated studio.

The Omega School of Applied Recording Arts and Sciences is approved by the Maryland State Board for Higher Education and courses are available for accreditation by The American University in Washington, D.C.

IN 24 TRACK RECORDING ENROLL NOW

FOR SUPER SESSION

JUNE 23-29
7 DAY INTENSIVE
WORKSHOP/SEMINAR
IN WASHINGTON, D.C.

Basic & Intermediate Tuition is \$695, (including all lab fees, books, supplies, ground transportation between the Silver Spring Plaza Holiday Inn Convention Center and Omega 24 Studios. Also includes breakfast and certain meals catered for extended sessions.)

Advanced Tuition is \$895, (inclusive). Advanced workshops are limited and early registration is suggested.

If you suspect that your career lies in the field of music, studio recording or media production, Super Session '80 will provide you with an excellent opportunity to avoid a lot

of mistakes that have already been made by experts. And the experts will be at Super Session '80,

including John Woram, author of "The Recording Studio Handbook", and editor of db Magazine.

Super Session '80 participants may lodge at the Silver Spring Plaza Convention Center at special student rates. Write or call for a complete information and registration package. For a telephone interview call (301) 946-3242 between 11 a.m. and 1 p.m., Monday through Thursday.

For information by mail write or call (301) 946-4686 weekdays. Master Charge and VISA are acceptable forms of payment. The Omega School of Applied Recording Arts and Sciences, 10518 Connecticut Ave., Kensington, Maryland.

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World Radio History

On The Record

LOS ANGELES

At Larabee Sound, **Charo** is putting down tracks for a new LP. **Shalimar** is also in mixing a new single with producer **Rick Gianitos** and Engineer **Bob Stone**. **Edwin Starr** is mixing with producer **Michael Stewart**, **Paul Jabara** is working on demos for the film soundtrack of the upcoming "Honky Tonk Freeway" and **5 Special** is also mixing down some tracks.

Mixing independently at Westlake Audio are the **Brecker Brothers** and **Taste of Honey**. Also in are **Rene & Angela** with producer **Skip Drinkwater** and engineer **Michael Braunstein**. **Cher** has also been in for overdubbing and mixing on her new LP with producer **James Newton Howard** at the helm. **George Duke** has been putting down tracks for a Brazilian (?) album on CBS.

Sunset Sound has been hosting **The Motels**, mixing down LP tracks with producer **John Carter** and engineers **Warren Dewey** and **Richard Kernan**. **Rita Coolidge** in with producer **David Anderle** and engineers **Peggy McCreary** and **Skip Saylor** for a new A&M LP. **AWB** is still in putting down tracks for a new LP produced by **David Foster**.

The Shirts are working on a new album at Capitol Recording's Studio A while, in Studio B, **Eddie Del Barrio** and **Donna Washington** have been hard at work on separate LP projects. **Amy Holland** is in also with multi-Grammy winner **Michael McDonald**. And **Moon Martin** is rocking out with characteristic verve for a new Capitol LP.

Neil Young working with longtime collaborator **David Briggs** on the soundtrack for "Where The Buffalo Roam" at Gold Star Recording. **Rusk Sound Studios** has been providing the facilities for the **Village People's** new masterwork with producers **Jacques Morali** and **Henri Belolo** and engineer **Juergen Koppers**. **Koppers** is also working with producer **Michael Narada Walden** on **High Inergy's** new LP for Motown. Singer **Clauja Barry** is also in working with producer **Juergen Korduletsch** on a new disco single for Lollipop Records.

A lot of soundtrack work being done at Filmways/Heider Recording. Continuing projects include the scoring of Paramount's "Urban Cowboy" and "The Serial." TV soundtrack work includes the

music scores for "Betty Boop" (Oakhurst Production for ABC), an episode of "The Chisholms" **Chuck Barris' "The Gong Show Movie"** and "His Name Is Mudd" (Marble Arch Productions). **Alan Price** in mixing his latest LP for Jet Records while **Heider's** remote units have been recording shows by **Mac Davis** and the **Divine Miss Midler** for her latest movie to be entitled "Divine Madness."

NASHVILLE:

The studio scene in Nashville keeps growing and that growth keeps finding some interesting directions, the most interesting of which of late has been **Samborn Productions** moving here from Boulder, Colorado. The company purchased the former estate of local restaurateur **Mario Ferrari**, including an impressive house, a log guest house and 30 acres of Cumberland River shoreland, which is being operated as **Bull Run Studios**.

Distinctiveness of the venture is multi-fold: the studio is in the house but the control room is mobile, offering 24-track capabilities that could just as easily be used at a concert or some other remote location. The comfort-oriented facility also includes a rehearsal hall, a showcase theater with seating from 75 to 100 people with full catering possibilities, and a full range of recreational opportunities, making **Bull Run** an excellent "working resort" for recording artists. Up to six people can actually sleep on the premises and, although Marketing/Public Relations Director **Scott Getlin** reports that they are not "selling" it as a hotel per se, he is willing to rent it to people in need of exclusive reclusivity while in Nashville whether they are recording at **Bull Run** or not. "We want to be as intimately involved in the Nashville music industry as we can be," he elaborates, "and our plans involve any possible way that can be achieved."

So, in future references to **Bull Run Studio**, you can envision this elaborate modern mansion overlooking the Cumberland 9.2 miles west of Bordeaux on the Ashland City Highway.

Closer in to town, **Moe Bandy** and producer **Ray Baker** have cut two albums at

the **Jack Clement Studio**, one a 20-song collection of authentic cowboy ditties for CBS Special Services and the other "an album like they usually do." **Baker** has also been in with **Moe's** sometime partner **Joe Stampley**, but no duet sessions at this time.

The **Clement** people have also celebrated the first number one pop record to come out of there since **Ray Stevens' "Everything Is Beautiful"** in 1971 — the new number one, of course, was **Kenny Rogers' "Coward Of The County."**

In the middle of Music Row, **Christy Lane**, **Denny Hilton**, **Joyce Everson**, and **Freddie Waters** have dominated a spate of "jingles, demos, and staying busy" at LSI while **Jay Pennington** of **Exile** has been producing a project on the **Breeding Bunch** (that may be a universal aspiration but it's also the name of a group) at

Bette Midler



RECORDING WORLD

Young 'un Sound and across the river at Woodland Bud Logan has been mixing new **Jim Reeves** product in between soundtrack sessions for the **Johnny Cash Silver Anniversary** television special. **Mickey Gilley** overdubs gospel sessions on the **Williams Brothers** and **Tommy Ellison**, **Eddy Raven** sessions for Dimension Records and more jingles.

Philadelphia

Philadelphia's Sigma Sound Studios hosting saxophonist **Gato Barbieri**, who is putting down rhythm tracks for his new A&M LP. Ace producer **Thom Bell** is overseeing the final recording which has been expanded to 48 tracks. Also in at Sigma, producer **Leon Ruff** working with **Bobby Rush**. **Thom Bell** and **Dexter Wansel** are editing tracks from **Lou Rawls**. Singer **Loleatta Holloway** recording with producer **Norman Harris** for a new Sal Soul LP.

Miami

At Criteria Studios, **Jimmy Ruffin** has been putting down tracks for a new RSO LP with producers **Blue Weaver** and **Robin Gibb**. Atlantic Records' **Henry Paul Band** has also been in.

Chicago

At Paragon Recording Studios, the **Dick Eastman Band** recording a new album for Ovation Records. R&B/funk specialist **Jesus Wayne** recording an LP for AVI Records. **Curtis Mayfield** putting down LP tracks with producer **Gil Askey** at Custom Studios. Also **Big Twist & The Mellow Fellows** recording for Flying Fish records.

Hawaii

At Hawaii's Sea-West Studios, who've just installed a new MCI JH 124 computerized 24-track machine, artists like **Kidd Afrika**, **Bell & James** and **Carlson Macek** have been recording.

New York

At New York's Sigma Sound, **Victor Willis** (former lead singer for **The Village**

People) is working on a solo LP project with engineer **Andy Abrams**. **Candi Staton** is also in putting down tracks for her new Warner Bros. LP with producer **Jimmy Simpson** at the controls. **Simpson** is also working with a new group called **Flakes**, mixing down tracks for a new Magic-Disc LP. Chelsea Sound has been hosting a new Capitol group called, appropriately enough, **The 80s** with producer **Peter Ker**. **Ker** has also just finished an LP with CBS group **Laughing Dogs**. Singer **Susan Collins** is working with producer **Jeff Kent**. Atlantic Records' perennially hot act, **The Spinners**, is working at New York's Mediasound with producer **Michael Zager**. **Iron City House-rockers 5** (Pittsburgh's finest) also in for a new LP on Cleveland International. **Cheryl Lynn** is remixing her new LP with producer **Bert DeCoteaux** and producer **Michael Gore** is wrapping up work on the soundtrack for "Fame". Chic and **Roxy Music** have both been in and out of Atlantic Recording Studios, working on new album projects. At Electric Lady, **Kiss' Peter Criss** working on a solo project. The legendary **B.B. King** has also been recording at the 8th Street studio.



Brian Ferry

The Record Plant has been very busy of late, with acts like **Graham Parker** (Jimmy Iovine producing), **Rob Stoner**, **The Motors**, **Joe Perry**, **Eric Troyer**, **Another Pretty Face** and **The Blues Brothers** coming in to work on various recording projects.

San Francisco

The Automatt continues to be the focus of major label attention this month with platinum CBS artists **Journey** in for their new LP. New Projects at the studio include **Herbie Hancock**, in with Automatt owner **David Rubinson** as producer with **Fred Catero** engineering; **Rock Justice**, the rock opera by **Marty Balin**; **Pharoah Sanders**, who's in for his latest LP; an album of original material by **Hendrix clone Randy Hansen**; and **George Martin**, who stopped in for a spot news feature done with **Rubinson** and **Journey**. The Record Plant is also sporting a heavy schedule hosting **Rick James**, who's cutting a single for Motown, **Frankie Beverly** and **Maze** and **Stacy Lattislaw**, who's being produced by **Narada Michael Walden**. The **Tower of Power** horn section is overdubbing tracks for **Dionne Warwick's** next LP and **Eddie Money** is in rehearsing his next album to be recorded in L.A.'s Record Plant. **Huey Louis** and the **News** along with **Fever** have been working out of Different Fur Studios. **Sammy Hagar** is co-producing his next LP with **Tom Scholz** at **Wally Heider's**. Over at Hun Sound's rehearsal rooms **Van Morrison**, **Commander Cody**, **Carlos Santana** and **Maria Muldaur** are all working out. At Fantasy Records' studios **Pleasure** is cutting tracks for their sixth album and **Idris Muhammed** is finishing off his next LP. **Tewksbury Studios** is currently hosting the **Ghosts**, who have been getting guest appearances from **John Cipolina** and **Keith Godchaux**. Sharing some of the studio space are the **Mutants**, **No Sisters**, and **Little Roger and the Goosebumps**. **Bob Flurie** (**Hoodoo Rhythm Devils**) is putting together a solo project are ex-**Commander Cody** vocalist **Billy C. Farlow** and **Peter Rowan**. Country rockers **C. W. Mow** are also in for an LP project.

