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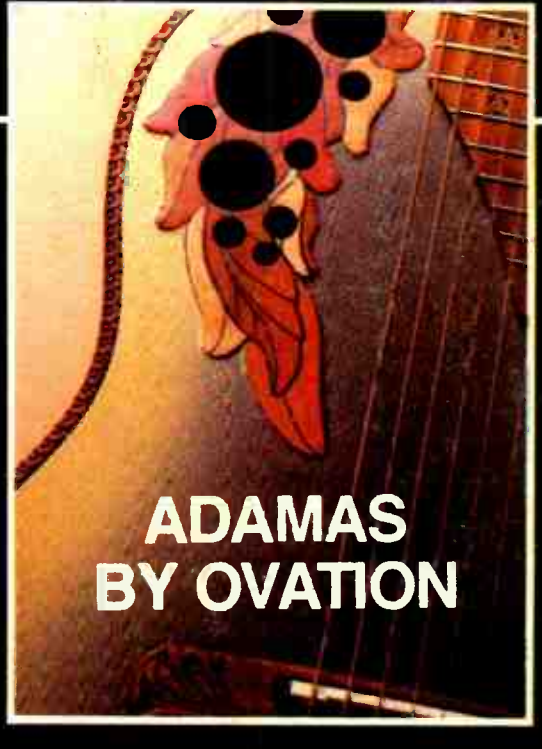

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Reunions seem to be the way of the world these days with groups like the Allman Brothers right down to Jan and Dean teaming up together to either recapture their old stature or take the chance with something new. McGuinn, Clark and Hillman bring to mind a particularly successful union of most of the Byrds, and although their new album leaves a little to be desired, their live performance makes up for it.

But secreted away in a part of England, there's a regrouping going on that's sure to light up the industry; Brand X is putting it all back together. The original unit was made up of Robin Lumley, keyboards, Percy Jones on bass, John Goodsall on guitars and Phil Collins on drums. They're back together and putting forth the same energy and craziness that marked the first efforts of Brand X before the members went their separate ways.

Down in Ringo Starr's country studio at Ascot, Berkshire, UK, during two weeks of continuous work and play, Brand X managed to obtain nearly four hours worth of multi-track tape of backing tracks, enough, in fact, for four albums. Unfortunately, most of it will never see the light of the record shop, but all of it is very usable and representative of what the band was, and is, all about. Overdubbing and mixing was done in June for a September release in England, soon to be followed by its debut in the US.

The new album is mainly the original Brand X lineup, but with the addition on a few tracks of some members of another Brand X incarnation from 1978. Mike Clarke (formerly with Herbie Hancock but now drumming for Brian Auger) has been putting in some drum tracks, John Giblin did some bass guitar work and Peter Robinson (ex-Stanley Clarke keyboardist) filled in on some tracks.

Much madness ensued during the recording, which was carried out in a peculiar manner, technically, using not just the studio but various rooms in the house for different ambient sounds. Some guitar parts were even recorded outside in the park to catch the echo reflections from the trees and the lake. All in all, the recording sessions seemed to sum up the collective insanity of the original members.

Look forward to the Brand X album; it's the result of a reunion that's sure to display the best of a band that put fusion another notch forward. Best of all, the experience will be recorded in living black and white print in future issues of this magazine by none other than our resident keyboardist, Robin Lumley.

Watch for the band to play at a local theater or drive-in near you.

From left: Percy Jones, Robin Lumley, Phil Collins, John Goodsall

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Letters

Smooth talk

I am the proud owner of an Ibanez Artist 2626B bass which I am considering removing the frets from and filling the resultant slots to produce a smooth fretless fingerboard (ebony). I would be extremely interested in your thoughts and opinions on the subject.

John Logan,
Roseville,
Mich.

Stephen Delft replies: A fingerboard which is accurate enough and/or hard enough for a fretted bass may not be accurate and/or hard enough for a fretless bass. Ask the advice of a competent repairman and in any case try to avoid roundwound bass strings on a fretless fingerboard – rapid wear!

Anniversary addendum

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

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

(1) The volume controls had a very nice even taper from one extreme to the other, but the tone control's effect all took place between 0 and 3. I have found this true on several late model Les Pauls, but I hoped it would be corrected on this one, a higher caliber model. The problem practically renders the tone controls useless because, between 0 and 3, the tone changes are very abrupt, since all the change takes place in such a small part of a complete rotation.

(2) The knobs do not have pointers. I don't believe I am being "picky" here. I have a 1952 Les Paul complete with pointers and I find them very handy when presetting the pickup volumes for rhythm and lead, and for mentally recording a certain combination knob setting that I might wish to resume in a later part of a song. Why have a knob with 20 calibrations (ten units, each divided in half) and no pointers? Perhaps care has to be taken when installing pointers that they don't turn and mar the finish, but they used to do that on their cheap models, so why not on this one?

(3) The first string on the guitar was "dangerously" close to the edge of the fingerboard. The least vibrato sent it over the edge. Perhaps this was just peculiar to the one I was playing and perhaps my vibrato technique is a little wide, but it was something I noticed.

(4) The binding on this one looked very good and the finish was beautiful. Except for the things that I just mentioned, I fell totally in love with the guitar.

Ken Rambow,
Kalamazoo,
Mich.

Send your comments, criticisms and queries to Letters, International Musician and Recording World, 19th floor, 1500 Broadway, New York, NY 10036.

Fripp and friend.

Just good friends

In your article on Robert Fripp in the June issue of IM&RW, you mentioned that he had worked with Blondie. Could you please tell me what recordings he has done with the group?

Michael Robertson,
Cambridge,
Mass.

Robert played guitar on one track of the Blondie album "Parallel Lines." He's featured on "Fade Away and Radiate," written by Chris Stein.

What's my bass?

I have recently bought a secondhand Gibson Les Paul bass and I wonder if you could supply any information on it. It is the only one of this model I have ever seen. It is similar to the Les Paul Triumph but it has fingerboard dots instead of position markers and no impedance switch on the control panel. I have been told that it is a Les Paul Professional bass. Could you verify this and tell me if it is still made, also how much it cost new and what year it is (serial number 889801)?

A. Blake,
Windsor,
Ontario.

Stephen Delft replies: I think you are right on all points about your bass. As for the original cost, date of manufacture, etc. try asking Gibson. I would expect your bass to have an impedance-matching transformer in a small metal cylinder in the lead. If this is so, and you intend to keep the bass, it might be sensible to order a spare now, just in case. They are not generally available in stores.

Stage fright

What's the best way for bands to learn about setting up on stage with a view to avoiding hum, dangerous leads, feedback problems and all the other things you only discover by trial and error?

Arthur Weekes,
Hallandale,
Fla.

There's an excellent new book on the subject of PA/stage amplification techniques called "A Practical Guide to Concert Sound" by Bob Hein. It's published by Melco Publishing, PO Box 6, Marissa, Illinois 62257.

In the keyboard position

Concerning Dave Sancious' article "On Keyboards" in your March 1979 issue: although he presented some good advice on multi-keyboard positioning, it seems he also left out some equally logical and comfortable ideas. Having myself tried the "V" formation and finding it impossible to work with comfortably, I went to parallel positioning, and now swear by it.

One's peripheral vision allows complete supervision of the keys, and the contrary motion of the hands is a natural technique for keyboard players. This is a tried-and-true positioning for multi-keyboards, and I felt that its omission should not be left unmentioned.

David D. Phillips,
Vice President,
Keyboard Exchange,
div. Schaeffer Enterprises,
Denver,
Colorado.

Thanks for the tip.

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

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

The MXD-5 is versatile. It will provide echo from the entire gamet 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 Guitar:
Mitch Holder

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

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

The major difficulty of guitar is that the notes repeat themselves in different areas on the fingerboard. The open E on the first string, for instance, may be found in five different areas on five different strings. In the moment you first look at the note, you must decide where to play it and what finger to use. That may not sound like much, but to make a decision you must ask yourself the following questions. What notes are preceding? Are they high or low in pitch? What notes come after? Are they high or low? If a group of notes is fairly high in pitch, you should pick an area of the fingerboard where it is fairly comfortable to catch all the notes. Remember, however, under pressure you want to play as many notes as you can, but the right ones. So, if you have to jump around, that's fine. No-one said it had to look good too. But remember where you're coming from, and where you'll have to go. This will dictate where to play. You can train yourself to do this by taking familiar music and forcing yourself to play it all over the instrument. Gradually, force yourself to do that with unfamiliar music as well.

When you look at music for the first time, can you scan it and recognize familiar patterns? You will discover an excellent problem solver by being able to pick out things that you've played before. It could be a scalewise melody, chordal arpeggio, sequential motion or intervals of thirds, fourths, fifths, etc. By knowing what something is beforehand, it will tend to make the reading cycle a bit easier because you already know how to play it and what it will sound like. Another problem is being able to play the notes on the guitar while executing the correct rhythm and phrasing. You must study hard to do this. Rhythm is one of the most basic qualities of music, and rhythmic notation is a very exacting science which you must be able to identify and interpret. A very thorough study of music notation is necessary for this and you should make an attempt to learn it from a competent teacher. Remember, you may be able to play every note on the guitar at will, but to make music you must be able to understand the language of music too.

In the cycle of sight reading, there is a chain of events which occur that you should be aware of. First of all, your eyes perceive the music, both the notes and rhythm, and the brain identifies them and sends messages to both left and right hands, telling them where to play the music on the

Continued on page 105

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

A message from Jim Marshall to club musicians

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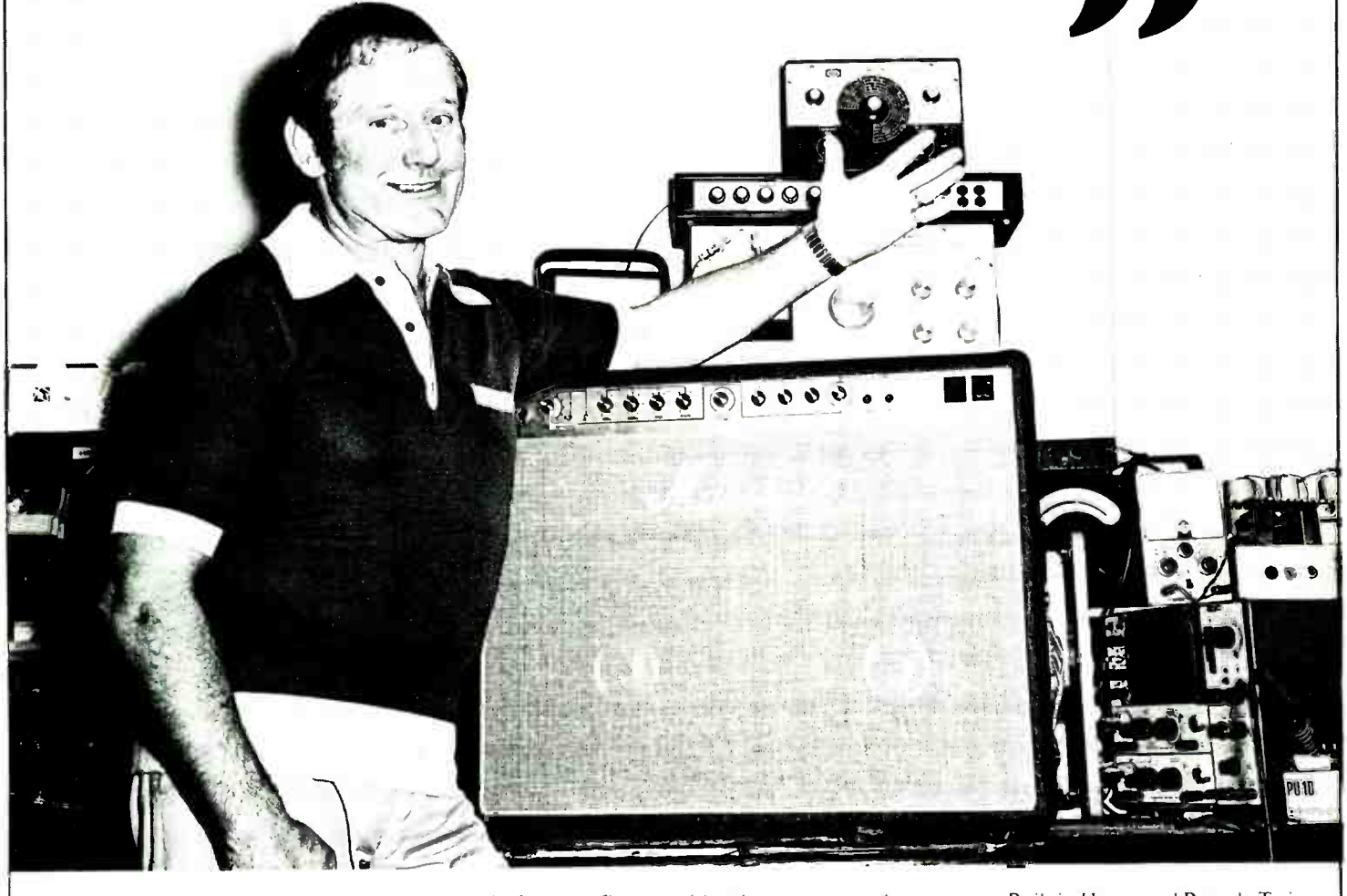

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On Drums:
Chester Thompson

All right, this is it. The big moment of the night. The drum solo! And of course there are so many possibilities that you could probably play for a couple of hours just checking them all out. But by then there might not be anyone left to listen.

Okay I'll be serious. What does make a good drum solo? I prefer to look at it musically because I was never any good at juggling and twirling sticks. If there were a general rule, I think it would be to start at a point from which you could build in intensity to an eventual climax. However, like all other rules, there are the exceptions.

I remember once seeing someone play a single stroke roll on the snare drum that started slowly and grew to an almost deafening roar and it was brilliant. Of course, the technique was absolutely perfect in evenness. This is only an indication of the wide range of things one can do.

It is more pleasing, I feel, when the drum solo retains some relevance to the song being played, rather than every solo being only a show of speed and endurance. This can be achieved by playing within the structure of the song, similar to what a melodic instrument might do, or by merely keeping the same tempo and feeling, at least as a starting point. You might find that by taking this kind of approach you give yourself some fresh ground to work in if you've never tried it.