Recording for the 80's: Editing (2)

Many artists, producers and record companies seek out particular engineers because they "get a great sound" or they "do amazing mixes." They rarely ever search the country to find an engineer who "does great edits," yet often during those "great sound" and "amazing mix" sessions, there are always edits to be made. Just as any competent photographer must know how to crop his pictures, a good engineer has to be good at editing and be creative as well.

Editing is seemingly the most important/unimportant function of the recording chain. A function that takes place between every step of making a record. It is even a factor after the record has been made.

Editing is most commonly viewed as a process used to shorten a long tune which might be quite suitable for album play — 4½ minutes up to 25 minutes, which is about as much as the best cut disc will hold — down to a single 45 rpm radio airplay time (3:00-3:40 min average). Most of the time this is done in a fairly straightforward fashion: Intro, Verse, Chorus, Verse, Chorus, Bridge, Chorus, Fade, and is theoretically a fairly simple task.

I tend to place various types of editing into two general categories. The first I call "Editing For Work" because, when you have to shorten or rearrange a poor tune or performance, it's *work*. In the end some of the editing cuts may help a little, but it usually ends up strengthening the realization of the painful reality that a bad record is still a bad record.

You're involved in a session and you're laying down the basic tracks on a multi-track tape. A musician decides to stop eight bars into the fade — not very much time for the singer to ad lib — because he didn't feel that the take was "happening." And of course everyone else on the track follows suit and stops playing because somebody has obviously dropped out. After five or six hours and twenty odd takes, the producer feels this was, in fact, the "magic" take. Crisis? Not really. You try another take and this time the guilty musician gets his part down spotlessly, but the overall take is definitely not happening. Crisis? No, just extra work for the engineer. If you're lucky, you can find a fade from



an earlier take that matches tempo and splice it onto the end of the 8-bar fade from the "magic" take. If you're *real* lucky, the band will play an insert fade to finish off the "magic" take. Two swift cuts and a second later, you've got a complete "magic" take.

If overtime starts to rear its ugly head on the local union clock and/or the producer has lost faith in the musicians and the entire recording process, all eyes will turn to you, anticipating the extra work you're gonna have to do. You must first copy the existing eight bars on the track to another multi-track machine. Copy as many times as you need to get the desired amount of bars for the fade. Well, three cuts and a half hour to an hour later you've got one magic take

with a 32-bar fade (the last 24 being *second generation*) — not exactly the ideal utilization of studio time! However, your ingenuity has saved the day. And this takes us over to Category No. 2. "Creative Editing."

Many a long or superfluously arranged tune has found its way into the Top 40 charts because of a clever or inconspicuous "deleting" job. Oddly enough, when your only involvement in a record is editing the single, its difficult to get any label copy credit. First, because the theoretically unimportant editing would then become too important. Second, because, psychologically, the record buyer and even the DJ would like to think that the final "edited" single version of the song is the way it

RECORDING WORLD

was originally recorded. So you'd better settle for your credit up front and enjoy the edited version as you hear it on your favorite Top 40 radio station.

King Crimson's "Court of the Crimson King" was doing quite well on its own as an album track, yet it found its way to millions of listeners via the Top 40 edited single version. Cerrone's "Love In C Minor," one of the first disco tunes to take up the whole side of an album, had a lot of success in the discos in the original form. But, with the airplay it received from the edited single, it had even greater success. Ironically enough, along with disco came the concept of editing for length. Since people needed more than five minutes to get into a dancing groove, "disco-length" versions of songs soon emerged, either done on the two-track or in the mixing stage.

Mixing and editing are inseparable. Back in my early days, I prided myself on mixing a tune straight through, with all of the cues spot on. I heard wild tales of how some engineers — especially these English chaps — could or would only mix in sections, mixing a piece here and there and then, when each section was perfect, editing them all together.

I always viewed a mixing console as an instrument, so I felt like a superior musician since I could get the spontaneity that just can't be gotten from section mixing. But even though they weren't getting spontaneity, they were freer to experiment with different "treatments" of various sections, creating radical and (usually) pleasant section depth changes — rather than socking it to 'em purely on the basis of "feel."

I soon found those glorious "one pass" mixes of mine becoming harder to attain, because I'd eventually end up fighting the No 1 natural enemy of mankind — Human Error. Usually, quality decreases as quantity increases. And, as my work load increased, after too many hours of wracking my brain, trying to get all those cues right while still copping a "feel," I slowly conceded to using a blade for a mix. If I got at least half way through a tune and then missed a cue, I'd stop the mix, set up for the mixed cue(s), start the tape and splice them together. Starting with this simple and handy concession to evolving

technology, I soon started editing sections from different mixes to make one optimally mixed tune. These days, hardly a day goes by where I won't be without a razor blade in my hands, slashing away at a client's future million seller.

Of course, with computers around to lend a helping hand with level and cue memory, section mixing becomes both more and less necessary — depending on whether you use the computer as a programmed, self-contained section organizer with slight variations, or as a helping hand with each "pass" at a section in an almost total update mode for spontaneous alterations. If the second example is the case, then editing no doubt plays as integral a part in the mixing as would pulling down the old "master fader" for the grand finale — "It's a fade!!!"

In a recording session, multi-track editing can be used creatively with some very rewarding results. By using sections from outtakes (of the same track), where some amazing licks or incredible tightness occurred between the musicians and overall sound, you can embellish an already together and happening final take.

During the recording for Michael Narada Walden's first solo album, *I Cry, I Smile*, the studio was filled with a variety of great musicians, from Carlos Santana and David Sancious on through a list too numerous to get into, not to mention Narada himself. In the control room was Tom Dowd, ex-ace engineer and present-day producer extraordinaire, producing. Dennis McKay, an engineer who'd contributed to many rock and jazz-rock fusion hits of the 70s, and I shared the engineering duties along with an assistant whose skill and knowledge probably matched our own, without the experience. So there was no shortage of talent or ability in either room.

Most of the tunes had *extremely* different sections, ranging from classical into jazz, rock and funk and, with the amount of soloing and ad lib comping by the musicians, editing became a necessary routine every three or four takes. Dennis and myself were sharing the editing load, doing two or three in a row, then passing the function on. Even

our assistant Randy Mason took a stab at a few. After a few days of this, Tom Dowd (no stranger to editing!) must have wanted to get in on the fun because, in addition to *directing* this particular edit, he emerged from behind the producer's desk very serious and determined, with blade and grease pencil in hand, proclaiming "This edit's *mine!*" He then proceeded to meet the challenge by executing that "perfect edit."

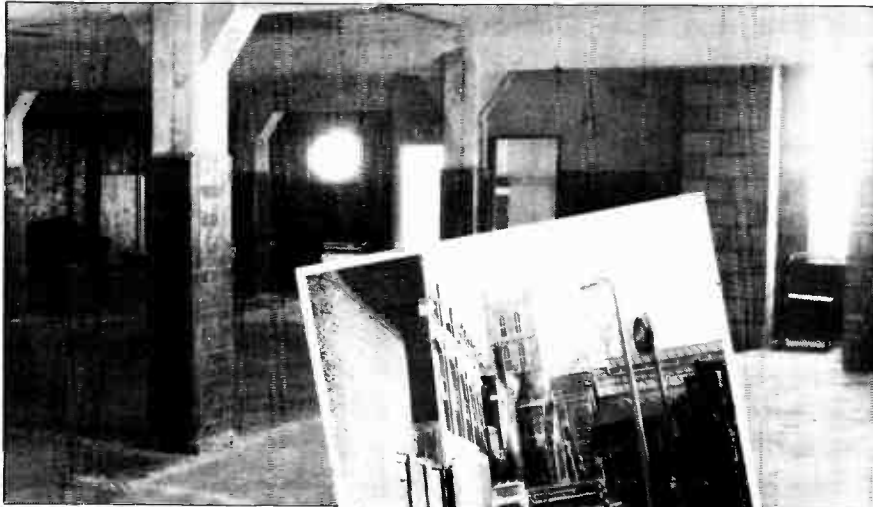
Many times a tune is recorded and, after spending a couple of days with the rough track, you find the actual structure needs changing or additions. I've come across this problem many times, and basically you can cut the new sections with the same musicians in the same studio, within a reasonable amount of time, and splice it into the original take — or copy the sections you'd like to lengthen as I discussed earlier. Even though it can be very difficult and is not recommended as regular procedure, you can also use different takes from different musicians recorded weeks apart and *sometimes* create some clever moods which might have been impossible for either group of musicians to create on their own.

Extraneous Insert:

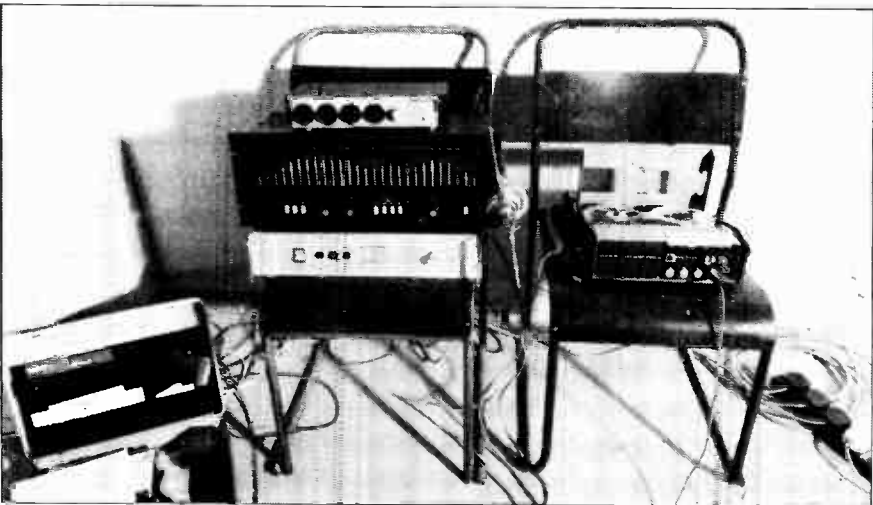
One particularly heartbreaking editing experience happened with a major supergroup — the second cut on the second side of the second album. The guitarist brought me five tapes worth of guitar solos to put together into one 20 second solo! Needless to say, this was a royal pain-in-the-ass and took forever, but I finally came up with a usable solo that got the guitarman's approval. Ironically, there was a clumsy edit in the middle of the solo and even though I pointed it out to him, he insisted I leave it in because it "felt right." Turns out that many aspiring guitarists of the day copied the solo note for note, including this editing aberration, thinking this instrumental passage was nothing but sheer genius.

Jimmy Douglass

TEST BED STUDIO



IM's acoustic consultant Ken Dibble in the studio.



The RCF spectrum analyser and associated equipment.

Some time ago International Musician and Recording World decided to build a recording studio which would be used to critically test studio equipment. The object of the exercise is to start from scratch and build a fully operational studio, charting its progress in the magazine and outlining any problems we encounter — and hopefully solving them!

Well, the first problem wasn't very long in coming, trying to find suitable premises. A recording situation must fulfill certain criteria, i.e. no appreciable traffic noise (road or subway), easy access and parking. Plus it had to be within each reach of London's Drury Lane (UK headquarters of IM&RW), and so the hunt began.