When you've got as much time as you want, it's sometimes nice to have a sort of theme that you can build from and come back to periodically or at the end. The theme could be subjected to tempo changes, dynamics or maybe even changes of meter. You might even be surprised at the fun you could have with a march in 3/4 for example. By all means, though, leave yourself room to grow or you might find yourself fighting for what to do next. And when you've said all you have to say — end it.

Practice is where the groundwork is done for good solos. Working on independence and ease in getting around the drums pays off when an idea can be executed as soon as it comes up. Favourite passes around the set should be done in reverse, and a good rule for what to practice is — work on anything that you can't do (well). Especially something that might have been thought of but didn't come off like you wanted it to. When you've got things pretty well worked out, record yourself practicing and be objective when listening back.

There is the approach of playing what pleases the audience in a solo, which is also valid. But what are you going to do if the situation should arise for you to record a solo? It certainly won't do you any good to be flashy. The point is — if you play something that is musically (rhythmically as well) interesting and put your heart in it, you won't have to worry about the audience. This doesn't mean that you should plan all your solos ahead of time. What it means is, play your best at what is natural at the moment. After all, if you're doing your best and it's natural, how can you go wrong?=

Chester Thompson currently tours with Genesis and has worked/recorded with Frank Zappa, Weather Report, Curtis Mayfield, George Duke and the Pointer Sisters, to name a few.

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On Bass: Jim Rodford

This month I'd like to deal with the varied techniques employed by bass guitarists in the Funk/Jazz-Rock category. I feel it is from this region that the boundaries of bass guitar technique and thinking are being stretched the most.

When tracing the origins and influences of the modern jazz-rock feel and rhythm, there are two distinct areas of development to be considered: both are heavily influenced by the bass players involved at the time, such as, for instance, Dave Holland. Starting as a rock and roll bass guitarist, Holland took up the double bass in the early Sixties and began gigging with jazz outifts such as the Alex Welch band and Ronnie Scott.

It was at Ronnie's (the renowned English jazz club in London) that Miles Davis, arguably the biggest single band leading influence in the development of jazz-rock/fusion as we know it today, saw Holland playing and asked him to join his band.

I feel that Dave's contribution is more to the development of what I call the "Traditional, modern jazz-rock/fusion" sound which comes from introducing rock sounds and rhythms into the then "modern jazz mainstream" as did Steve Swallow with the amazingly revolutionary Gary Burton Band of the mid-Sixties.

Jack Bruce also contributed greatly although he came the other way from double bass to bass guitar – from a Dixieland jazz band (Scotland's Clyde Valley Stompers) to the Graham Bond Organization which was a huge British jazz-rock and R'n'B influence.

Cecil McBee, bassist with the pioneering, avant-garde outfit, the Charles Lloyd Quartet, deserves a mention as a tremendously liberating influence on bass playing generally; which is not too surprising considering the other members of the group were Jack de Jonette (drums), Keith Jarrett (piano) and Charles Lloyd (saxes). Listen to their *Live in Oslo* album, recorded around 1966, which has some amazing music on it displaying stunningly advanced techniques.

To discuss this particular vein of jazz-rock bass playing in full is impossible within this column, as it is a huge and fascinating subject. And, to be sure, I'm looking at it from the standpoint of my involvement and how it evolved around me. The current experiments of the most advanced development of this vein are probably Chick Corea's Return to Forever and Weather Report, with Stanley Clarke and Jaco Pastorius in the bass chairs, respectively. These two outfits retain the flavor of "Traditional Modern Jazz," inasmuch as they still employ advanced melodic themes and chord structures allowing the bassist to explore chords fully and not be repetitive if he so desires.

But the modern rhythms employed now, especially the Latin polyrhythms more recently becoming evident, push the bassist to greater heights of creativity than ever before, and, of course, there is also a "crossover" element into the other major vein known as Funk – a style which has permanently infiltrated the sound and which, in my opinion, is the most important area of jazz-rock fusion.

You have to look back to the great, early James Brown bands and recordings to trace the enormous influence that Funk has had on jazz rhythms and thinking in general. I believe, however, that much of the music produced in the last eight years or so under the Funk/Jazz-Rock spectrum has been nothing more than sophisticated Disco music, but that's another argument. Next month, we'll take a closer look at the influence of Funk and the people that made it a major influence.

Jim Rodford is a versatile and experienced bass man. His professional career started with the Mike Cotton Sound, and progressed through Argent to Pheonix. He has recently joined the Kinks as their regular bassist.

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On Sax and Flute:
Alan Holmes

A couple of months ago, I dealt with building a good source of air. The next step is to channel the pressure and drive of the supply through the mouthpiece to create the sound. The stronger this air motor is, the more strain it will place on the facial muscles which are closing around the mouthpiece to contain an airtight seal and channel the air to the reed. As well as keeping the air in, the lower lip and jaw also control the reed so far as pitch and tone are concerned.

The top front teeth rest on the "bite" section of the mouthpiece and pressure applied by the lower lip and jaw is also applied to the top front teeth if the reed is to be affected. The position of the top teeth relative to the end of the mouthpiece is dependent on the length of "lay" on length of reed which is allowed to vibrate by the mouthpiece. The lower lip, which is slightly wrapped over the lower teeth, needs to apply its pressure just in front of the point where the reed meets the flat part of the lay. The correct distance and angle of air stream can be checked by blowing the mouthpiece only, using the finger and thumb to grip it and keeping the rest of the hand away from the end. Although the overall length of the mouthpiece may have a slight affect on the pitch, blowing loudly, you should try to be close to concert G on tenor and concert A on alto. Vary the angle of mouthpiece to alter the pitch.

The arrangement of muscles around the mouthpiece is called collectively the "embouchure", a French word meaning "opening into": it opens into the mouth cavity. The reed is of course vibrating within this oral cavity which becomes a resonating chamber and this may well explain why a player's saxophone tone has a similarity to the tone of his voice in its individual nature. If the cheeks are puffed out, the size of this resonating chamber is altered so that the tone becomes muffled. The cheeks should never be distended in this way and if you already have this problem owing to insufficient strength, you can strengthen the cheek muscles by placing the fingertips of each hand on each cheek and alternatively flexing them so they feel hard by pursing the lips, then relaxing. This will also strengthen the lips and should be done regularly till you feel them aching.

Alternatively, stretching a wide smile and then pursing the lips will also develop the lip and cheek muscles and should be used to accelerate the development of the required strength to give control over the playing functions. These sort of gymnastics are just the same as body building and are useful in building the strength of the tiny weak muscles normally only used for smiling and expressions.

The pursing of the lips also gives the concept of applying pressure all around the mouthpiece. When you practice the long, steady notes which are essential in building control and tone, concentrate on applying pressure all

Continued on page 105

Alan Holmes is a top British session reedman who plays soprano, alto and tenor saxes, flute and alto flute, piccolo, oboe, clarinet and cor anglais. He played on the Beatles' Sgt. Pepper album and for four years he was a member of the Kinks. He now leads his own jazz-rock group.

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On Synthesizer:
Robin Lumley

First this month, an introduction by a man who can only speak the beginnings of words, Mr. Jo Sm, from Lo, in Eng.: "He re, ni t spe t you. I ho yo enj th arti." Strangely enough, this somewhat impenetrable person's comments are actually relevant to the contents of this page, for this month we are going to start examining the importance of the kind of sounds synthesizers are capable of producing, and how important it is for the player to select the kind of sounds that will work within the framework of a given piece of music.

Obviously, this has to be a very broad and rough guide. Like the words of Mr. Jo Sm, and also like the words of Mr. oh it, and also Mr. hn th (who are people who can only say the middles of words, and the ends of words, respectively), the sound produced by any musical instrument can be roughly subdivided into three parts, front, middle and end, and only sounds like a note produced by any given instrument if all three parts are heard together in the right order. Thus if we combine the names of the three persons with speech impediments quoted above, we find that they are all called John Smith. These people who are unable to say the whole of their names are unrecongizable, in the same way as if you were to make a tape recording of a single trumpet or piano note, for example, and edited away the attack of the note (i.e. the beginning of it) the sound you would have left would no longer have the full recognizable characteristics of a trumpet or piano note — but may indeed sound extremely interesting and unusual in itself. These kind of sounds are obviously impractical to reproduce in a live situation without long and careful construction of sound tape loops, but the synthesizer is a ready-made tool for doing just this kind of thing as it contains all the building blocks for the separate parts of note, and is, indeed, the way in which any synth sound is programmed or patched into life.

One of the easiest ways of attempting an accurate synthesis of a sound made by a conventional musical instrument is, in fact, to make a tape recording of some sample notes from that instrument, and actually edit one note into its component events, front (attack), middle and decay, and listen and treat each of these parts separately. Apart from selecting the correct waveform settings from the oscillator, it's very much easier, given a comprehensive and multi-oscillator synth, to get each part of a sound right, before joining them up again. So you would listen to your edited front part of a note from tape, and then attempt to recreate this attack area on your synth, and so on through the note components.

Now I am not really advocating the usage of synthesizers as imitative devices here, as I have already been through some of the philosophies surrounding this point in previous articles, but I am suggesting that you try to make accurate copies of existing instrument sounds on your synth as an exercise to aid your understanding of how and why notes and sounds appear as they do, for an understanding of the nature of a note content in terms of its building blocks as a series of events is the key to imaginative synthesis of new sounds unproduceable on conventional instruments. Also, this knowledge is vital to a synth player's programming of his sounds in relation to the recording of his instruments against a group situation involving other instruments.

Robin Lumley is a self-taught keyboard player. He has been a member of Brand X since its inception and won the "Contemporary Keyboards" magazine poll as Best New Talent (World) 1977 on multikeyboards. As a producer, he has been responsible for 17 albums to date, by artists including Bill Bruford, Brand X, Rod Argent, Gary Boyle and Phil Collins. He co-wrote and produced the worldwide successful album "Peter and the Wolf".

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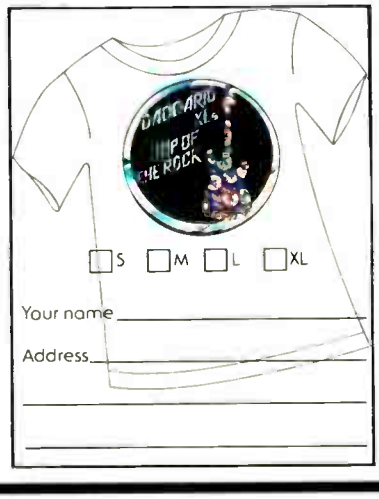

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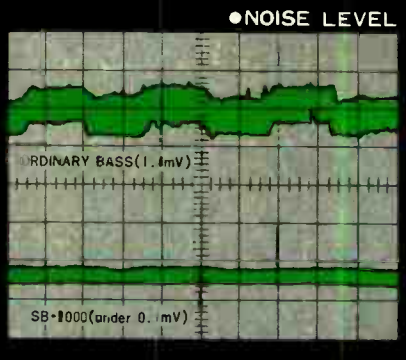

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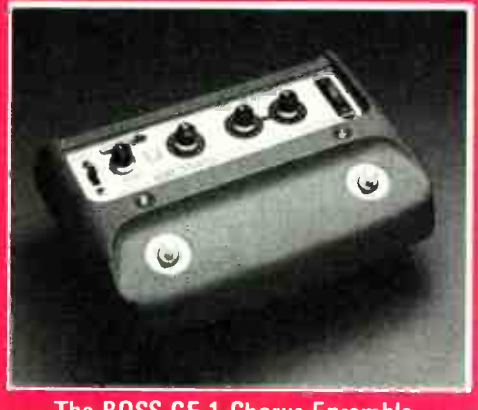

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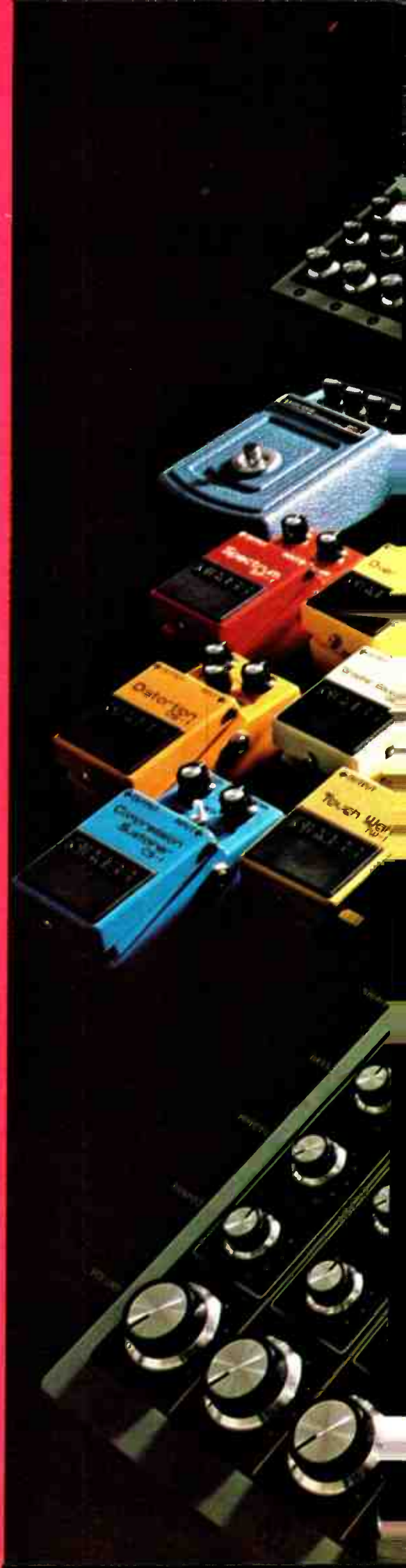

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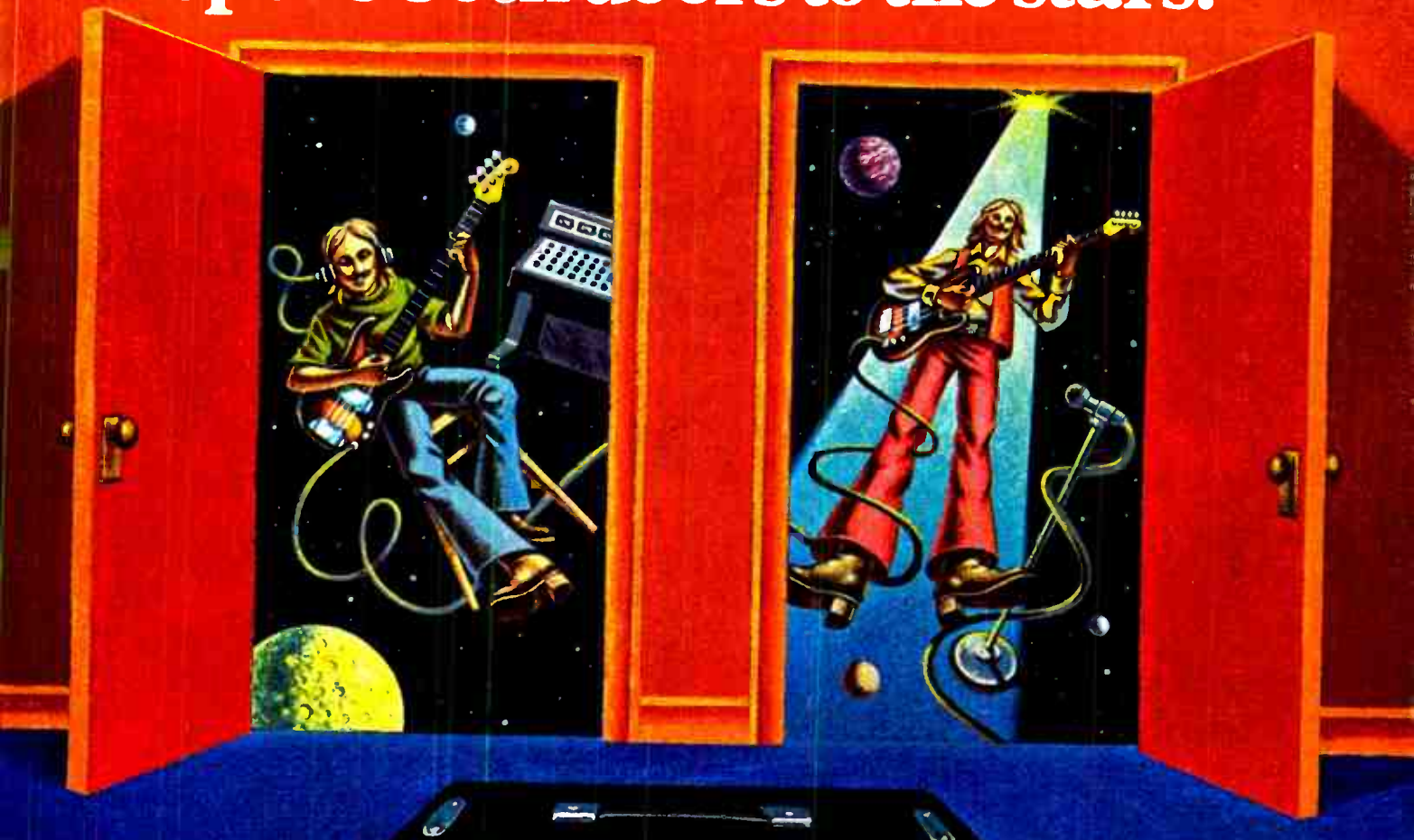

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Compression	Adjustable from 15-40 dB
Attack time	4 msec
Decay time	1.2 sec
EIN (input shorted)	-98 dBV
Power requirements	9 V d.c., 1.5 mA
Battery life	Approximately 1 yr.
Suggested List	$69.95

PHASER SPECIFICATIONS

Input impedance	500 kohm
Output impedance	Designed to operate into a high impedance load (10 kohm or greater)
Gain	Unity
Bandwidth	20 kHz
Dynamic range	90 dB
Sweep rate	Variable from .1-8 Hz
Sweep width	3 octaves
Signal recycle	Variable from 0-80%
Power requirements	9 V d.c., 1.0 mA
Suggested List	$89.95

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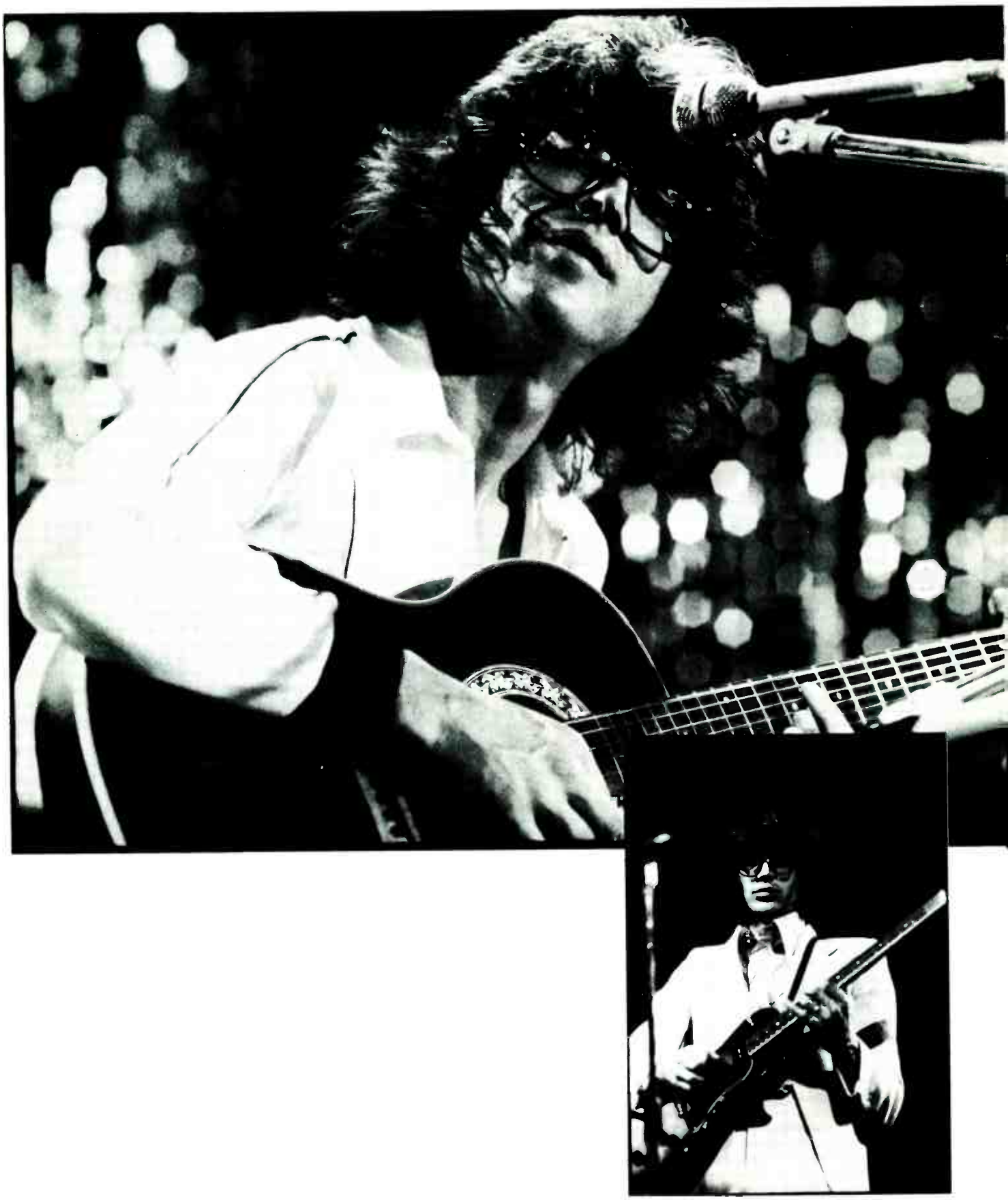
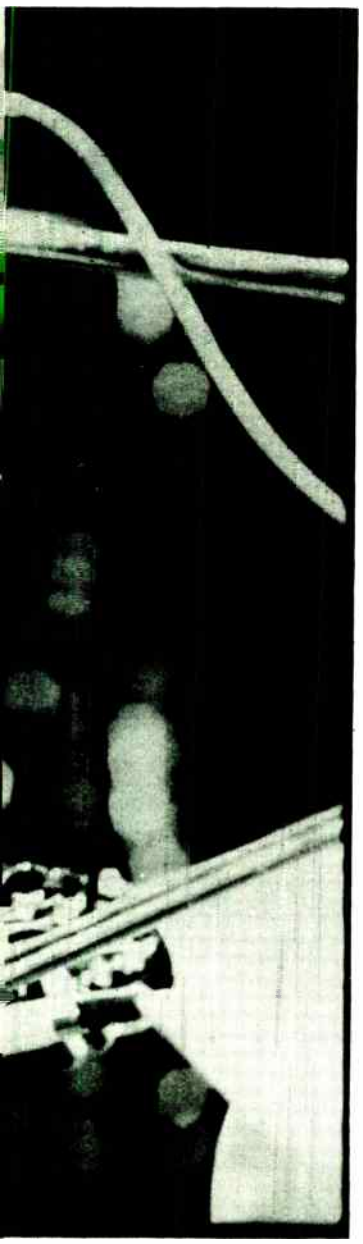
LARRY CORYELL'S European Impressions



"Since I've been playing acoustic, I've discovered a different response than when I play electrically, a kind of sensuality. I have come to regard the acoustic element as being the purest element of the guitar."



Provocative words from Mr. Coryell, the Texas-born guitarist who, in the very next sentence of his current Arista Records bio, is credited as "one of the acknowledged pioneers of the jazz-rock fusion movement."

From his earliest gigs around the Pacific Northwest backing up rock and roll legends like Gene Vincent to his exploration of jazz stylists like Wes Montgomery, Barney Kessel and Joe Pass through his radical fusion experiments with the Free Spirits and the Eleventh House, Larry Coryell has been primarily committed to the electric guitar as a means of articulating his musical ideas. Certainly his chaotic but often inspired – especially in *live* performance – work with Jim Pepper, Chris Hills, Bobby Moses and Steve Marcus in the ground-breaking Free Spirits and his passionate interplay with John McLaughlin, Chick Corea, Miroslav Vitous and Billy Cobham on the landmark *Spaces* album guarantees his reputation as an authentic "pioneer" of the electric guitar. So why this seeming abandonment of the electronic mode in favor of a more sedate acoustic approach? Could Larry Coryell, one of the original "wild & crazy guys," the Young Lion of contemporary jazz guitar, finally be slowing down as he passes through his mid-thirties?

The answer to this and other pertinent questions of the day would soon be forthcoming since I was on the verge of hooking up with Coryell at the Ovation Company headquarters in Bloomfield, Connecticut, a few hours away from his country home in the southern part of the state. It was a happy coincidence of purpose – Coryell, an official endorser of Ovation acoustic guitars, had driven up for the day to pick up a custom-made *fretless* guitar and have some minor work done on his six and 12 string Custom Legends. I was there to speak with Charles Kaman, the head of the company, and observe Coryell's first in-person visit to the company. In any case, one never really *interviews* Coryell, one *experiences* him.

Crouched amid a welter of battle-scarred guitar cases, trying to make some sense of things at this rather unlikely hour of the morning, Larry Coryell is between SRO "acoustic" tours of Europe with John McLaughlin and Paco de Lucia, and the aggregate total of jet lag is starting to get to him. The company employees clustered around seem anxious to help but a trifle intimidated by this unusually intense young man with the flowing mane of black and silver hair. Hunkered down under his funky-but-chic leather trenchcoat, Coryell slowly scans the area, searching for something. The arrival of Charles Kaman and the cordial introductions that follow lighten the mood perceptibly, especially in light of the fact that Kaman is an avid guitarist and his first meeting with Coryell is tempered by that instinctive rapport between musicians who play the same instrument.

Before heading into Ovation's sound room for a photo session, Kaman takes Coryell aside and casually asks him if he'd like to try out his son Bill Kaman's "personal" Adamas guitar. A dyed-in-the-wool fretboard fanatic, Coryell quickly agrees and is soon balancing an impeccably set-up (Bill Kaman is responsible for manufacturing the Adamas, Ovation's top-of-the-line instrument) brown sunburst Adamas on his lap. Within seconds, the guitar explodes into life as Coryell whips through a sensuous composition by flamenco virtuoso and current playing partner Paco de Lucia. True to form, Larry falls in love with the guitar instantaneously. Captivated by the rich sound of the instrument, he is even more knocked out by the feel of the neck and the low action. And if he is amazed at the Adamas, those of us watching him play are even more astounded by his fluid mastery of the guitar.

A half hour of acoustic improvisations and unsolicited testimonials follows, with Charlie Kaman exchanging guitar tips with Larry as he warms up to the Adamas (among other things, Coryell has mastered a difficult fingerpicking style for getting parallel harmonics guaranteed to turn any "competent" player into a fumble-fingered boob.) By now, Coryell is thoroughly convinced that the guitar could definitely play a role in the continuing evolution of his acoustic style. Kaman, with a perfect sense of timing, waits for this precise moment to *give* him the Adamas. Larry slips into a mild case of shock and disbelief, trying to express his thanks as Charlie Kaman chuckles with the pleasure of this brilliantly orchestrated surprise. Coryell is obviously moved by a personal gesture that easily transcends the normal working relationship between a musician and the company he represents.