We encountered the usual problems in searching for premises, including the frustration of spotting the ideal thing only to be thwarted by the all too familiar landlords attitude of, "what! A recording studio — rock musicians hanging around — loud music until all hours — no thanks!" However, after much worn out shoe leather our mission was successful.

We finally came to rest in part of an old warehouse, just by London Bridge. In earlier days the warehouse was used for storing corn, when that part of the Thames was more of a viable commercial center. Nowadays though, it is a quiet area with little traffic and fortunately no noisy factories — more important there is a valued neighbour in the shape of a pub!

Format

The studio facility will give us the ability to evaluate studio equipment in its natural environment and hopefully show features of the equipment in use in greater depth than time allows for current tests. The space that the studio allows will enable us to install the large pieces of gear such as multi-track machines and consoles etc, which need a period of a month or so of studio conditions for a proper evaluation (a period normally considered luxurious for a monthly technical magazine schedule).

Use

The studio will be used primarily for technical tests and will not be used commercially but of course live music will be recorded as part of the test requirements.

As the studio area and the workshop were going to be used as rehearsal rooms

before we acquired the premises, a simple form of sound treatment had been used although the "Control Room" is as yet untouched. The construction budget is not unlimited so the acoustic treatments and the problems associated with these will be of interest to anyone involved in the building of a recording base, even if it is only a "domestic" home studio. Specialist advice and contributions will be invited and future issues will cover the problems encountered and their solutions.

The location is presently being wired to accept up to 24-track tape machines and a RCF spectrum analyser is being employed to help assess the acoustic responses of the rooms with a view to deciding exactly what alterations are necessary.

When building a studio, it will come as no surprise to learn that most construction time is spent on the acoustics development. This is certainly so in our case as we aren't affected by the other major concerns of commercial studio construction — marketing and attracting a client.

For this project, I have divided the subject of acoustics as it affects us into two areas — interior and exterior. Interior acoustics is the control of the sound in the studio area and the control room and so the kind of sound you achieve on your recordings. Exterior acoustics is the studio in relation to its environment and it is in this aspect of the studio project I am dealing with first.

Exterior Acoustics

This is not as immediately interesting as other aspects and success brings a largely negative response — you *don't* get praise for eliminating outside unwanted noise in your recordings. Failure brings heavy neighbours round in the middle of the night and once roused they require a lot of pacification! These problems can be largely solved by the choice of site for your studio.

Prepare a mental checklist for every studio premises to be looked at. Each potential studio builder's requirements are different so I will not attempt to order the following points — it's not an exclusive list, nor are they solely acoustic requirements.

Floor Area

Is it sufficient for current requirements and what about the future? If you aim to do album work you generally require more room for relaxation on long sessions. Will

there still be sufficient space if you have to use a lot of acoustic treatment on the walls in a difficult room?

Ceiling Height

Generally, a high ceiling is useful as it leaves room for acoustic treatment without lowering the ceiling to a difficult height. High ceilings also benefit the character of certain instruments where the sound "develops" above the instrument such as drums and string sections.

Room Shape

Apart from the obvious problems of room shape there are other considerations. A long narrow room means that musicians will be in a line down the room so visual contact and hence the music will suffer. This also means that certain instruments will be at opposite ends of the room quite often, and the time delay on any acoustic spill between them will tend to exaggerate the amount of spill present.

Obstructions

Are there walls to be removed and is it possible structurally?

Access

There's nothing like finding that you can't fit the timpani into the studio while the orchestra fidget and the producer panics or having the drummer exhausted before he even starts playing because he has carted his kit up four flights of stairs or your new recording console sits in the rain while you decide which wall will have to be knocked down to get it into the control room. You should also bear in mind future consoles you may purchase if you are expanding.

Neighbours

Careful investigation is required because some noise problems may occur at certain times in the summer or winter. Look for the presence of heavy machinery, generators, large air-conditioning plant, boilers, nearby train stations and other sources of vibration. Structure-born vibration is the hardest to deal with, particularly very low frequency sound that can upset recording without the sound being audible. Some very low frequencies can make musicians physically sick without knowing why, so don't rely just on a listening test.

We also have sound travelling the other way as well. (The ideal is, of course,

to be in the middle of the country and then this doesn't matter to such a degree). Neighbours tend to complain most at night when the ambient noise level of the neighbourhood is lower. Premises with non-residential neighbours are the best or you may end up with an injunction stopping you working after eight o'clock — a situation not unknown and sometimes very costly or impossible to correct. Certainly, avoid very quiet neighbours such as convents and churches as you will eventually exhaust even their patience!

Invisible Problems

There are other things to look out for that are invisible to the eye and ear but can wreak havoc, such as a nearby radio transmitter. An invisible is electromagnetic radiation e.g. from an electricity board transformer sub-station. This may not actually affect recording but the magnetic field surrounding a sub-station such as this would make me think twice about the long term safety of valuable tapes in the studio. These points neglect any regulations that surround the selection of premises for recording studios that are usually regarded as "light industrial" by the authorities.

Having listed these criteria, how did we choose our current premises? Well, we didn't require a large floor area as we are principally testing equipment and don't need a large number of musicians in at any one time. The studio recording area is actually 28ft. x 25ft approx. (the walls are very irregular). The ceiling height is about 12ft and is plenty for our requirements. All the rooms are rectangular in shape — just off square but as it is an old converted building, none of the walls are parallel and I don't think there is a right angle in the whole building! The designated control room is narrower but, quite sufficient in width to fit a large console across the narrow dimension. For access we have wide doors, all at least six feet in width. Our neighbours are all warehouses for storage and there are no residential premises for about 500 yards. So our premises fulfil our guidelines exactly and we do not expect, therefore, to have to spend much money or time on this aspect of the studio.

The next article will deal with interior acoustics and the start of treating a room for recording.

Keith Spencer-Allen

The Sunn Professional Guitarists Sound Check

- | | | | | | |
|----------|--|----------|--|-----------|--|
| 1 | Can you select either or both channels without disturbing preset controls? | 5 | Does your amp have C-MOS drive control? | 9 | Can you combine the best of tube and solid state sound? |
| 2 | Are you sure of the same response at all volume levels? | 6 | Are you effectively patching in effects and/or other amps? | 10 | Is your amp really portable? |
| 3 | Does your footswitch have L.E.D. and memory? | 7 | Can you achieve the tonal coloration you want? | 11 | Can you control channel interaction so that when you turn treble up, midrange and bass are not affected? |
| 4 | Do you have individual channel volume controls and master volume control? | 8 | Do your tone controls wash out at high levels? | 12 | Can you use reverb without interference from your tone controls? |

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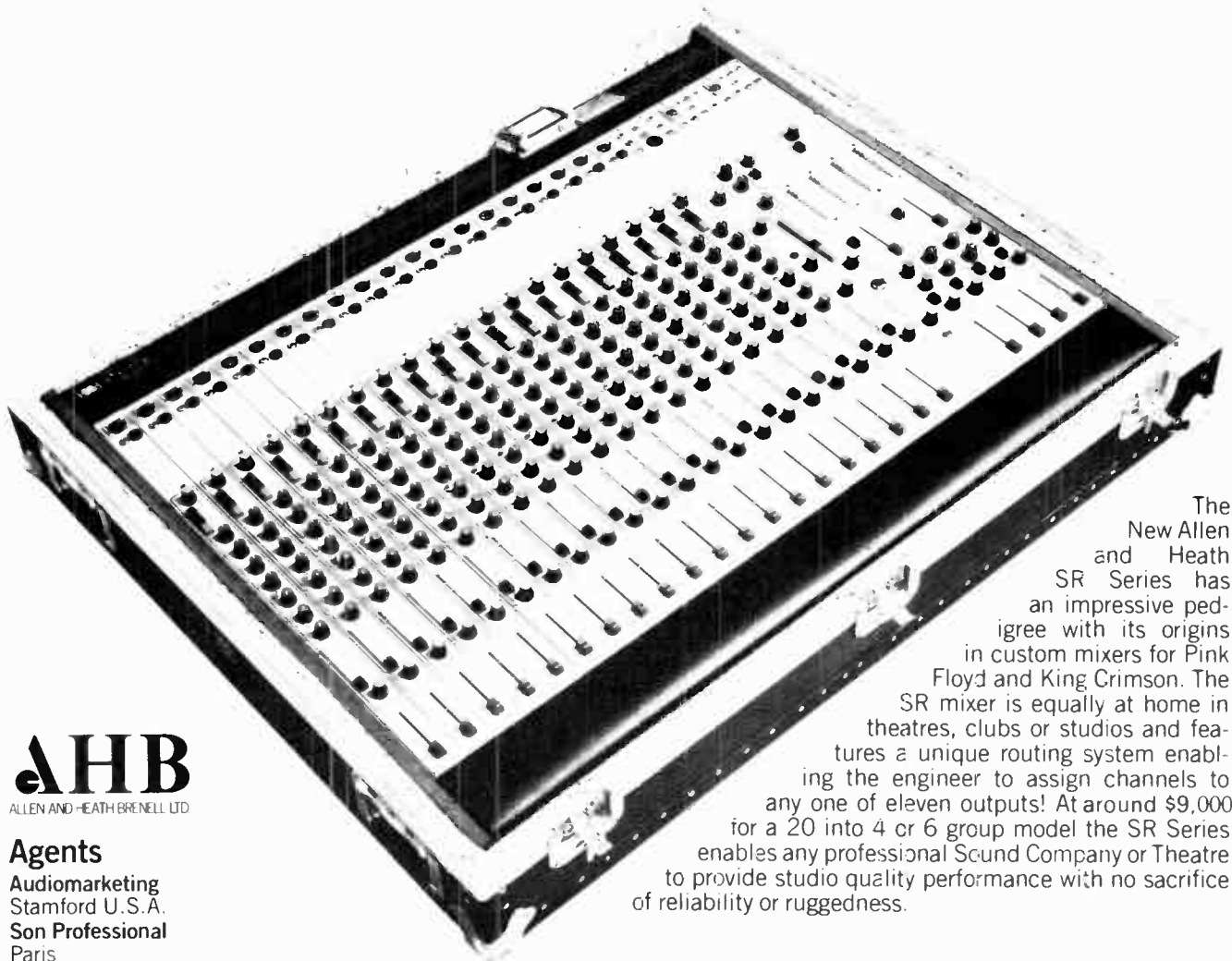
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STUDIO TEST

Sennheiser HD424X

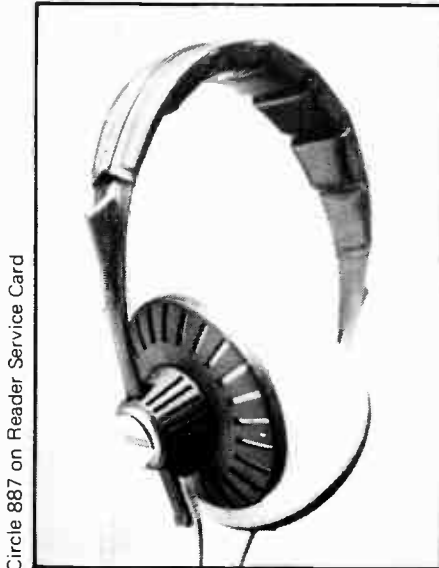
Just as the choice of a monitor loudspeaker is made largely by personal preference for the sound it produces, so it is with headphones. Obviously, as headphones are worn on the body, comfort is another deciding factor. Headphones for purely "professional" use need additional requirements to those found in "general use" models, although conclusions drawn in this and future headphone reviews should not necessarily be applied to the "hi fi suitability" of the headphone set.