This touching moment over, everyone focuses on the task in hand. ▶▶

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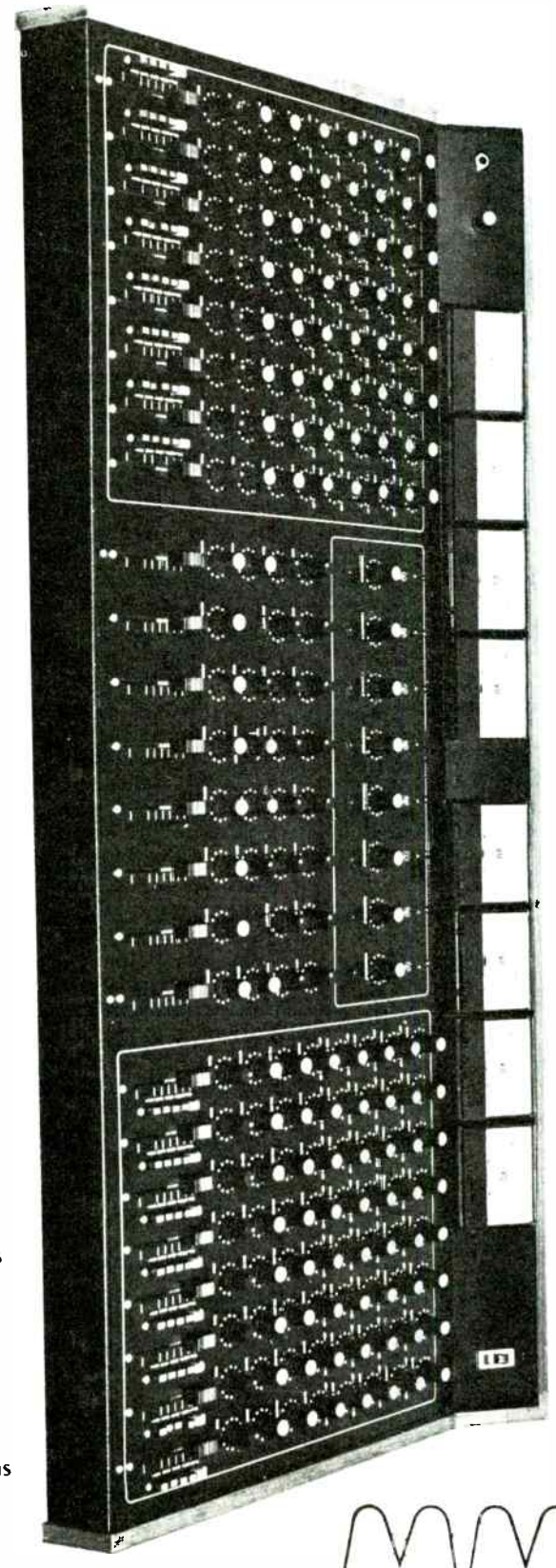

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LARRY CORYELL'S European Impressions

Kaman and Coryell proceed to a small stage in the darkened soundroom where they sit on stools bathed in the hot glow of the photographer's lights. Kaman proposes a jam and both men are soon launched into a spirited version of *Satin Doll*. Inspired by the company, Kaman charges through the rhythm changes while Coryell weaves delicate solos over the top. And even though this is hardly a "professional" playing situation, the folks at Ovation who weren't too familiar with Larry Coryell up to this point are true believers within a few bars. Mr. Kaman is smiling: "Lets have some fun, we never have time for fun anymore." He invites us over to his house for a jam but Larry has to beg off, which he does with genuine regret.

After both men exchange autographed albums (Larry's very latest, a studio LP recorded in Germany named *Standing Ovation*, and Charlie Kaman's *Goin' To The Dogs*, a delightful "home-made" album featuring Kaman, his sons Bill and Steve and Marcel Dadi) and farewells, we all proceed to a local eatery for lunch. The nice folks from Ovation travel in one car while Coryell and I follow in his. Larry is in rare form. Buoyed by recent events – he's also nuts about the one-of-a-kind fretless Ovation has made for him – he is quickly reverting back to the "looser," free-form Coryell style that I'm more familiar with by the time we hit the exit from the parking lot. He responds to my initial query about the "new and improved" reviews of his latest acoustic LPs with characteristic directness: "Fuck 'em! They've always hated me, so I couldn't really give a shit what they think at this point."

By the time we roll up to the restaurant Coryell is totally disoriented due, undoubtedly, to a little inhaled sustenance. His recent clean-up program ("It's a great feeling to know you can get higher off your kids than anything else you care to name") and extensive touring have made him susceptible to foreign substances and he gets a mild case of the "paras" as we prepare to face the more formal social confines of the restaurant.

All things considered, Larry pulls off the lunch with considerable panache, regaling everyone at the table with hair-raising stories of his recent touring. Occasionally, in the heat of an anecdote, he gets carried away with his descriptive syntax, causing a few anticipatory tremors to run through our hosts from Ovation: "Yeah, I first got turned on to Ovations by Steve Kahn. We were on tour together and I broke a string during a solo segment. He handed me this Ovation real quick and the first time I played it I thought it was fucking *horrible*!"

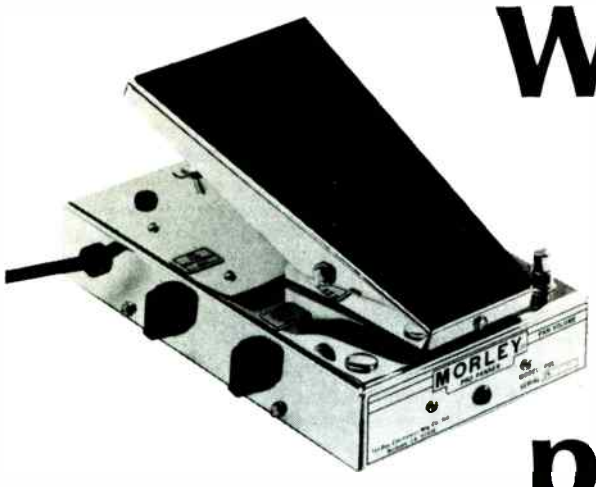
Obviously, Coryell has changed his thinking on the matter since then, but it is this very same undiluted spontaneity of thought and emotion that makes him such a fascinating person and endlessly inventive artist. There has always been a transitory aspect to his personality: one gets the impression that best moments of musical interaction or self-discovery are all-important. Everything else, with the notable exception of his wife Julie and the children, is merely a waiting period which he does his best to get through with a minimum of psychic damage.

After wrapping up a pleasant day at Ovation by choosing a small, inexpensive guitar for his son, Coryell bids everyone another round of fond farewells and we head south down the turnpike. For the first time today, he has a moment to reflect on the current state of his career. He is obviously in an "ascendant" phase right now, having just returned from a series of engagements in Europe to packed houses and frantic reactions with McLaughlin and de Lucia, both of whom he greatly admires: "I love John. It's great to be sitting up there and playing next to a guy who's a genius. And Paco's so *good*, man. He's got this incredible flamenco technique that makes him *so* fast and *so* clean. Plus there's a lot of jazz in his playing."

This recent emphasis on his acoustic work can be traced back to the *Lion and the Ram* album (Arista) although Larry certainly recorded acoustic material before then – *The Restful Mind* (Vanguard), featuring Coryell and members of Oregon in an acoustic setting is an example that springs to mind. Following this up were two well-received duo LPs with Steve Kahn and Philip Catherine and his most recent US release, *European Impressions*, recorded last summer at the Montreux Jazz Festival and his first American "strictly solo" venture. As far as the recent tour is concerned – which is thankfully being recorded for us unlucky Americans who won't get to see it – Coryell claims that it came about almost by accident: "Somebody, I don't even remember who, called me up and asked me if I wanted to tour with John and Paco."

Throughout our conversation, Larry continually demonstrates his unquenchable enthusiasm for the guitar, good music and good musicians. He is lavish in his praise of contemporaries like Pat Metheny – "He's a fine player. His music is just like him, man. Light, airy and melodic. He's got a great touch" – and reluctant to criticize others, probably because he's gotten so much heat for his dense, multiple-note extravaganzas over the years. The electric guitar has been temporarily laid aisde but not forgotten. "Now that I play an acoustic for a living, I get a lot more pleasure out of picking up the electric (Hagstrom) at home and playing it." He also has tentative plans for another electric combo sometime in the unspecified future.

Reaching the inevitable crossroads in our mutual destinations after a surprisingly quick trip, I am reluctant to break off what has been a very positive dialogue. Leaving me at a train station for the return ride to Manhattan, Coryell lapses into a brief surge of nostalgia, reminiscing about the excellent players who came up via the Eleventh House: "It's nice to know that all those cats are out there playin'. Cats like John Lee, Gerry Brown and (Alphonse) Mouzon. I'm really happy about that." And then he's off. Roaring down the street in his big sedan filled with guitar cases in a mad dash to pick up his kids before he catches hell from the wife.



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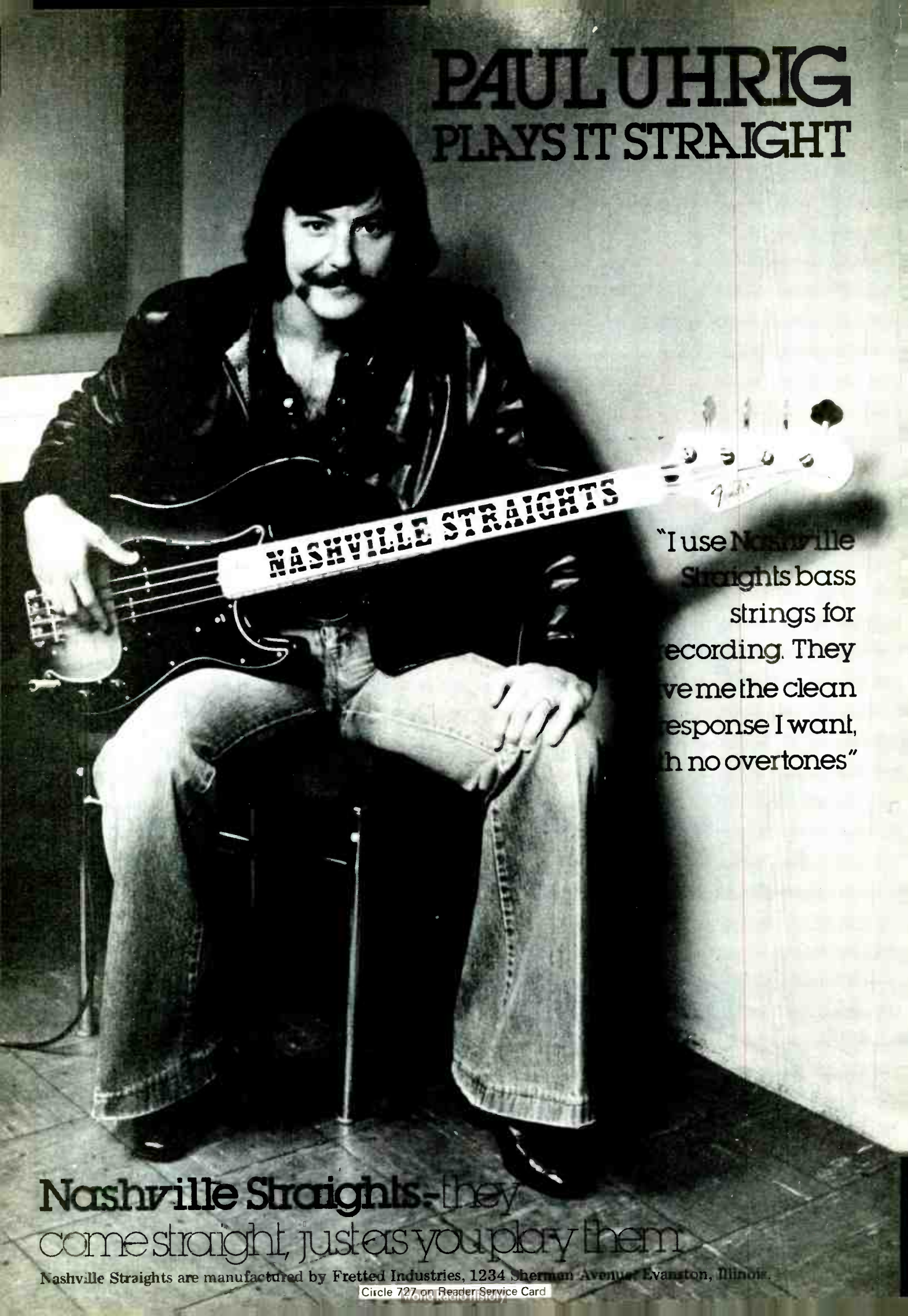

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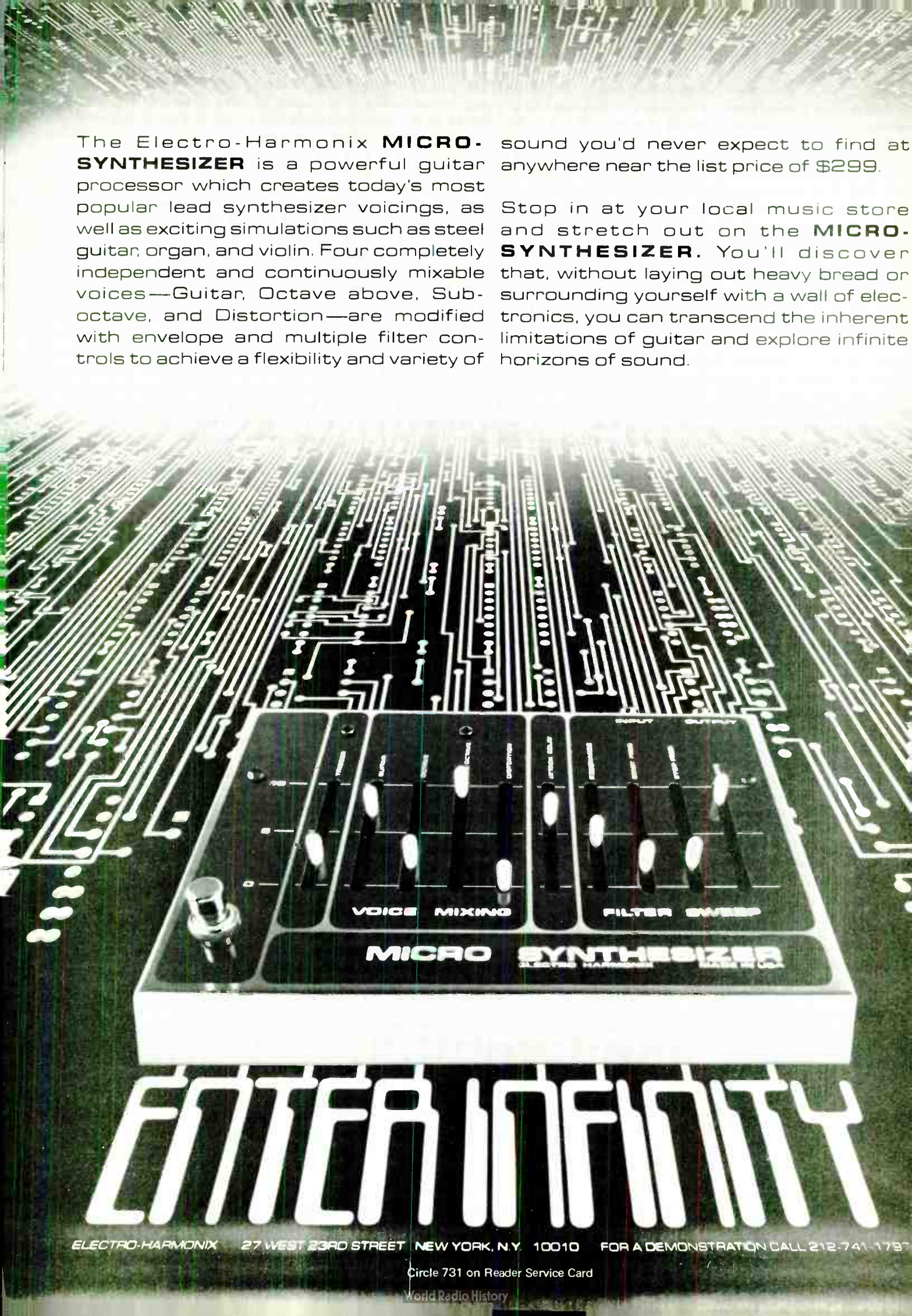

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BY JEFF PIKE

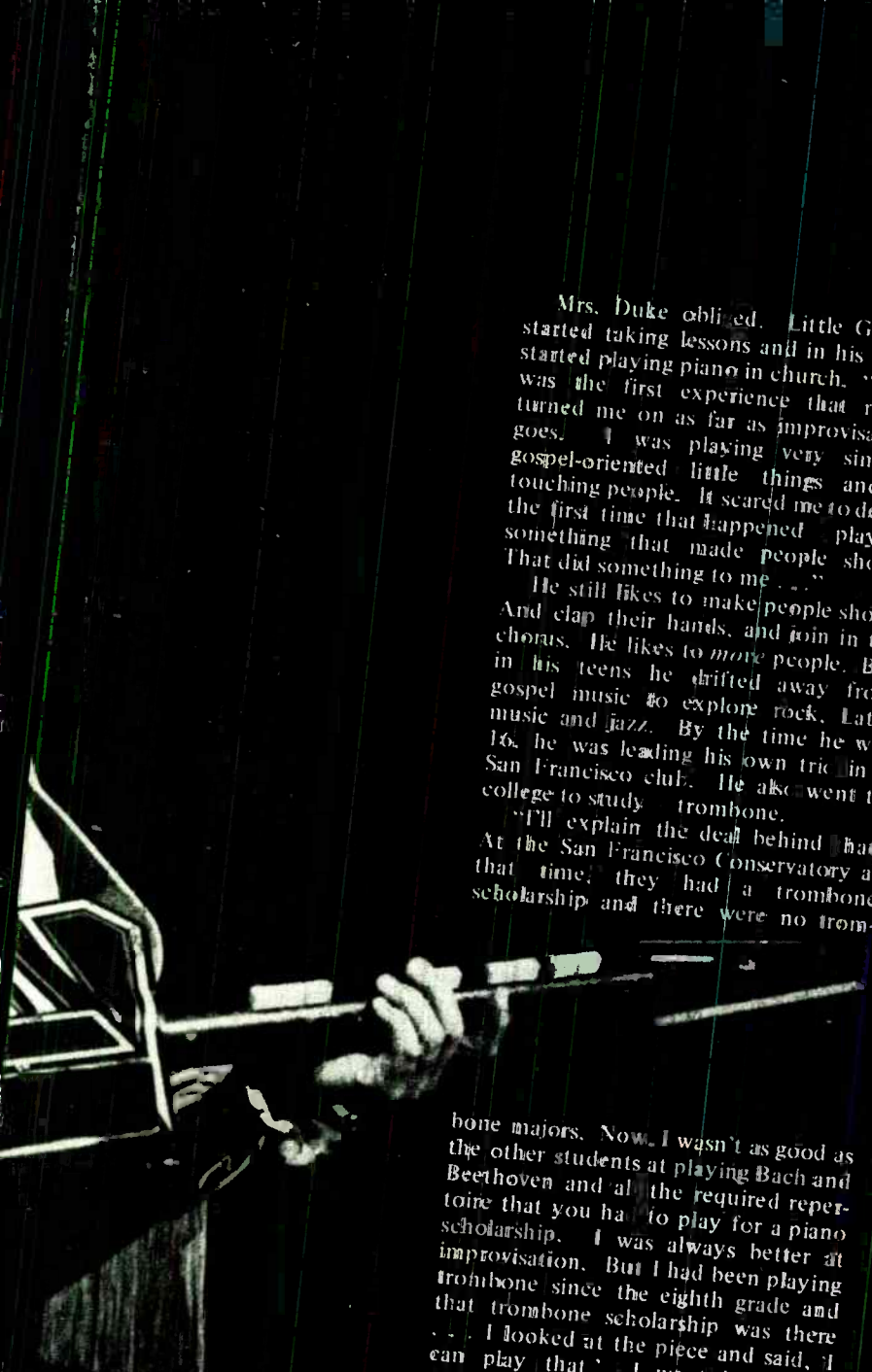
GEORGE DUKE is in charge

The George Duke Band have carved a reputation for themselves with a string of good-time funky singles. They have recieved plenty of airplay on the stations the housewives listen to, and have set Travolta lookalikes lurching round the disco floors throughout the land. But George Duke's eight-piece ensemble is a not a disco band. Nor is it a soul band. Or a rock band or a jazz group or an Afro-Latin free-improvisation workshop. It's all of them.

Duke has played piano professionally in all those areas, from bossa nova to bebop, from gospel to rock & roll. He's studied classical music, too. Now he's reached the stage where he simply doesn't recognize the boundaries. Listening to a concert or an album by the George Duke Band is like an unguided tour of contemporary music. They hopscotch from one style to another in the twinkling of an offbeat.

Duke is an exciting performer on all his keyboards. But he's much more than just that: composer, arranger, singer, producer, perhaps above all bandleader. And that's a job he takes seriously: "It's difficult because you're dealing with personalities and you have to be a father and a leader at the same time, to be able to offer suggestions without intimidating someone. Everyone I have in this band, as far as I'm concerned, is a star. They're all excellent musicians; stylistically, they're comprehensive. They can play Latin, Brazilian, jazz, rock, funk, blues – and like it. And that's the kind of musician I like."

There's something inevitable about the fact that George Duke, for all his talent on his instruments, should wind up *leading* his own band. His larger-than-life personality needs to be in charge of things. And it's no real surprise to learn that his first musical inspiration came from the greatest bandleader jazz has ever known. "My mother took me to a Duke Ellington concert when I was around five years old, and I proceeded to go crazy. It really affected me. I don't remember exactly everything that went on, except that I saw this guy playing the piano, directing this band in a church. He had on a different outfit and everything. I told my mother, 'Look, I *know* I can do that. Get me a piano!' "



Mrs. Duke obliged. Little George started taking lessons and in his teens started playing piano in church. "That was the first experience that really turned me on as far as improvisation goes. I was playing very simple, gospel-oriented little things and... touching people. It scared me to death the first time that happened playing something that made people shout. That did something to me . . ."

He still likes to make people shout. And clap their hands, and join in the chorus. He likes to *move* people. But in his teens he drifted away from gospel music to explore rock, Latin music and jazz. By the time he was 16, he was leading his own trio in a San Francisco club. He also went to college to study trombone.

"I'll explain the deal behind that. At the San Francisco Conservatory at that time, they had a trombone scholarship and there were no trombone majors. Now, I wasn't as good as the other students at playing Bach and Beethoven and all the required repertoire that you had to play for a piano scholarship. I was always better at improvisation. But I had been playing trombone since the eighth grade and that trombone scholarship was there . . . I looked at the piece and said, 'I can play that.' I went home and practiced it – and I won the trombone scholarship four years straight. It paid for half my tuition."

He never intended to wind up as a professional trombonist ("but I didn't let *them* know that") so he also majored in composition: "I thought it would be better if I had some sort of theoretical background to help me with orchestration and that kind of thing."

Which all suggests that he had a firm intention of being a pro musician, a bandleader, even. "Well, in your college days you never really know if you can make a living at it. You're never sure. I was playing at the Half Note all the time I was working on my Bachelor's – as a matter of fact, I was working with Al Jarreau at that time – but I still wasn't convinced. I had to get away from that club to see if I could book myself other places to really become convinced that I could earn a living."

The first step towards convincing himself came after college, when he moved down the road to the Both And club and started working regularly with jazz musicians. The second step came when Jean-Luc Ponty arrived in town and Duke hustled to record and tour with him. They went on the road as the Jean-Luc Ponty Experience with the George Duke Trio. That was pretty near to the big time; near enough? you might think, to make up George's mind for him. But he still wasn't convinced. "I met a load of people then and played a lot – but I was still teaching school as well. There was still that war within me between professional music and teaching."

The clincher came when Frank Zappa collaborated with Ponty on an album and invited Duke to play keyboards. A week later, he asked him to join the Mothers of Invention. "*That* was when I decided to be a professional musician. For one thing, I was making more money at it – you know, the big rock & roll group. I had never been exposed before to thousands of people in the audience, limousines, not having to set up my own equipment, groupies, the whole bit. It was something new to me. But I liked it!"

Only trouble was, he didn't like the music too much. At that time, Zappa was purveying two distinct styles – wild, zany rock and intense neo-classical stuff. It all left young George rather confused. "First he had the sexist, crazed rock & roll humour. That's what bothered me. I was like a sore thumb in the middle of all this craziness. I couldn't figure out why I was there. When I asked Frank, he said it was because it was odd. That's why he liked it. Then he also used to play music that was more akin to Varèse and Stockhausen, kinda contemporary classical music, which I used to like. It was much nearer to what I was doing at school.

"But I wasn't accustomed to that kind of radical change. We'd play a Stockhausen-type piece, then follow it up with some Fifties rock 'n' roll stuff. It used to baffle me. Frank was one of the first people to do that sort of switch and I was always confused. Since then, that type of approach has affected the way I view my music now. It's not in the same area, but it's the same approach, being multistylistic, playing different styles of music in the same show, on the same record."

He was rescued from his bafflement by Cannonball Adderley, who invited him to join his group in 1970. "I just couldn't pass up that opportunity because he'd been one of my heroes for years. That's where I grew up ▶▶

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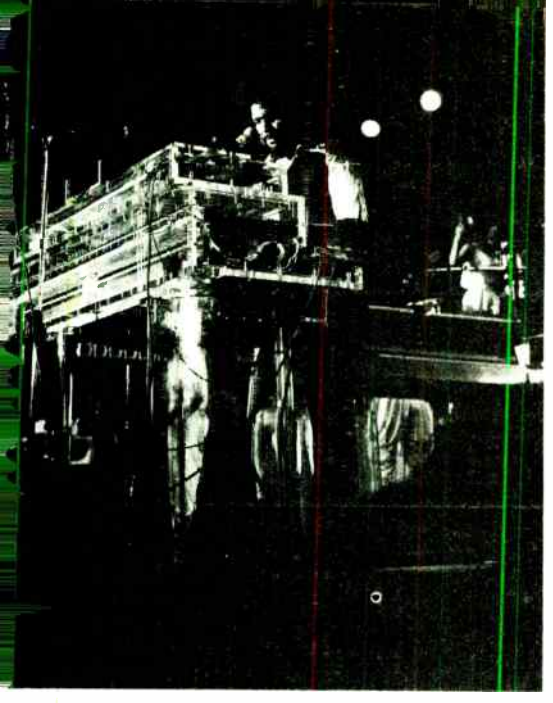

musically. It was a great learning experience. I took Joe Zawinul's place in the band – so I was scared to death. But I went in there determined not to sound like Joe, to put my own personality into the thing. I learned a lot from Cannon. Part of the reason why I could go back with Frank after I left Cannonball was that I had learned to be myself on stage, to just relax and – why not play some funny music sometimes?"

It was around 1973 that he went back with Frank, joining what, to many, was the finest, most musical, most creative Mothers line-up ever. It was a period when Zappa was arranging his music meticulously for the band, but always leaving room for the appropriate improvisations, and George Duke's current work shows how much he learned from that stint under Frank's direction.

He has something else to thank Zappa for: the synthesizer. Amazingly, he had never played one until then. He'd stuck with just piano, electric and acoustic. "I fought against playing synthesizers. It was too hard to learn . . . Oh man, I'm gonna have to play this thing, with all these knobs? It was like an aeroplane cockpit. I wasn't interested in starting all over and learning to play *Frère Jacques* on the thing.

"But Zappa bought one and put it in front of me. He just left it on top of my Fender Rhodes and made sure it was always switched on and said, 'You just play it when you feel like it.' So every now and then I would thump it and it would make a sound."

Curiosity finally got the better of him and he started to take the synthesizer seriously – though he claims it took two years to become even halfway comfortable on the instrument. Even now, though he uses half a dozen different synths, if you ask him if there are any he hasn't got to grips with yet, he'll chuckle and admit "All of them. Right now, I'm most comfortable with the Minimoog and the ARP Odyssey. I haven't got the Oberheim down the way I would like it yet. But I'm working on it. I also like the Prophet a lot. I know it's a state-of-the-art instrument but it's got problems on the road because it's digital and digital things on the road don't tend to hold up very well. But in the studio it's great – and it's *fast* because it has 40 programmes. On stage, I'd rather use an Oberheim. I've never had a fault with it. It's very roadworthy."

Despite his modest protestations of incompetence, Duke has grown into one of the foremost exponents of the synthesizer. He uses them creatively, wittily, sometimes outrageously, but always as an integral part of the band sound. Frank Zappa didn't realise (or perhaps he did) what he was starting when he plonked a synth on top of George's Fender Rhodes.

George stayed with the jazz-orientated Mothers for three years. But the time came for a change. "When Ruth Underwood was sacked and Chester Thompson left to join Weather Report, I felt the band lost something really important – the whole family atmosphere. I began to miss that so I felt I had to leave. Billy Cobham was there, ready to go, and I said, 'Hey, let's do a band.' He said, 'Yeah.' So we got together."

The Cobham-Duke quartet lasted for a year. They toured the world, made albums and played some very impressive jazz rock. But although he had fun doing it, George Duke soon became dissatisfied. "I began to change musically. There were other things I wanted to do. I became a little disenchanted with the whole jazz rock spectrum.

"It seemed to me like a lot of people were becoming a little egotistical musically, playing a lot of notes over a rock beat. I see it this way: jazz started out as a bar-room music, with whores and pimps around. It was dancing music, it was gut level, bottom music, right? It was never pure. It was fusion music, with two diverse cultures as well as musical styles coming together to make jazz. And I think it has become *more* fused all this time. It seems that in the jazz musicians' quest to have the music taken seriously, they lost all the common people, because in the Thirties, when it was dance music, *everybody* danced to it.