Professional requirements are best explained by examining the use of the headphone in the multitrack studio environment.

Very little mixing is done on headphones as it is difficult to make accurately valued judgments regarding tonal balance, equalization and instrument balance in comparison to using loudspeakers. This, I suspect, is really due to the brain deciding that sound with almost total acoustic separation between channels and no room response, is not the "norm." Sound is "injected" into the ear as opposed to being incident on the outer ear and letting the brain sort out the acoustic scramble. (Having made this statement I can now expect hundreds of letters from engineers who mix quite happily entirely on headphones and I would welcome the discussion!)

Headphones are often used to check the positioning of instruments in the stereo spread — a much more precise method due to the almost total separation of the left and right channels as perceived by the ear.

Multitracking, high levels of volume and acoustic separation have meant that it is very common for musicians to have to wear headphones to hear what they and other musicians are playing or have played. Experience has shown that most musicians are not ultra-critical of the fidelity of the sound quality from headphones in these circumstances as long as it is fairly close to what they hear in the control room. Volume handling is probably the first criteria followed by clarity, as the information content of the signal is more important than the quality. The major exception to this seems to be vocals where the singer is often quite



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thrown if the sound in the headphones is not very close to this natural voice sound.

At the end of a take, headphones get mistreated — maybe thrown down in a fit of temper or the lead ripped out because they weren't unplugged as everyone rushed out for the playback. Then a bit later they get sat on and a guitar amp wheeled over them. Ruggedness is another "pro" requirement.

The high sound levels encountered cause failures after a while in all headphones, so remember what the repair situation is (and the unit cost).

Very few of these are domestic hi fi considerations and there are many more — but these are the major points we will be considering.

The HD424X is an open-design dynamic headphone. It is constructed almost entirely from black plastic with a crinkle finish. The headband has a removeable padded cover and the ends of the headband are notched to allow position adjustment of the headphone shells. These shells have a diameter of 90mm with a rotation of slots on the outside which are covered on the inside of the shell with a fibrous paper material to prevent a direct connection between the front and back of the shell.

The transducer is seated in a raised fitting and is held in place by three plastic clips on its frame. To remove a transducer only requires lifting these

three clips and pulling it out. Replacing it needs a little pressure and it snaps into place. The cable enters on both sides of the headphone on small two pin plugs — one lug of which is slightly larger. These plug directly into the rear of the transducer when it is in the head shell so there is no soldering required. These plugs are color-coded red and yellow but there is no indication on the headphones as to a left and right. At the other end of the cable is a molded stereo jack plug with a long cable support. One clever point here is the color coding of the insulating sleeves red and yellow to aid identification of the left and right channels corresponding with the plugs at the other end of the cable which is about three meters long.

Each ear piece has a yellow foam cushion of the same diameter as the headphone shell. These are extremely comfortable and cover the whole ear. They can be removed for cleaning with just a light pull.

The headphones are very light — about 170 grams and when worn by several people for periods of over half an hour continuously, no discomfort was experienced — in fact, it is easy to forget that you are wearing them. A couple of musicians commented on the cable hanging down in front of them being in the way (they were used to headphones where the cable enters on one side only) but they soon got accustomed to it. One of them took to wearing them so that the cable came behind him. They all commented that they balance very well on your head if you only want to listen to one earpiece (as is quite common).

Listening Test

My listening panel for this set of headphones consisted of four musicians, two recording engineers and three non-musicians with critical ears (their description). They were not all present at the same time but their comments were surprisingly uniform about the HD424X. The range of music listened to was wide and we also played recordings of instruments that the panel were familiar with. These were played at high and low volumes to recreate actual use.

The first comment was that the sound was "very close" and appeared "slightly

RECORDING WORLD

less ambient" than they were used to. They were also described as "bright but with a full warm bass response" and being "very efficient." These comments actually largely agreed with my own opinions although I did not make them known until the panel had written their own comments down. There was plenty of volume for even a modest amplifier setting and the brightness of the response retained the instrument detail even at high volumes. I also tried adding 12dB of lift below 400Hz and then raising the volume until the sound began to break up. Surprisingly, this lift only lowered the level at which the break-up occurred by a small degree and then it really only upset the bass frequencies leaving a still workable degree of clarity in the highs. This volume level was very high and extremely uncomfortable — I

could only stand it for a short period — so there should be plenty of headroom in normal use.

The remaining point is that there is a lot of sound transmission in and out of the headphones due to their open design. How usable this makes them for a musician in a studio environment depends on the circumstances. A musician playing a loud instrument such as drums or electric guitar relies on the sound isolation of closed headphones in these cases would probably not be practical. In some cases, the ability to hear your own instrument naturally is beneficial, such as on acoustic instruments where the physical control of the instrument is guided by the sound you hear. This of course includes vocals. If, however, you were multitracking one voice 10 times, open headphones are

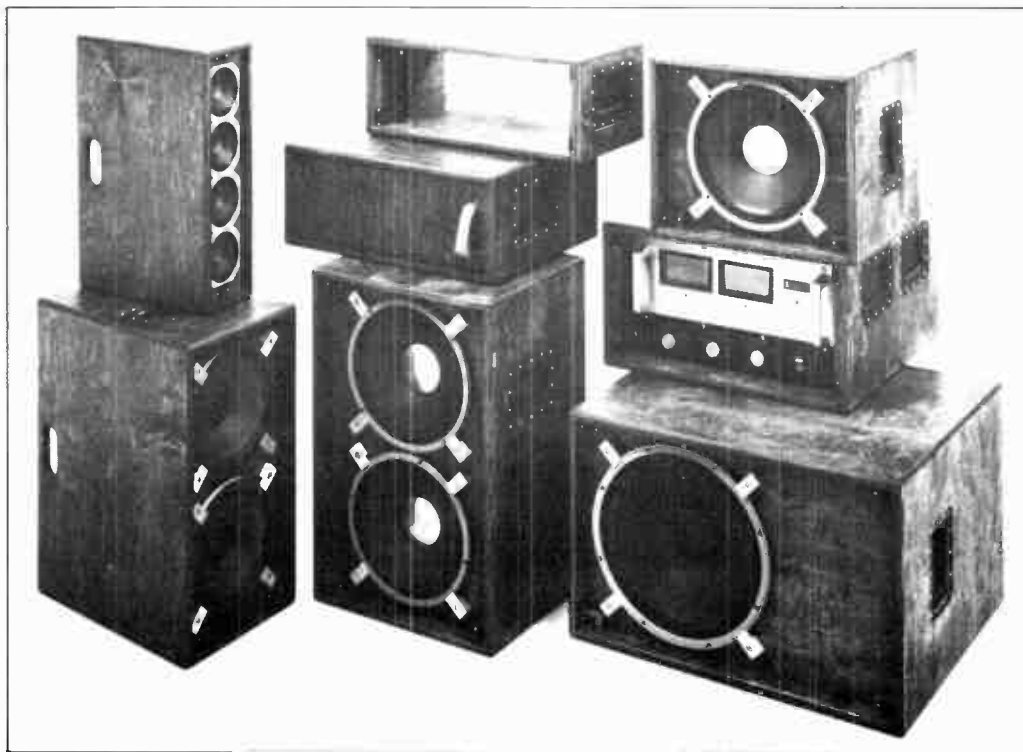
probably precluded as the build up of headphone breakthrough would be unmanageable but used carefully their advantages can be made to work for you.

Conclusion

I found the Sennheiser HD424X to be a very suitable headphone for studio use, having a sturdier construction, easy servicing, a good natural sound on most material and a high degree of comfort. They are, of course, open headphones with the limitations mentioned but I believe that any studio should have a selection of headphones of different types and makes, so that special requirements can be met. I recommend the HD424X for consideration.

Keith Spencer-Allen

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On Test: **Studiomaster 12/2b Mixing Console**

Introduction

The Studiomaster of Eaton Bray, England is well known for their range of professional audio equipment used by both bands and studios. This 12 input channel, semi-modular stereo mixing system was designed at a modest price, to suit the requirement of touring bands and small studios.

Obviously, there will be occasions where larger number of channels are required, and to solve this problem Studiomaster have provided their "add on" units in blocks of four which thus expand their mixer up to a maximum of 20 microphone channels. Installation of these additional channels is so simple and straightforward that the whole operation takes only a few minutes and can be carried without any special tools or instruments. Among the rest of the options and extras that the Studiomaster can provide, you will find a very suitable range of flight cases made in both fiber covered plywood or aluminum all designed for 12/2, 20/2 and 24/2 combinations.

What about multicores? An optional multicore cable with a stage box is available for the 12/2, which really does optimize the cost of the Cannons and mike cables and also makes stage life that much

easier — which is something all of us strive to do.

Construction

The 12/2 input sockets are XLR Cannons from our well known house of Nuetric and consequently low impedance microphones should be used, thus resulting in a rejection of unwanted crosstalk and interference and also helping a lot when using long transmission lines.

On the front panel at the top of each channel is an overload LED, input gain control and a 0 + 30dB attenuation rocker switch for matching other unusually high output sources. Pressing the PFM button enables the correct level to be metered. All inputs are electronically balanced. Equalization is made up of a parametric design containing; Treble @ 10KHz, Middle @ 400Hz to 8KHz and Bass @ 30Hz to 300Hz. Here Studiomaster claim that +16dB should suit practically all EQ situations.

Potentiometers

The "master" section of 12/2 is dominated by a pair of large VU meters calibrated at the usual (-20, 0 +1, +2, +3) Vu standard with OVU corresponding to approx OdBM levels.

The central part of the front panel is occupied by the two Echo sends (monitor)

and a pair of returns followed by three master sliders calibrated differently to the input faders, namely (-00, -40, . . . 0, +5, +10) and in order to complete this part we have the main outputs PFM (pre fade monitoring) switch and a ¼" phones jack with its levels control. There is also full equalization, as on the input channels, on the outputs and foldback master output. As I mentioned earlier, each channel has two separate "echo send" potentiometers which route the desired proportion of the signal to the echo send output, for connection to an external effects unit. Additionally, the echo sends are "post-fade" — meaning that whichever way you adjust the channel faders, the echo will always stay in proportion. Studiomaster's 12/2 echo return levels on both channels may also be used for stereo tape relay, special effects etc.

Turning now into the main outputs, we have D3M Cannons wired Pin 1 — Earth and Pin 3 — Signal, and as for the channels foldback sends, this provides a mono mix controlled by its level fader for usual stage monitoring equipment. At this point, it is necessary to remember that the 12/2 also incorporates monitor select facilities which simultaneously select headphones and meters either to the PFM system or to the main output pre-fade. Therefore, claim Studiomaster, the levels can be read at the "mixing point" and adjusted there to ensure balanced levels at all stages of the desk.