"I wanted to see the dance come back to music. I wanted to see the fun come back. I got tired of having to go on stage looking like this (*frowns*) and not being able to smile or move around on stage."

Duke certainly moves around on stage now. Even when he's playing synthesizer, thanks to a unique instrument he calls the Funkosizer. It hangs round his neck and gives him the scope to prance, pose and possess the stage like the most flamboyant lead guitarist. It's a role he plays magnificently, partly because he patently enjoys showing off, partly because he doesn't see why the rest of the band should have fun leaping around while the keyboards player is locked inside a fortress of instruments. "I got tired of being walled in, so I took all my keyboards and had them recased in Plexiglass and silver, so you can see the guts. I put some lights inside them to make them visually interesting and I try to arrange the stage so that there's nothing in front of me. Then of course with the Funkosizer round my neck, I can walk around, go talk to somebody on the other side of the stage . . ."

The idea of the portable synthesizer is not new. It's the sort of instrument that could have been designed with an extrovert like George Duke in mind. In fact, this one was. "It was designed for me by Wayne Yentis, a guy who does a lot of keyboard modifications in LA. He has worked closely with Tom Oberheim on certain projects. He said he could design an instrument for me that was very portable, very light, that would have all the controls in a neck like a guitar's. It took him about a year to make it and it's a great instrument. You've got all the low frequency oscillators, the pitch control, your octave switches, two octaves up, two down, all of your modulation controls and a pitch wheel – all there in the neck."

There's something irresistibly *jolly* about seeing big George Duke striding around the stage with a synth round his neck, rapping with his band, stomping his feet, wailing funky synth solos and playing to the gallery. The rest of the band obviously enjoy it too. "That's the whole thing. The whole element right now is just *fun*. I think it's possible to have fun and play good music at the same time. I don't consider that I'm playing disco music. The funk music that I do play has no relation to disco because the approach is totally different. Disco is designed for dancing, funk is for the body *and* the mind. But it's fun and that's what I like about it.

"The music I'm playing now, I find immensely more satisfying than everything I've done in the past. Not only because I can play more of my own material and have it played the way I like to have it played, but because I've really got a family situation going here. This band is not just me, telling them what they are going to do. It's a collective personality that's directed, more or less, by me. I come in to the rehearsal with the charts, give the music to everybody and say, 'Here's the song. Let's see where it goes from here.' "

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Guitarcheck:1

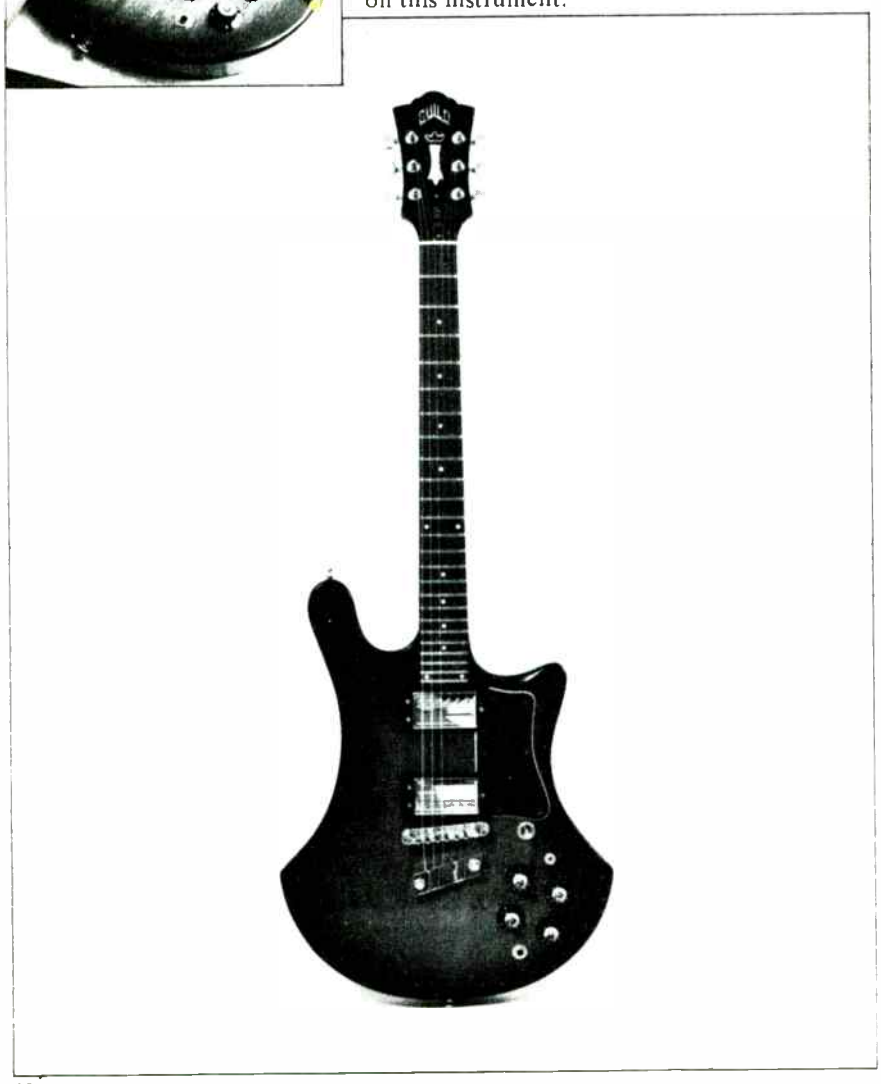
Guild S300
$600

Note: The photographs show the Guild S300A ($540) which, except for the DiMarzio pickups, is identical to the S300 AD.

This is one of the top guitars of the new Guild range of solid instruments and, in keeping with present public opinion, is available as an option with DiMarzio pickups. It is this version which has been offered for review. (The version with Guild pickups is the S300 A. I have not examined one of these, but I believe the models are identical except for the price and the choice of pickups).

In spite of one or two small points which I shall mention, concerned with quality control on fret-finishing and suitability of electrical components, an unusually large number of musicians played this instrument while it was waiting for review, and everyone admired and liked it. These musicians were chance visitors to my workshop and, by coincidence, happen to represent quite a wide range of musical tastes and abilities. One of them would have liked the fingerboard wider, and one of them would have liked it narrower, but I received no other criticisms. It is my experience that many guitarists, selecting a new instrument in a shop, will gain an overall impression of the instrument at first and only notice small and relatively insignificant problems after some hours or days of playing.

Consequently, I feel that my comments on some small faults are still valid, even though they were not immediately apparent on first playing the instrument. I should like to join my semi-random sample in congratulating Guild on this instrument.



What criticisms I may have are either small or matters of personal taste. This is obviously going to be a generally favorable review. Some other instruments have in the past received unfavorable reviews. To be entirely fair to all concerned, unless otherwise stated, a *Guitarcheck* is based on my own opinion of one sample only of the instrument as offered or requested for review. This is not an ideal situation, but I have found that more complex selection processes tend to remove the simple problems only to replace them with appropriately more complex ones. I prefer my reviews to have simple (and therefore obvious) limitations. I have no reason whatever to place suspicion on this Guild, but this review, like almost all others, is based on this one sample only.

The S300 AD is a fine guitar: it feels right, it weighs about right and its various sounds seem to please most people. It seems a little heavier than the usual Guilds of this shape, probably because of the woods chosen for this model. The body is ash with attractive grain and markings, the neck is maple and the fingerboard is ebony with rather wide, shallow frets.

The frets have been levelled and shaped after fitting to the fingerboard, and I feel that, on this sample, they have been flattened rather too much toward the edges of the fingerboard. The profile of each fret varies between rounded at the center and flattened at the ends, and there is barely enough metal left to make the ends more rounded. Also, the lower profile at the ends seems to emphasize the fret ends and make them appear sharp under the fingers. Leaving the frets higher in the middle than at the ends also effectively increases the camber across the fingerboard and, inevitably, makes a slightly higher action necessary if you wish to bend strings halfway across the fingerboard. My own taste is for fingerboards with less camber than usually fitted on Guild guitars, but I appreciate that this is probably a minority taste.

It is entirely reasonable for any manufacturer to make fingerboards to suit average tastes, but as 'average tastes' in combined fingerboard camber, minimum action and string bendability are already challenging the laws of mechanics, it may be unwise to increase the effective fingerboard camber by finishing frets in this way.

A further point about the neck and fingerboard concerns the narrow mahogany strip glued in the center of the neck between the two matched maple halves. Modern glues are marvellous and produce joints which are frequently stronger than the surrounding wood, but from an artistic point of view, the center joint down the neck could have been fitted more closely before glueing. The same could be said of the joint between neck and body. In both cases, the joints are robust and visually acceptable, but I do like to see woodworking joints which fit neatly, as well as being strong and efficient.

These are not very important details, and a second sample might be quite different in respect of both frets and glue joints. The concensus of opinion of those who tried this sample was that the neck felt slim without being flimsy and that, apart from two players preferring a different width, all of them liked

the feel of the fingerboard *and the frets.* We all agreed that the neck is very well shaped at the back, beautifully straight and rigid enough to stay that way.

The machine heads are embossed with the Guild name, but are almost certainly made by Schaller. There is a small amount of backlash in the mechanisms which is constant for all six units. If you always tune *up* to the required pitch there should be no trouble with slippage. (This way of tuning is advisable even with top quality machine-heads although carefully selected and fitted samples may permit tuning to an exact pitch from both directions.)

It would be difficult to find any complaint in the way the nut has been fitted and adjusted. If only all makers adjusted all their nuts as precisely as this!

This S300 AD is fitted with a DiMarzio PAF pickup by the fingerboard, and a "Super Distortion" DiMarzio by the bridge. There is the usual three-way selector switch with two volume and two tone controls, and a phase reversal switch which, as usual, is only effective when the pickup selector is in the center position. One of the knobs has a sharp edge from the inserted metal disc on top, and the selector switch, which Guild does not make, is in desperate need of some grease. It squeaks *and* cracks in unison. I also noticed that the volume controls did not have the same silky smoothness as the tone controls. This is not surprising as the volume controls appear to have come from a different manufacturer. They are acceptable, but not as pleasing to use as the the controls on the Guild Bass. I should perhaps mention that the pickups are not directly interchangeable with standard DiMarzio units as they have the Guild three-screw support system, which I find more satisfactory than the usual two screws.

The internal wiring is not beautiful, but perfectly adequate and well screened with sheets of adhesive copper foil. The position-markers for the control knobs are small round metal dots, presumably having spikes underneath, driven into the guitar top. They are well finished and an excellent alternative to the usual arrow-head bracket, secured underneath the knob.

I see no need to comment on the DiMarzio pickups. They are well known by now. I prefer the PAF to the other one, but it is useful to have both types on one guitar, and they sound very impressive when mixed together. I think there should be a key supplied for adjusting the hexagon socket screws on the Super Distortion pickup.

The bridge used on this sample is one of the newer Guild bridges. It looks very like the older ones, but has been modified to allow easier and more extensive adjustments. There is no *individual* height adjustment for each individual string, but this is common in bridges of this type. There is an overall height adjustment, individual 'octave' adjustment and, unusually, screwed string-spacing adjustments. I think this is better than the bridges which give you only one notch per string, or a row of notches (which are usually spaced too coarsely) or no notches at all, where you must cut your own. There *are* some bridges which work beautifully with no string notches at all but they usually have little possibility of adjustment, and are often rejected for this reason.

Conclusion

A nice one, Guild. The 'new' Guild shape does not quite make sense to me until one holds the guitar, or sees someone else holding it. On the shop wall it looks a little strange. However, it is shaped to be comfortable for sitting, as well as standing guitarists, and the complex curves are well suited to a distinctly grained wood like ash. It is a good, workman-like guitar for someone who has to earn their living with it and, under these circumstances, the wear-resistance of the ebony fingerboard is a valuable asset. For some reason which I cannot clearly identify, it seems possible to achieve a satisfactorily 'tempered' tuning on this instrument rather more quickly than usual. Visitors seemed to spend more time playing it and less time fiddling with the tuning, compared with many guitars I have for review. I cannot see anything unusual about the fretting or tuning arrangements, and the advantage may come from a fortuitous combination of factors. It may also come from the choice of materials and the unusually finely adjusted nut. It was also generally agreed that, irrespective of the pickups fitted, this sample has a very pleasing natural sustain. Although Guild obviously has an interest in the matter, there *are* some people who prefer Guild pickups (or Gibson, or Fender) to the DiMarzio equivalents, and Guild have wisely made this model available with either type of pickup.

Stephen Delft

Measurements on Guild S300 AD

Scale length *628mm*
String spacing at bridge adjustable. Set to *51mm*
String spacing at nut *35mm*
Fingerboard width at nut *41mm*
Action as supplied treble *1.1mm*/bass *1.9mm*
Lowest 'standard conditions' action treble *1.7mm*/bass *1.6mm*
Depth of neck: at 1st fret *21mm*, at 12th fret *34mm*, at 15th fret *32mm*
Weight of guitar *3.1kg*

Circle 889 on Reader Service Card

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

Randall Commander II RG 120-212 Combo $619.50

Randall Instruments Inc. of Irvine, California, produces a wide range of professional sound reinforcement systems, among them, the well-known RG 120, RB 120 and R 300 musical instrument amplifiers.

The RG 120-212, commercially known as the Commander II series, is a two-channel, four-input multi-purpose combo amp which is packaged in a good looking, portable and sturdy cabinet. There is a reverb and tremolo facility on Channel Two and the amplifier is capable of delivering approximately 120 watts RMS.

This combination amplifier possesses the standard two channel facilities, also incorporating a spring-type reverberation unit and a very efficient tremelo generator, both controlled by a foot pedal, which in this case comes as part of the standard equipment. This is the first time that I have reviewed any of the Randall series, and at first glance I found it to be a reliable amp, but will naturally enlarge on any good or bad points.

Construction

The basic amplifier cabinet is made from chipboard, and is covered in a sharp but fairly standard black vinyl material. Its overall measurements are approximately 700 mm in length, 590 mm in height and 265 mm in width. The upper part of the cabinet houses the steel-framed chassis and all the electronic components while the lower half contains two 12" Randall professional quality speakers. A 430 mm reverb spring unit is located on the floor of the cabinet, protected by a black vinyl sleeve. The loudspeakers (8 ohms) are constructed with powerful ferro-magnets and give a fairly wide frequency response, especially at high frequencies, where the sound produced was really quite effective.

Moving on to the controls – Channel One contains Volume, Treble, Middle and Bass rotory potentiometers. A Master Gain control works both in the rotary fashion as well as pull-in/pull-out fashion for gain boost requirements.

Channel Two possesses the same facilities as Channel One, but also has a Reverb level control, and a Tremelo depth and speed control; the Trebel control also possesses the pull-out/pull-in feature for certain applications requiring a high frequency boost. An on/off/on power rocker switch with the standard red neon light (power on) indicator is at the far right end of the control chassis panel. This three-position on/off/on rocker switch acts as a ground polarity switch when it's in the appropriate position, and the owner's manual claims that it should eliminate shocks. In my view it would be wise not to touch the equipment, even to change the polarity, if a shock occurred.

I thought that the input sensitivity figures for both channels were good and suitable for most electric keyboard and stringed instruments, and that the tone controls were most effective. I noticed that the position of the middle control affects the efficiency of the treble boost.

The overall signal/noise ratio and hum level was high on this particular amplifier. I feel that I must point out however that the amplifier tested was taken from a rental company and was not supplied to us directly by Randall Instruments Inc. The high hum level could be the result of a small fault on the unit supplied.

Overall, I thought that the general standard of finish and quality of components and materials used throughout were of a high standard. The product is certainly comparable with other higher priced US brands.

The rear panel has a flexible power cord with a 3 amp slow/blow fuse link protection circuit, a ¼" jack socket. This provides an output signal for driving an extra amp or for driving a tape-recorder when recording directly from the amplifier. The output level is of approximately 500 mV r.m.s. signal and has an impedance of at least 10 K ohms. A warning

note: a load impedance of less than 8 ohms is not recommended on the external speaker socket.

The electronic circuitry is extremely compact and all the electronic components (with the exception of the four RCA 2N6254 power transistors) are mounted on one fiber-glass P.C.B. The actual pre-amp circuit employs a FET TIS 98 transistor for both channels. The tone circuits themselves are extremely simple in design as all the controls are linked to each other in a series using only basic RC elements. The tremolo effect circuit (like the tone circuit) was also extremely simple in design, using only two MPS 6922 transistors, while the Reverb circuit is a standard Reverb driver/receiver configuration.

The power supply is made up from a magnetically-screened mains transformer, a 25 amp/200 volts silicone bridge rectifier, and a battery of two 6000 µF/50 volts DC electrolytic capacitors.

The unit is well finished off in every respect. Four strong castors are fitted as standard and a solid handle is provided at the top of the cabinet enclosure. The plastic woven grill cloth is smart and durable and the overall impression of the unit is that this is a professionally-finished product.

The general sound of the amplifier was very clean and middly, giving plenty of punch to a guitar and bass. It is certainly loud enough for its watt rating, and was particularly cutting with a bass guitar, the sound quality improving with an increase in volume. The reverb sounded particularly good although the tremelo effect seems a little redundant for today's music. The tone controls all worked reasonably well with the treble probably coming out on top.

Conclusion

The Randall Commander II series RG 120-212 combination amplifier delivered marginally less power at full output than specified, with a general predominance of second harmonic distortion. The overall sound color was good and, although the total harmonic distortion figures I measured were on the high side for a transistor amplifier, the sounds obtained from the unit, using an electric guitar, were both bright and penetratingly clear.

Mark Sawicki

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

PARAMETER	*RESULT*	*TEST CONDITION*	*COMMENT*
Specific Power Output (W. r.m.s.)	120 W r.m.s 118.81 W r.m.s	@ onset of clipping into 8 ohms Ref. 1.0KHz @ onset of clipping into 4 ohms Ref. 1.0KHz	Slightly lower than manufacturer's claims of 120 W r.m.s into 4.0 ohms load. An external speaker cabinet of less than 8.0 ohms is not recommended!
Total Harmonic Distortions (% T.H.D.)	2.11% 2.10% 1.80% 1.66% 1.52% 1.32% 1.35% 1.30%	@ 115.0 W r.m.s @ 100.0 W r.m.s @ 80.0 W r.m.s @ 60.0 W r.m.s @ 40.0 W r.m.s @ 20.0 W r.m.s @ 10.0 W r.m.s @ 5.0 W r.m.s Measured at 1.0 KHz into 4 ohms dummy load	Mainly second harmonic distortion. To achieve a "distortion sound" – set its channel volume pot at the "full-on" position and adjust the volume level by using the master volume control only. A built-in clipping distortion and system circuit is activated creating distortion even at fairly low volume levels.
Input Sensitivity for 118 W r.m.s o/op signed	Lo: 7.4 mV Ch.1 Hi: 3.6 mV Lo: 7.2 mV Ch.2 Hi: 3.2 mV	Ref. 1.0 KHz into 100 K ohms Ref. 1.0 KHz into 1.0 M ohms For 118 W.r.m.s into Ref. 1.0 KHz into 100 K ohms 4.0 ohms Ref. 1.0 KHz into 1.0 M ohms (21.72 V.r.m.s)	Good – very sensitive.
Tone Controls Range	32.87 dB – Swing 9.43 dB – Swing 34.85 dB – Swing	Treble at 10.0 KHz Middle at 500 Hz Middle at Minimum Bass at 40. Hz	The efficiency at treble control depends generally on relative settings of "middle" – control – Bass – very effective boost as well as cut at 40.0 Hz.
Aux. Level/ pre-amp o/p. jack	5.50 mV	Ref. 1.0 KHz into 10.0 K ohms	Okay.
Signal/Noise Ratio	60.24 dB		This figure consists mainly of Hum Noise and probably comes from the power supply section. It will be extremely interesting to hear the manufacturer's comments about the reiew sample covering the S/N ratio in this particular amplifier. Serial: 123103
Capacitive Load Test	OK	2 µF capacitor and 4.0 ohms dummy load.	
Open Circuit Stability Test	OK	Dummy load – removed Volume/Master – maximum Tone controls – flat position	Very good
Short Circuit Test	0.5 min.		No ill effects Worked when short was removed.

Synthcheck

The Wasp $695

Once upon a time, there was a little boy called Adrian Wagner, and he lived in a little cottage in Oxfordshire, England. One day, in between writing vast and complex albums of synthesizer music, he decided to invent a new synthesizer, and after inventing it, he thought of a little company to manufacture it and sell it to all the boys and girls who liked playing synthesizers. He called the company The Electronic Dream Plant Ltd., and he called the synthesizer the Wasp. And here's where the fairy story ends, and the hardware begins because, dreamed up or not, the Wasp synth, designed and developed by Mr. Wagner, rock star of an Oxfordshire parish, represents a very important development in synthesizers indeed.

For a long time now, synthesizers have been synonymous with great outlay on the part of the purchaser, if anything worthwhile was to be bought. Which, to the great detriment of the younger, less affluent players, meant that the new keyboardists were never exposed to the art of the synthesizer until they had already been successful enough to afford one. But now, with the emergence of the Wasp, a really good and workable synthesizer *not* of pre-set variety has arrived on the market at a price that almost anyone can manage, even if they have to save up for a while. The remarkable price of under $ 700 is revolutionary advantage number one to A. Wagner Enterprises. Advantage number two is the weight and size. The whole unit is not much bigger than a large telephone directory, and weighs a bit less. So, at last, portability and mobility onstage for keyboard players.

Advantage Wagner, for the third time, is the portability when not onstage. Because, although the Wasp runs on mains power like every other synth, it also runs on torch batteries and has a small, built-in speaker. On the road, hotel room and dressing room practice with synths at last. You can take this little machine anywhere and play it, explore its sound possibilities and use it almost as a jotting pad for ideas wherever you are.

Circle 897 on Reader Service Card

This has been a strange review so far, in that I've been lavish with praise in a fairly abstract way without actually describing the nuts and bolts of the instrument to you. So I'll remedy that right now, with the layout: the Wasp possesses a 25-note "keyboard". The word is in inverted commas because the keys are not separate articulating levers as on a piano, but diagramatically drawn touch-sensitive areas corresponding to key positions, so that you don't actually depress anything (apart from yourself, if you're out of practice) so much as set it off. This requires a little getting used to, as far as the technique goes, because the "action" tends to let you run away with yourself and play ahead of your brain (in my case, not difficult).

So on to the knobs panel. Starting from keyboard left, there's the pitchbend pot (like an Odyssey, rather than Moog wheel) with a glide control pot under it. The next bit is labelled Oscillators, and surprisingly, the Wasp has three – two for signals, and an LFO to control the other two, plus the filter. Oscillator One has five footage positions, from 2' down to 32', and choices of sawtooth and square wave forms. The square wave selection is linked to another pot which controls its width. Oscillator Two has similar controls, plus a pitch knob to allow fine tuning with Oscillator One. The LFO has a six-way switch providing a choice of controls; sine wave for vibrato, falling sawtooth, square wave, noise and Random, which turns on a sample and hold circuit. In the filter section, there are three types of filtering available: low pass, band pass and high pass. All have an adjustable "Q", which means they can move to a bus stop further down the road, as well as resonating the filter to help out individual harmonics. Another manual control adjusts the filter's frequency. Under this, the two knobs marked Control are used to control (what else?) the filter from the control oscillator. They are set in center and have plus and minus functions.

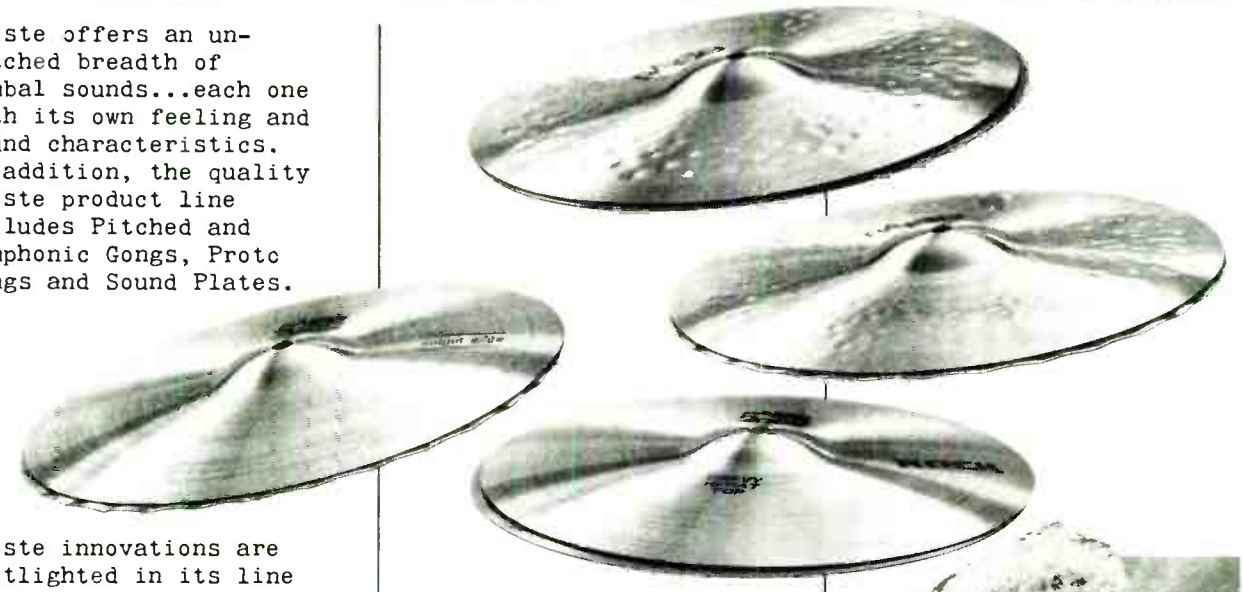
The Envelope Generator department is laid out as follows: knobs for Attack, Decay and Repeat, and a separate envelope used only to control the filter and providing a separate attack/decay/repeat facility. It also has a decay knob, giving up to one second delay. At the final output stage, the Wasp has a volume knob, doubling as a power on/off switch. The line out socket, if used, mutes the internal speaker, and connects up to a regular amp system. There's a phone socket, for cans-only monitoring, which also mutes the internal speaker instead of the batteries to power this little lot.

You must have noticed just how many functions and oscillators there are on this machine. It has almost the same set-up as the Moog/Odyssey range, and at a fraction of the price, plus the portability factors. This is quite amazing. The Wasp is a true synthesizer, and not a pre-set instrument. In my opinion, it is truly a revolutionary piece of gear, and my reservations about it are few. But the moans department reads thus: I dislike the non-keyboard type of touch triggering, but I fully realise that this feature is so, purely as a low-cost factor. Besides, one can get used to it. Also, the overall sounds are a little thin compared to, say, a Minimoog, but then it's not really fair to make such a comparison when one considers the disparity in price tag values. It's great to see young keyboardists buying these Wasps, and having a chance to get into the principles of sound synthesis without gloomily regarding thousands of dollars' worth of synths through a music store window, and having to wait for that day when . . .

That's not to say that this instrument is for beginners only. Lots of players who already possess an expensive range of gear are buying Wasps because they are such fun, and up to pro standard. I heard that blues pianist Bart Tragen, who has only ever played an acoustic piano for 40 years, is now using a Wasp. There's no more to add really: if you play keyboards, do go and buy a Wasp. You'll have fun.

Robin Lumley

Paiste offers an unmatched breadth of cymbal sounds...each one with its own feeling and sound characteristics. In addition, the quality Paiste product line includes Pitched and Symphonic Gongs, Protc Gongs and Sound Plates.



Paiste innovations are spotlighted in its line of quality hi-hats. The Sound Edge Hi-Hat features patented ripple edging to eliminate airlock. The Sound Creation collection has two outstanding hi-hats: the Dark Sound Edge and Dark Hi-Hat. Paiste Heavy Hi-Hats are designed with extra weight expressly for the heavy player.