The mixer is totally enclosed in a steel case with a baked on finish giving excellent screening and great rigidity. Before I finish this section, just a word about the power supply — approx 20 V.A., which incorporates a toroidal isolation transformer for a very low hum noise and also integrated circuits regulators giving adequate immunity to even quite large variations in the mains input voltages. The mains input is via a "Euroconnector" 3-pin type socket protected by a 2Amp fuse element and supply voltages of 110/120V and 220/240V 50/60Hz can be applied as standard.

Conclusion

Firstly, the channel inputs — with headroom of 20dB, the channel gain available is +60dB (Pad out) and input impedance is stated as greater than 6



Kohms. As mentioned earlier, all 12 inputs are electronically balanced and equivalent input noise level claimed is less than -122dBm (-125dBm typically).

The parametric type EQ section is very comprehensive, offering a very efficient overall tone control as well as to counter the accoustical feedback since feedback often occurs at only one frequency.

Summing up, the channel sends are comprehensively provided and all the various function control knobs have different colored identification for ease of operation and quick orientation. The overall frequency response is typically $+0, -2\text{dB}$ Ref. 20Hz-20KHz band and this can be regarded as satisfactory. The final gain (i.e. after output faders) is about $+10\text{dB}$ hence maximum mixer gain (EQ — flat) is approx 70dB .

The pan potentiometer is arranged to give a smooth law, with proper regard for

left and right power levels maintaining a constant apparent loudness while panning. The practical use of PFM allows listening to any channel without affecting the overall mix and what is more important, it allows monitoring of the signal level on the V.U. meters. One very useful feature of the 12/2 mixer is the echo return system, with separate inputs and level controls for left and right channels, which can be used for stereo tape relay, special effects, stereo phasing etc. While for mono operation Studiomaster recommend that the two inputs should be linked. The quality of components and general workmanship of this desk are of the usual high Studiomaster standard and the complete system made a very good overall impression on me.

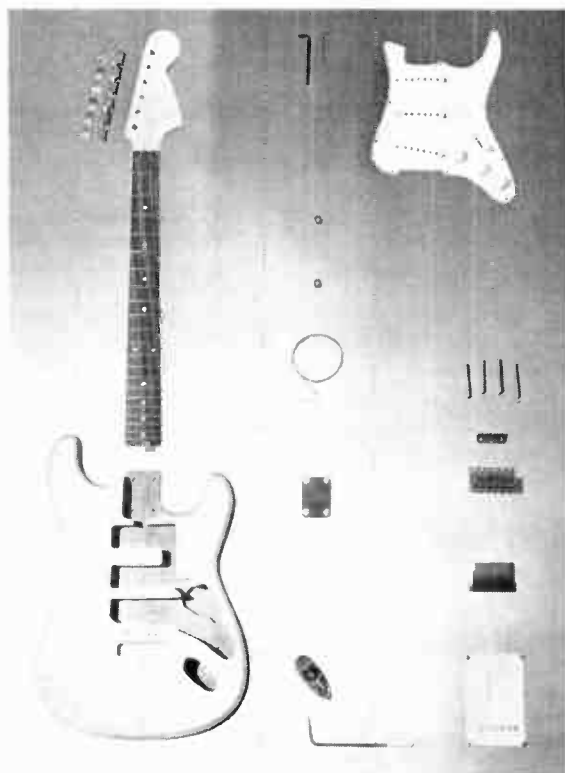
I feel it would be worthwhile for the company to incorporate slightly higher teak side pieces, which would then cover

the operating controls i.e. knobs, switches, and protect them against accidental damage during transportation or in practical use.

During my practical tests, this desk performed very well and I feel I should underline two facts about the desk — namely, the extreme simplicity of operation combined with very good overall controllability and just the right quality sound produced.

Mark Sawicki

In February we incorrectly credited Keith Spencer-Allen as the reviewer of the MCI 600 console. Jimmy Douglass, our regular columnist, should have received credit as he did the test.



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AES Preview

The AES exhibition from May 6-9 boasts the usual huge number of exhibitors from many different countries. As *the* show for audio and acoustic engineers, the latest innovations will be displayed in every aspect of the business.

AKG ACOUSTICS will be showing their new Lavalier C567, the BX5 Compact rack mount stereo reverb, the D300 series of mikes, plus the new D125 and D130 dynamic microphones. In addition, they will have a full range of mikes, phono cartridges, reverbs and headphones.

ANVIL CASES are featuring their new shock mount amp rack case designed to hold and protect delicate instruments, plus a full line of amp rack and mixer cases.

ASHLY AUDIO are displaying new limiters — the SC-50 and the SC-55, not to mention the SC-63 and SC-66 equalizers and a new range of crossovers.

BGW launch their new 1250 power amp, and will be spotlighting their new crossover systems.

BOSE will be highlighting their 802 speakers, their 1800 range of amps, the PM2 power mixer and the XM6 extra mixer.

BURNS AUDIOTRONICS will have on hand dynamic and condenser microphones, mike stands and accessories, together with wireless infra-red headphones. Plus the new MCE5 clip-on electric condenser mikes.

THE CALZONE CASE CO will be presenting their standard line of cases, including their heavy duty items and amp racks and cases. Mixer and audio/visual cases will also be on hand.

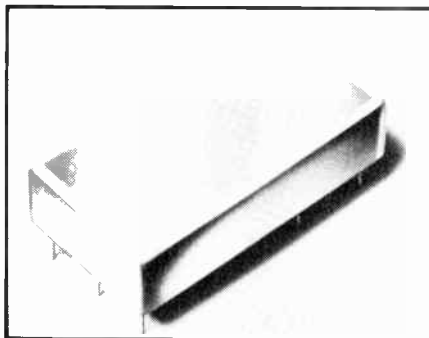
CERWIN-VEGA have a new studio monitor system to promote plus a new theater sound system.

COMMUNITY LIGHT AND SOUND will be there with their Radical Radials — new flat front radial horns. Plus PBL Super 90 cabs as well as their usual PA equipment.

CREST AUDIO present their new P series of power amps.

CROWN INTERNATIONAL feature the Pressure Zone Microphone, the BADAP 1 audio computer and the PSA2 self analyzing power amp.

DBX INC. introduce their 900 series of rack mount frames, also their VCA model 2001 with low distortion.



DELA LAB have a new digital delay line on hand — the DL-4 Time Line plus the Memory Module.

DOLBY LABS introduce the new CP200 cinema processor, as well as their comprehensive line of sound reduction systems.

EASTERN ACOUSTIC WORKS present their new studio monitors, and a lower mid-range reproduction system.

ELECTRO-VOICE have a new Century 100 studio monitor on display.

EMILAR CORP display the new high-frequency driver with 30 watt handling power. Plus the usual range of Emilar products.

FURMAN SOUND feature the TX4 stereo three-way mono 4 or 5-way tunable crossover bandpass filter. In addition, the TX3 stereo 2-way/mono 3-way tunable crossover bandpass filter.

HAMMOND INDUSTRIES will be showing the Klark Technik range of equipment — delay lines and other products for the studio.

INTEGRATED SOUND SYSTEMS produce four new Vortec raw frame drivers.

INTERFACE ELECTRONICS will be displaying stage monitors and new modules for standard mixers.

JAMES B LANSING has new automatic microphone mixers and new bi-radial horns.

LEXICON display the new Model 224 digital reverberation system with reverb programmer and the Model 93 Prime Time Digital Delay processor.

MCI INC. display the full line-up of MCI equipment, including new JH24 24-track tape machine, and the JH45 tape machine with autolock system. Plus the new Model 600 console. And some pro-

mised surprises.

MUSIC TECHNOLOGY feature the Crumar General Development System with 64 programmable oscillators. Also the prototype of the Crumar GDS digital recording keyboard.

MICMIX AUDIO PRODUCTS present the Master Room XL210 and XL500 — new reverb units.

MXR INNOVATIONS feature their new rack mounted Pro Limiter and will be demonstrating the MXR pitch transposer.

NADY SYSTEMS display their Nasty Cordless and Nady Cordless wireless mikes and guitar transmission systems.



OTARI CORP. have on display the new MTI 90 24-channel tape recorder.

PANASONIC CO (Professional Audio Division) display the Technics R&B Series and the Ramsa Sound Reinforcement Line.

QUAD EIGHT ELECT. feature the new Coronado Automated Console and Sloppy Disk editing system.

ROLAND CORP. present their SMX-880 line mixer and the SEQ-315 and SEQ-331 graphic equalizers. Plus the EX-1600 digital mixing console and the usual range of rack mountable amps, signal processors and modular synths.

SCIENTIFIC AUDIO ELECTRONICS INC. display the new P150 power amp, the P100 power amp, and the AC3 electronic crossover.

SESCOM feature their four-channel mike mixer, their 10-band graphic equalizer, the three-band parametric equalizer, and their three-band tone equalizer.

SHURE BROTHERS feature the SE39 series broadcast cartridges and the SM81



series condensor mikes.

SONY INDUSTRIES will have on hand their complete product line including the new PCM1600 digital audio processor, the new digital reverb unit and the new APM8 professional studio monitor. Plus the new 24-track digital console. Soundcraft Electronics Ltd display the full range of PA and studio mixing consoles and tape recorders. Plus the new two-inch 16-track tape recorder based on the SCM 381-8 1" 8-track machine.

SOUND WORKSHOP have on display the Series 30 new compact recording console with automation.

STUDER/REVOX OF AMERICA feature the new A800 24-track tape recorder plus the new Tape Lock System 2000 with SMPTE synchronizing system. In addition, they will show their full range of audio tape recorders.

TANGENT feature the new Phoenix Series master recording console with exclusive Tangent automation and digital feeder system. Plus complete line of Tangent sound reinforcement consoles.

UNICORD present a whole parcel of new Korg goodies, including the new SD-400 analog delay with ADT, the KR-55 computerized rhythm device, plus the X-911 guitar synth.

UREI display their rack mount power amp, three new sizes of "Time-Aligned" studio monitors, and the model 562 feedback suppressor.

US PIONEER feature the TAS 12" conedrive TM1201 plus high power/low frequency loud speakers. Plus the



Beryllion compression driver, and US Pioneer cassette desk microprocessor with controlled bias equalization.

WHIRLWIND have a new constrictor cord designed by Beldan, plus an upgraded product line.

WIREWORKS introduce a new range of components, including main and extension cable components, multi-boxes, and multitracks. Also mike cables in five different jackets.

YAMAHA display the PM2000 mixing console, a new line of speaker components, and their loaded speaker components. Not to mention various signal processing devices.

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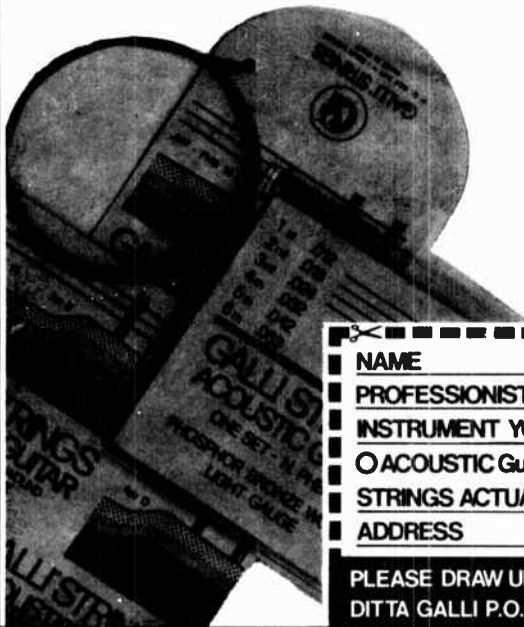
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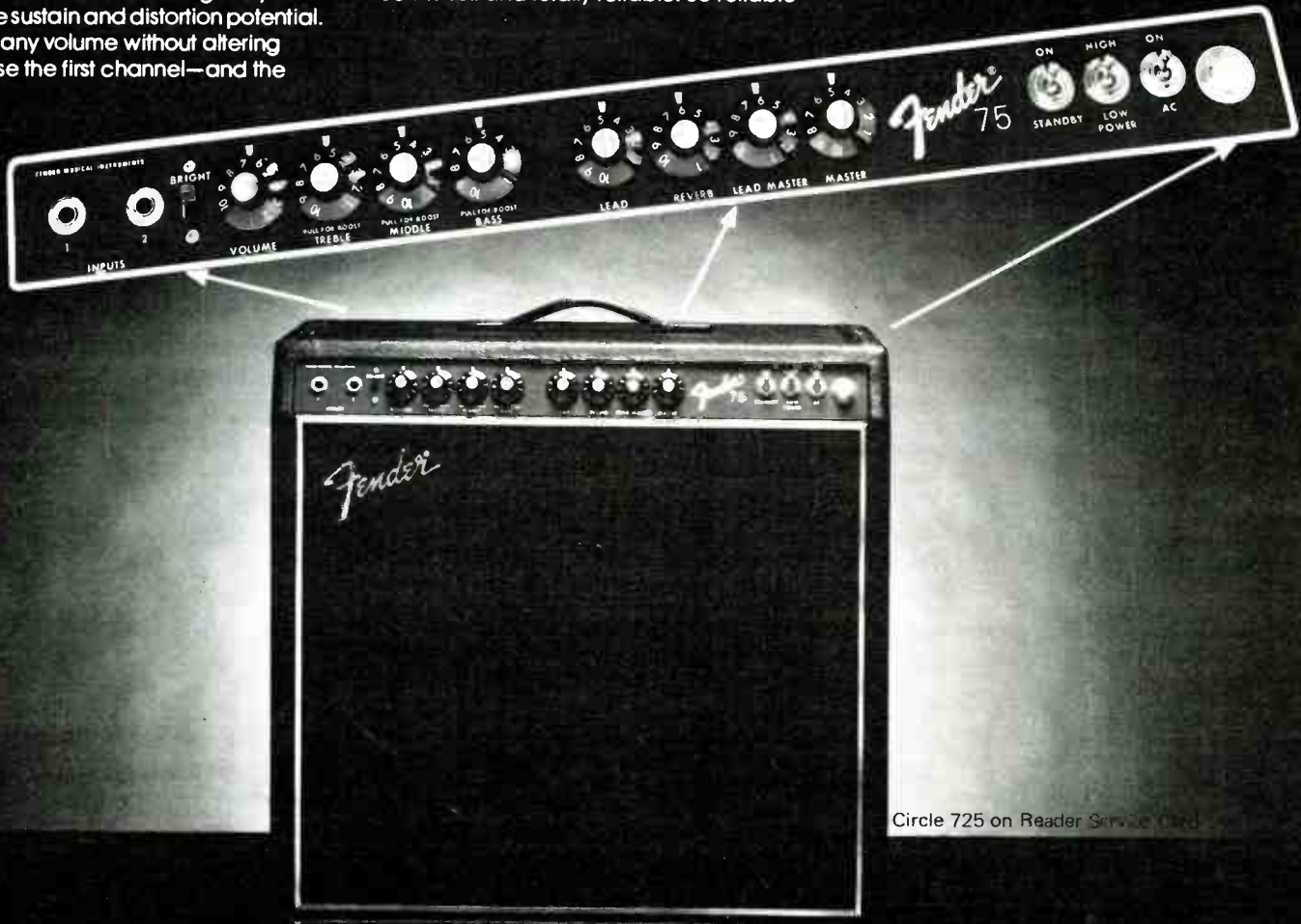
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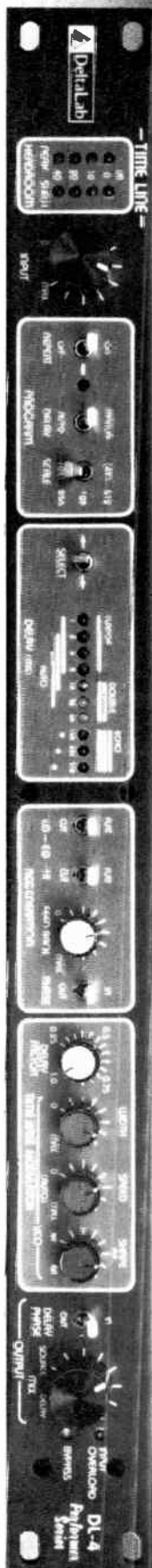
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Studio Test: Trident Fleximix

The Trident Fleximix is the "baby" of the Trident range of mixing consoles and it is probably one of the most flexible in the possible variations of physical layout. The basic system centers around a choice of mixer mainframes with eight or 15 module capacity and these may be coupled to achieve the size required.

Due to the design it is possible to move modules to any position within the frame desired but we will come back to this later. The mixer under review consists of 16 input modules, four sub-master modules, one stereo master module, one auxiliary module and a stereo compressor/limiter, placed in two, 15 module mainframes.

The mainframe

Each 15 module mainframe has dimensions of 25 inches front to back, is 27 inches wide and five inches high. The physical construction of the frame itself is from sheet steel panels on an alloy frame. It is fairly solid but becomes completely rigid with the modules in position due to the double layer construction of the module front panel. The external finish is a black textured plastic material with the arm rest being natural wood. It has been designed for table top use and rests on four rubber feet.

The mainframes of the review unit are bolted together internally with eight bolts through the adjacent sides of the frames. The units are held very rigidly and can really be regarded as one unit.

With the frames joined physically like this, the electrical connection is by a double edged printed circuit connector board which is placed in the socket (to be found on both sides of the frames) prior to bolting them together. If the frames are to be slaved only temporarily (not

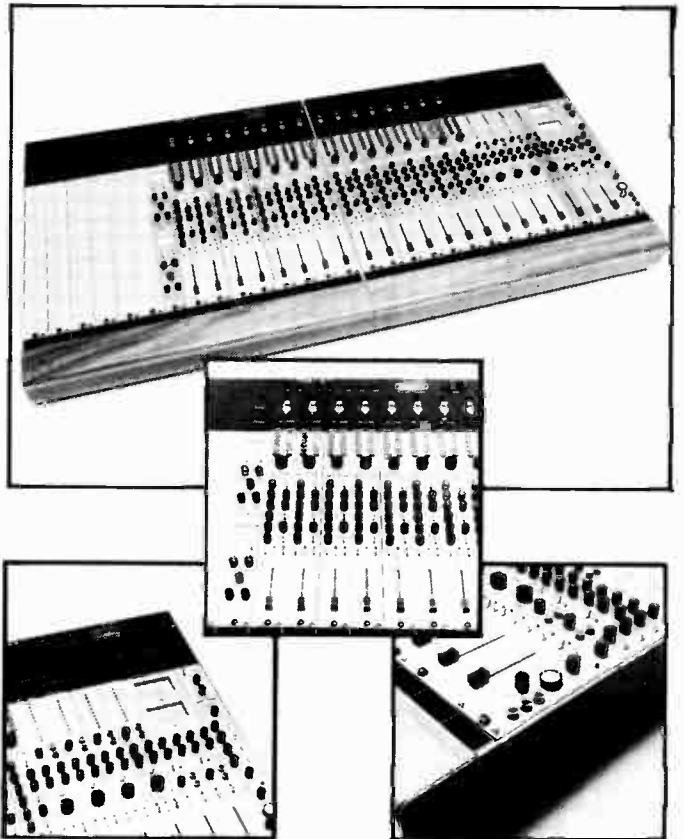
bolted) this connection can be in the form of a multi-way cable and connection.

Each mainframe has its own power supply and so each frame used needs a mains input. The voltage selection switch is a recessed toggle under a clear perspex cover which leaves no doubt as to which voltage the unit is set for, giving a choice of 230/110v. This is located at the top of the frame, as are the three fuses, IEC mains connector socket and two pairs of power supply terminals of 10v and 40v.

Trident say that in the event of a power supply failing, by connecting between terminals on the frames it is possible to slave the frame from another's power supply. This is a reassuring feature if the unit is used on locations where spares might not be readily available. The power supply also has an audible warning device which sounds if there should be a failure in the supply. This also briefly sounds as the power is applied and makes everyone jump.

The floor of the mainframe is a mother board with multi-way connectors below each module position, mating with the connector on the bottom of each module. These are all the same size and carry the power requirements, busses and signal paths for all modules so facilitating their positioning anywhere in the frame.

Each module is held in position by two nylon latch clips which are very effective and can be removed with fingers only, although a couple showed some resistance and required a little further assistance. A set of locating runners at the top and bottom of the mainframe guide the module accurately into the mother board connector. Sometimes when changing modules around on some desks there are a few rogue modules or positions that are very obstinate about locating but on the Fleximix



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each module was a very precise and easy fit in any position, making moving modules around a very quick operation.

The Input Module

As was mentioned earlier, the freedom of movement of modules within the frame is made possible by mounting all input and output sockets on the top of the module. The strength in the module front panel effectively stops flexing of the module when locating or removing connectors from the sockets as this could have been a potential cause of eventual circuit failure.

The inputs offered are a balanced XLR type socket for low impedance microphones and an unbalanced line input in the form of a jack socket. The

mike input has 45 volt phantom powering permanently on. It would have been useful to be able to switch this off, as phantom power has been known to upset certain dynamic mikes and many cause problems occasionally.

Other sockets available here, are a pair of channel send and return unbalanced jack sockets for inserting effects units etc, and a direct output jack socket to feed straight into a multitrack tape machine, should "grouping" of inputs not be required. One point about sockets being mounted horizontally is that they are more prone to dust, dirt and other perils of practical use and so regular cleaning of sockets should be considered as essential.

Next to the module are the routing buttons — 10 buttons

laid out in the normal odd/even manner but as the first eight are for sub-groups, you can only use the same number of routings as there are sub-group modules in the main-frame. The remaining pair of buttons route to the stereo master module. Below this is a pan pot for panning between any pair of odd/even numbers selected.

Each input channel has an edge reading VU meter which is also illuminated. This meter is on the output of the module and can be used to monitor the direct output of the channel or to optimise the levels feeding into sub-groups etc. In use, this meter was found to be quite accurate to the standard VU characteristics when compared to a known reference and proved very reliable.

Next in line we have a mic/line selector switch and a microphone gain control calibrated from 0-65Db (why not the correct dB?) but it is not stepped and has plenty of gain available.

This is followed by four auxiliary sends, 1 and 2 being pre-fade (foldback) while 3 and 4 are post-fade (echo etc). One of the many changes that can easily be made to the mixer functions includes altering these to all one or the other or any choice and how to do this is detailed in the manual.

The equaliser is a three-band design — the high and low frequencies being shelving cut or boost of 16dB at a choice of 8 or 12kHz high frequency and 60 or 150Hz low frequency. The mid range control is a parametric design variable over the range 300Hz to 10kHz with associated cut or boost of 16dB with a peaking response. The EQ was found to be very usable in practice offering a wide range of tone colour but the peaking response of the parametric does not appear to be as sharp as I would have liked, tending to effect wider frequencies than those I was trying to 'hit'. Still, a very good EQ but maybe the addition of a high pass filter would be an

asset.

I found the marked zero positions on the controls to be accurate and no difference in the signal was perceived when switching the EQ in and out the controls in this position. This switch is silent on operation and could be used with program running through it.

Remaining on this module we have a channel on/off switch with an associated LED and a cue switch which also locks, providing a post EQ signal to the monitors without interrupting the signal paths. I found the LED's being illuminated when channel was switched out and extinguished when the channel switched in rather confusing, but something you can get used to.

There is a choice of fader types offered — conductive plastic or high quality carbon which this module had. As usual with this type of fader, care has to be taken to avoid the entry of "foreign matter" into the travel.

Sub-Master Module

Signals to the sub-master modules from the input modules are routed via a network of resistors and a virtual earth type amplifier.

The top of the module contains six jack sockets pre-fade send and return, and four others we will return to. Below this we have a LED column meter with a PPM characteristic. This was used, say Trident, due to the width of the module being too narrow for a large meter and the edge reading meters not being considered suitable for this stage of the mixer. There is a jack socket at the top of the module to an external meter should you require it.

The module contains identical features to the input modules in the auxiliary sends, channel on/off, cue and fader. By the on/off switch is another toggle switch with LED labelled source group/line. This selects whether it is the sub-master output or any input to the line input jack socket that is selected to be sent

to the monitoring system. This switch is very important if the desk is being used with a multitrack tape recorder to provide monitor. The monitor level control follows this switch as to do the left and right monitor select buttons beside it.

Remaining on the modules is a pan pot, to pan the output of the sub-groups into the main master groups or if this is not required the switch above it may be moved to external pan input and then this control may be used to pan whatever is plugged into the ext. pan I/P jacket socket into the master. This would be very useful if all the input modules were being used and the stereo returns of an echo unit were to be returned to the master module.

The Stereo Master Module

This module is twice the width of the other modules and is dominated by a pair of master output VU meters. Above these the patching facilities include for both left and right channels — master outputs (both jack and XLR and both unbalanced), pre-fade output, pre-fade returns and line inputs. The rest of the module is similar to the sub-master module with the addition of a switch to select between the master module outputs or the line input signal being sent to the monitors.

Auxiliary Module

This module contains all the master controls for other functions on the desk. There are masters for each of the auxiliary sends with provision to switch them into the cue system, a control for the overall cue level, and the master monitor level with a monitor mute switch. At the bottom of the module is the talkback section with a mike mounted on the module with provision to talk to slate, auxiliary systems and studio.

In practice it would be better for this module to be situated under the operator rather than at one end of the desk as in the photograph, because the mike tended to pick up a lot of un-

wanted noise as well as the voice when used in the far position.

At the top end of the module there is an illuminated edge reading VU meter that can be switched to read a wide variety of points on this module. Above this is an oscillator with six switched frequencies for alignment and fault finding.

The outputs at the top of the module include four auxiliary outputs, monitor left and right outputs, oscillator and talkback outputs.

Operation

In use, the Trident Fleximix proved to be quite capable of handling recording procedures to high professional standards. I experienced no clicks or other unwanted noises and the overload margins were easily adequate for most studio applications. My only operational criticism is that when using a multitrack machine, the monitoring facilities available for the multitrack were rather below the standard set by the rest of the mixer.

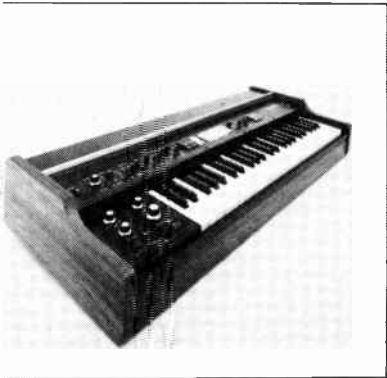
The owner's manual is very comprehensive including full operating instructions, fault finding guide, schematics, component identification charts and a host of possible modifications to the modules if they don't suit your way of working in the standard form. One omission appears to be a circuit diagram. The only one in my manual was for the compressor/limiter.

Conclusion

I found the Fleximix a well made and easy to use console that can be made to suit most requirements very easily. The layout is ergonomically easy to use, the module layout is straight forward and uncluttered. I found the sound quality to be very good and I feel it makes an ideal starting desk for any "serious recording studio" as it can be modified and added to, to grow with the requirements placed on it. Nice one.

Keith Spencer-Allen

New Products



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Roland Vocoder Plus

Billed as a "totally new concept in polyphonic keyboards," the Roland Vocoder Plus combines Vocoder circuitry with two other tone-generating sections "String" and "Human Voice" — to create a new spectrum of synthesized sound and effects.

Each of these three tone-generating sections can be independently assigned to cover either the upper or lower half of the whole keyboard while each half of the keyboard feeds into a separate output so the Vocoder Plus can be run in stereo. The "String" section produces orchestral string sounds with independently controlled tone and attack time and a release time that is shared with the "Human Voice" section. The "Human Voice" section ostensibly produces "an incredibly lifelike" chorus of human voices with one female and one male chorus on the upper half of the keyboard and two male choruses on the lower half.

Processing the spoken or sung human voice, the Vocoder section uses this program to modify the carrier — the "Human Voice" section — and will also process an external signal if desired. Designed to strengthen and enhance a band's vocal capabilities in live performance, the Vocoder also features a balance control between all sections; vibrato

controls that permit selection of rate, depth and delayed vibrato controls that permit selection of rate, depth and delayed vibrato and a Microphone input that will accept phone plugs and XLR connectors.

Zapp ARA- Solid Body Electric

Red Tree Music Inc. (147 E. Plaza Ave., Mamaroneck, NY 10543) has recently introduced a U.S. made solid body electric guitar intended to sell at a "below-imported-instrument price." Designed by A. Robert Archigian, the Zapp ARA-1 features a body "carved" out of



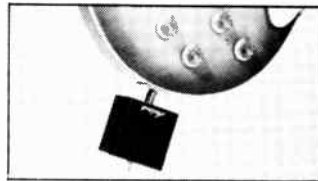
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northern hard rock maple with a hard rock maple neck to match. Even with an extremely affordable list price, the ARA-1 also has a carved body, both top and back, for looks and player comfort.

The ARA-1 is fitted with two Mighty Mite humbucking pickups, a "Super Distortion" model and a "Vintage" model. Other features include a solid brass bridge, tailpiece, top nut, machines and strap buttons as well as speed knobs. The guitar is available in Walnut, Sunburst and Natural finishes.

Aria "Loco Boy"

A recent addition to the Aria Pro II line, the "Loco Boy" micro-guitar amplifier is jacked directly into the guitar, eliminating the need for cable or AC power source, the "Loco Boy" is designed for backstage tuning and low (volume) level practice.



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Stage Analog Delay

A "professional quality" analog delay unit, the Stage DE-1 can reproduce sound within a wide frequency range with a minimum of noise. The

DE-1's output attenuator and dual input levels make it adaptable to almost any type of instrument or amplifier. A delay time range of 15 ms to 200 ms opens up a gamut of sounds ranging from doubling effects to long repeat type effects.

Controls include: Volume (overall level), Balance (mixture between input signal and echo), Repeat (amount of regeneration), Delay (length of delay), Output Attenuator (-40dB, -20dB, 0dB), Inputs (-59dB, -20dB), Footswitch Jack (external footswitch) and Peak Level Indicator.



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Tama Royalstar Drum Sets

Tama Drums recently announced the availability of specially priced five piece Royalstar drum sets featuring heavy wood shells and "special" Royalstar hardware.

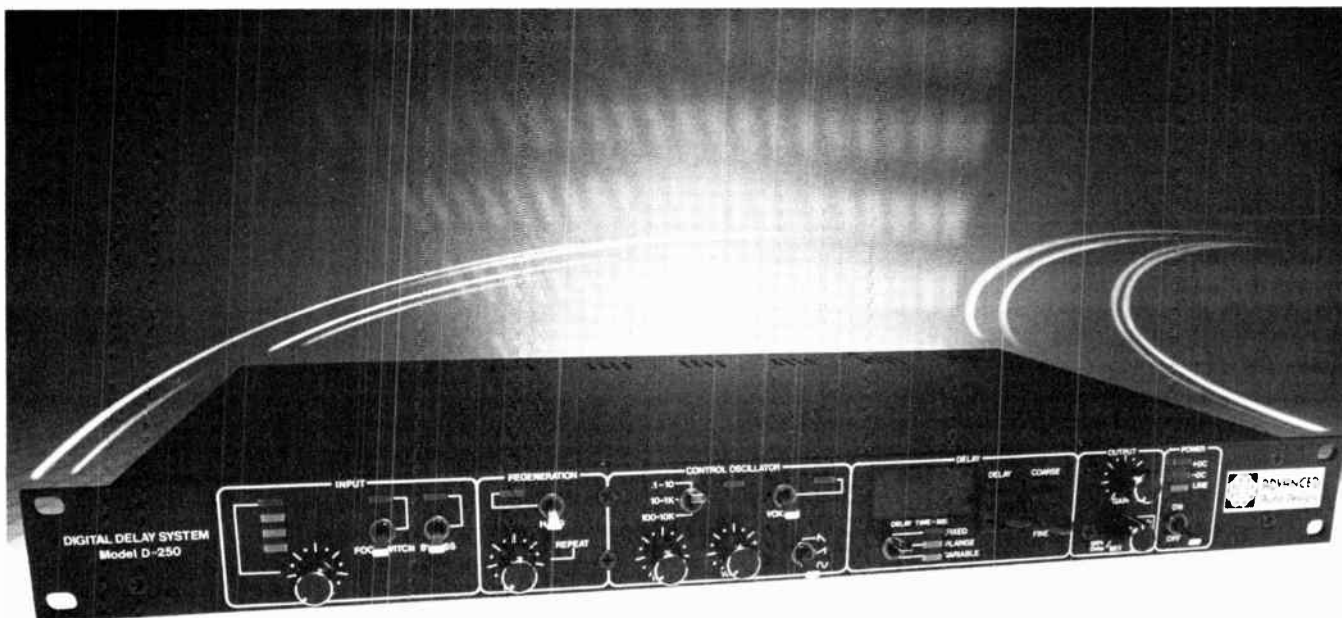
Each set includes a 14" x 22" bass drum, 8" x 12" and 9" x 13" mounted toms, one 16" x 16" floor tom and one 5"

x 14" metal snare drum. The hardware includes one snare stand, two cymbal stands, one hi-hat stand and one Hi Beat drum pedal. Available in Metallic White and Platina finishes, each Royalstar set also includes a pair of Tama 7A woodtipped drum sticks.



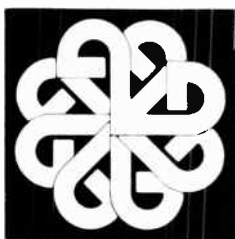
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On Guitar:

Steve Kahn

find that after the "pick-up" to the solo we have Em7(9)/A for four bars then down to a minor third to C sharp7(9)/F sharp for four bars. This sequence is repeated four times, making it a 32-bar solo. It is a strange phenomenon that this kind of repeating chord progression somehow gives the sense that the chords are moving and *never* repeating. This greatly contributes to the flowing feel of the section, making it more comfortable to play over. This should always be an important consideration when writing and arranging: give the soloist something to play over that offers a challenge and has flow to it. It is also nice when the solo section relates to some of the musical material previously stated somewhere in the tune rather than just a "vamp" that's plugged in for the sake of expediency. On this tune the solo section is derived from the chord progression found in letter (A) and sandwiched between statements of the bridge. Now, to the solo.

All the chords in the solo section can be related to as producing a sound that invites the usage of the Dorian Mode (simply derived by playing from D to D, one octave, on the white keys of the piano). For the chords in this tune, the corresponding modes are presented in Example 1. Among the many devices you can practice to give your improvisations greater flow is the usage of "common tones;" notes which, in this case, both chords have in common. These tones have been placed in parentheses and, as you can see, there are four of them, which puts a pretty high number at your disposal. The use of these tones will help your solo flow out of one chord and into the next.

Rhythmically, the key to the "feel" of this tune, and this section, is the sixteenth-note groove Steve Gadd plays on the hi-hat. The solidity of his time feel allowed me to be very loose in my interpretation. This is why you'll notice that I've written

"lay back" over certain phrases, indicating that I purposely felt the phrase behind the beat. You'll also find syncopated sixteenth-note phrases, and various kinds of triplet groupings which give the solo some rhythmic variety.

The acoustic guitar used on this solo is a steel six-string made by the great California guitar-maker David Russell Young. My instrument happens to be a very "bright" sounding guitar. I enhance the brightness by using a set of Darco New Yorker Extra-Lights and I change the G-string to a plain, or un-wound string gauged between .016 to .018. The reasoning is simple: to have greater flexibility for bending notes and for what is hopefully perceived as an expressive vibrato — certainly a guitarist's most personally evocative tool. However, no matter what the natural sound quality of your instrument, a good engineer with access to those wonderful little equalization dials can really alter your sound to suit your taste and feeling of the tune. In my case, we usually "darken" the sound a little bit by adjusting the mid to lower frequencies. The final touch here is the *hopefully* tasteful usage of echo: my concept has been to make the guitar sound a little lonely and to my ears echo helps achieve this.

I hope you'll enjoy the tune and the solo and that some of the comments I've made will give you some insights and aid your playing and your concepts of music.

On Bass:

Jeff Berlin

Continued from page 13

You have so many ways to invent different rhythms by using other time signatures like 3/4 or 6/4, or other notes besides the 16th notes. In the next column, I'll give you more examples of what I mean.

Meanwhile, if you're going to listen to records, go listen to legitimate salsa, reggae or soul music and concentrate on *all* the elements in those bands, not just the bass. There are radio stations that feature black and latin music exclusively, so turn off the rock shock and dig where rock *came* from. I don't mean to sound like a broken record, but you should really listen to Tower of Power. Buy their *Back To Oakland*, *Tower Of Power* and *In The Slot* records. Francis Rocco Prestia and David Garibaldi literally pulsate on those albums. And you've got to listen to the horns, because there isn't a tighter horn section in the world for that kind of music. These guys were influenced (like myself) by the jet-propelled soul

bands of the sixties. Listen to Chester Thompson's organ playing. His bass pedal work is as funky as any bass players' and his organ playing is as hip as Brother Jack McDuff's.

The reason I emphasize Tower of Power so much is because of the nature of their profession. They are the RHYTHM LANDLORDS. David Garibaldi is the greatest drummer in this style of music that I've ever heard. Very subtle, very musical, almost disco time, very heavy.

All bass players should write out some of my exercises, assign notes to them, then practice them. Listen to a variety of music and play a wide variety of musical styles. Play duets with drummers. Lay off rock for awhile, because, if you stop yourself from playing one style of music you may gravitate toward another. And that may be the best move you've ever made as a player.

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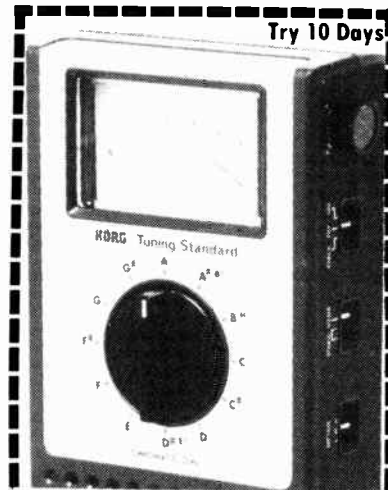
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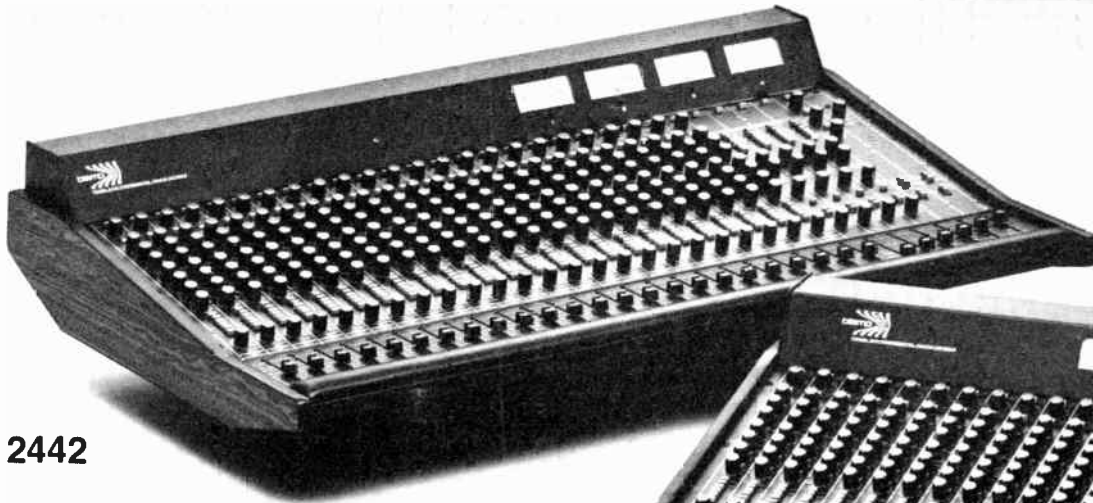


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Input channel overload lights	YES 2 LED's - 20 and + 6	NO
Channel Patching	YES	NO
Mix Busses	3 - one pre, and post. one switchable pre or post	2 - both prefader post EQ.
Line Input	YES	NO
Signal to Noise Ratio	Better than 80dB	61dB
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Submasters	4	4
Headphone cue or solo	YES	YES
Solo Priority system	YES	NO
Echo outputs	1 or 2	2
Submaster inputs	4	4
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Switchable Metering	YES	YES
Playback Inputs	YES	YES
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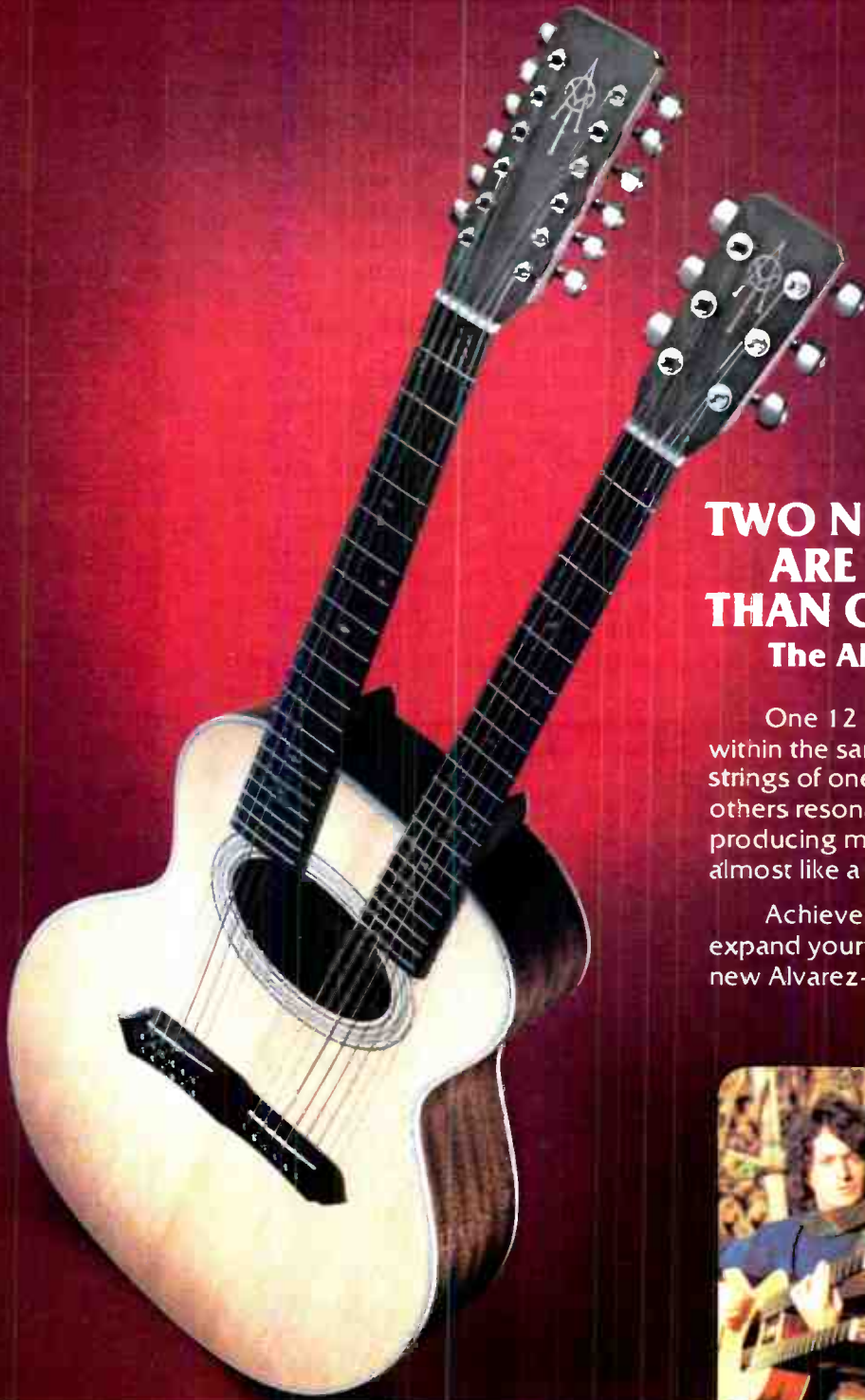
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