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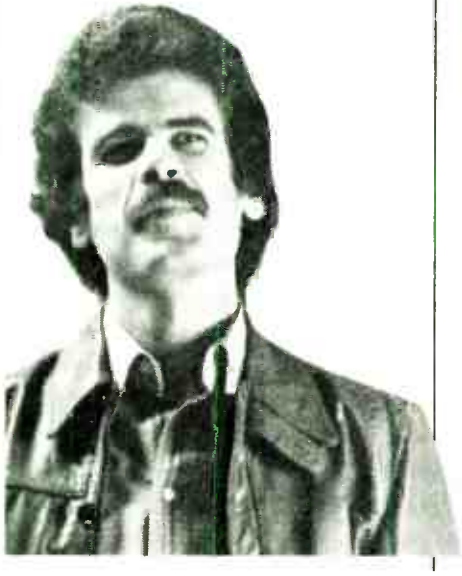
A 160 page brochure listing some 200 Paiste Drummers and Percussionists includes a personal profile and drawing of each artist's set-up. For your personal copy write: Paiste Profiles II, Box 4137, Fullerton, CA 92631.



Ian Paice
Born in Nottingham, England and famed as one of Britain's top drummers. Became the youngest member of "DEEP PURPLE" in 1968. Noted for his agility, speed and individual technique. A Paiste artist.

Fredy Studer
Born in Lucerne, Switzerland and has toured throughout Europe with leading groups including "OM" and collaborates with Paiste factory technicians in developing new cymbals and gongs. A Paiste staff artist.

David Garibaldi
A native of Oakland, California. Has played with "Tower of Power" since 1970 and has appeared in concert and on records with such artists as Boz Scaggs, The Carpenters and Natalie Cole. A Paiste artist.

PAiSTe

Pronounced PIE-STEE. Paiste cymbals (pronunciation above) are made in Switzerland by a family which has dedicated a lifetime of work and experience in sound making. They are exclusively distributed in the USA by Rogers Drums and are available throughout the country.

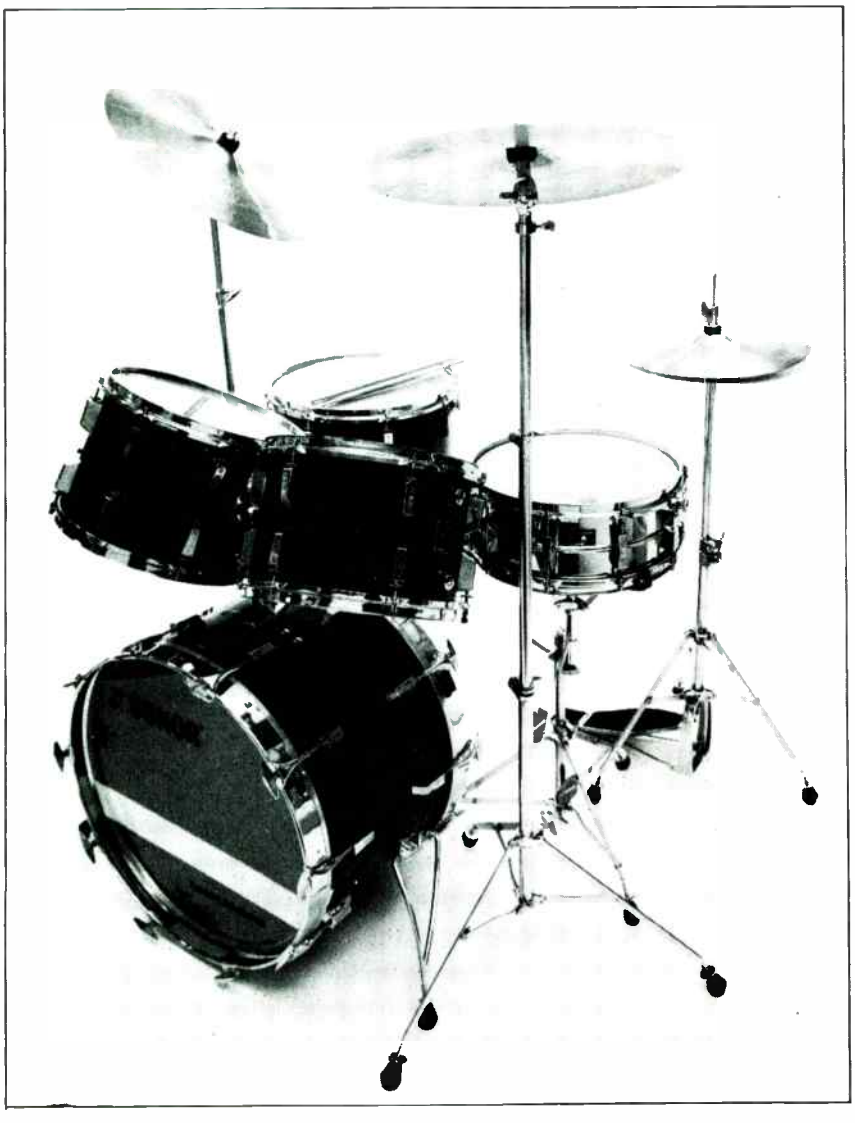
Sonor Rosewood XK 1025 Kit $2,354

Sonor drums are built about 100 miles or so north of Frankfurt at Aue in West Germany. In October 1975 they celebrated their centenary as percussion manufacturers and their products, as one would expect, reflect this longevity: their shells are solidly built and their fixtures and fittings are the subjects of constant updates and rethinks. It's certainly a family business with Horst Link (the grandson of the founder) in control, heading up a very young team which also includes members of its fourth generation. Herr Link listens to every suggestion, however hairbrained, from his endorsees around the world and those ideas which are practical stand a good chance of being acted upon.

Sonor has earned the deserved reputation of not only being the biggest and best of the European manufacturers but also being able to compete with the Americans. More than 50% of the Aue factory's total production is exported to approximately 100 different countries.

OK, so now you know the background of the company, let's get into their product. Although they make various configurations with nine-ply beech shells, I've decided to take a look at their rosewood shell kit – an alternative which only one other manufacturer "half offers."

These Sonor drums have the normal nine-ply beech shells too, but are veneered in rosewood on the outside *and* the inside. One has to pay 50% more for this privilege, which doesn't make it unique. These veneers don't actually make it an 11-ply drum (unless you consider the plastic coating on a normally covered drum to count as one ply) but the shell is still remarkably thick at almost half an inch. The shells are formed from three separate pieces of three-ply wood which are stagger-joined around the circumference and diagonally-butted to strengthen them. These processes are carried out in an oil-heated press. All Sonor wooden shells have a 45 degree inverse edge camber with a very slight radius at their head contact point. In addition, they are all undersize in relation to the hoop and the head – this results in a much clearer sound since the head sits on the drum in a timpani-type way where the collar of the head and the counterhoop don't interfere with the shell The only head contact point is therefore at the bearing edge, which is a very insignificant percentage of the total head area.



So why rosewood? Well, rosewood has been traditionally used for the solid tone bars on xylophones and marimbas for many years because it is a very hard and resonant material. It ultimately makes for a thicker, denser sound with a little more balls than the normal shell offers. For example, when you strike the side of a normal (say a beech) shell, you get a "click." When you strike the side of the same size rosewood shell, you get a "clonk."

The XK 1025 comes with a 22 x 14 bass drum, 13 x 9, 14 x 10 and 16 x 16 tom-toms and a 14 x 5¾ metal-shell snare drum, together with hi-hat and bass drum pedals, two cymbal and one snare drum stands. The actual selection of sizes for the set is a little strange since normally the medium-sized bass drum set has a 12 x 8 with its 13 x 9, not a 14 x 10. Mind you, it wasn't until I had happily played the drums and was counting the tension screws that I noticed. So it can't have made any difference sound-wise.

BASS DRUM

The rosewood bass drum has a feature which no other Sonor drum has (at least not in my catalog). It's an internal adjustable damper working on its batter head which I'll talk about later.

This 22 x 14 drum has 20 cast T-handled tensioners and pressed-steel claws. These ¼" tension screws have a slightly finer-than-normal thread which does give more tension control. But they are a little prone to unscrewing, more so than screws with a coarser thread. (But, because it is a fine thread, if it does undo you don't lose quite so much tension.)

The drum has a nice round sound with a creditable "thump," even with the two heads on – but then the front head had a felt strip damper on it too which of course helped this sympathetic head sound.

Sonor's spurs look really interesting. They're of the non-adjustable outrigger type made of thickish rod bent into a triangle with the company's ubiquitous screwed, optional rubber or spiked tip at the apex of it. The whole unit is held in a bass-drum-mounted, cast clamp-block by its shortest side. The spur triangle is cleverly angled to face its tip to the front in a good position to put a stop to forward movement, and the adjustable jaw-

action block has a square hole in it to retain the round section spur more securely. It is not necessary, nor is it easy, to remove the spurs from the drum to pull it away because the triangle is twisted on its long sides to fit against the drum shell.

The rosewood bass drum is the only one Sonor makes which has the adjustable strip damper. It works a little bit like Gretsch's Bobby Pratt muffler but is more sophisticated. It has two 1½" strips of felt spaced 3½" apart and wrapped around and fixed to a piece of half-round wood. These strips extend from top to bottom and the pieces of wood (there's one at the bottom, too) are joined to a rectangular framework hinged to the center of each side. Trixon, I remember, used to call this a double-parallelogram action. Anyway, the top rectangle is joined by its short side to the shell and there's a control knob at the top of the bass drum's shell which in turn is joined to the rectangle through the shell. As you turn the knob it pulls the piece of wood up in an arc (like a jaw) toward the head. At the same time, the bottom half-round piece of wood also moves in the same direction and presses tighter to the head. This bottom end is sprung so there's always constant tension on the strips and since the strips are first wrapped around the wood there's only ever felt to touch the head. I think the idea and principle are fine and better than any others, but I was a little concerned that the felt might eventually stretch with constant stretching pressure.

I would have expected such a *wooden* drum to be fitted with solid rosewood hoops but this one had Sonor's normal metal hoops. I suppose I'm splitting hairs here since after all this drum had a great sound. But I would have been interested to hear it with solid hoops.

TOM-TOMS

These double-headed rosewood tom-toms have a really distinctive sound – round but with a definite cutting edge. I have heard them played single-headed and they certainly have plenty of balls. The 13 x 9 has six ¼" slotted tensioners per head, the 14 x 10 has eight each and so has the 16 x 16 floor tom. Like the bass drum, these tom-toms have a more comprehensive (than every other Sonor) dampening system. They have internal, under-head operating pads top and bottom. These are sprung on really thick steel and the pads themselves are ½" thick and of slightly larger diameter than anybody else's I've seen. The small toms have 2" diameter pads and the floor tom's are ¾" larger.

Except for Camco's old dampers, these must be the strongest and best internal pads available. I don't hold with these sort of mufflers and find the ones which work on top of the head better because they dampen the head after it has been struck and has returned to the rest position. Sonor has this sort of damper (numbered Z5111 and Z5112) which clips to the rim and is adjustable in pressure with a wing bolt. They're available in the same sizes I've mentioned and are the best I've seen and realistically priced. Great for recording.

All tom-toms have pressed steel, triple-flange counter-hoops and Remo's see-through Ambassador heads fitted top and bottom. Sonor have developed a brand new locking system for their slotted tension screws. (You may remember those old knurled locking disc-nuts which used to be fitted to the extra-deep snare drum which locked against the inserts and, for me, never did the job.) These new ones definitely do work. The nut-box insert now has a little horizontal slot cut through it into the thread and this locates a half-round, D-shaped wire spring clip. Our tension-screw itself has a flat on two opposite sides and the spring clamps hard against this, wedging it tight. It's a great idea but will need a little getting used to from a tuning point of view because it changes the feel of the screw in its nut. (I understand you can buy these parts to update your old Sonor. The system is called Snaplock.)

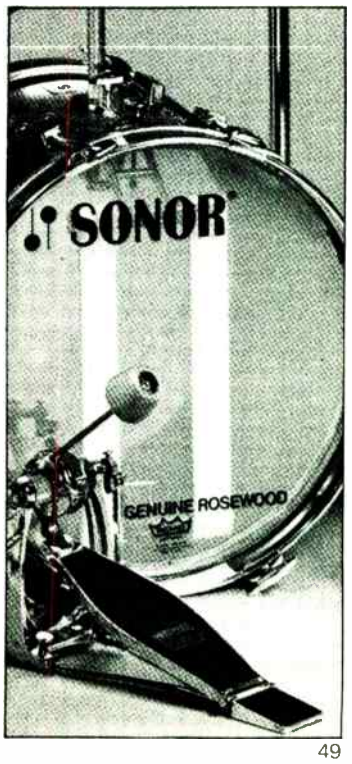
The floor tom-tom has three bent rod legs with spur-type block holders and normal rubber feet. These feet are, strangely, the only ones on the whole set which don't have the benefit of their famous screw-adjustable and lockable rubber/metal spiked ends. I can't understand why.

SNARE DRUM

The D505 snare drum supplied as standard with the XK1025 has a metal shell – not as one might reasonably expect, a rosewood shell. (They just don't seem to make anything other than a metal shell drum.) This drum has a 5¾" deep, one-piece, ferro-manganese shell with a 45 degree inverse flange, center bead to strengthen the shell and stop it from buckling, and a recessed snare "touch" area which is a slight dip enabling the snare to sit more comfortably on the head and maintain even tension all around the snare head. Like almost everybody else's snare drum, Sonor's has 10 tension screws per head but theirs are screwed into elegant, waisted, double-ended nut-boxes. (In the case of all the other drums, I know these are padded with plastic foam so I suppose it's safe to assume the snare drum's casings are padded, too.)

The snare strainer is a little unusual in that it is sensibly adjustable at both the strainer and butt end. This helps to ensure even throw-off and tension in the "off" position and helps to cure buzzing and rattling caused by uneven snare drop. It's a part-cast strainer and has a cam action on/off mechanism with a fine adjustment on its thread. The actual on/off lever locks up against the pressed-steel frame which holds the mechanism to the drum, and this is thoughtfully sheathed in rubber. Its butt end, too, is cast and also finely adjustable. The 22-strand steel snare is cord-attached to the strainer and the string passed through shoe-type eyelets in the snares, which will of course ease the wear on the strings. In future, Sonor's snares will have a slot in them as well as holes so the drummer will have the option of plastic strip or cord suspension.

The D505 has a bright, snappy sound which seems somehow too responsive, at least as far as heavy playing is concerned. It doesn't have the depth of sound or conviction I was looking for – although this doesn't in any way denigrate it as a drum. In some ways, it's probably too good a drum for my particular application. Of course, you might well have a special use for the drum – say as a jazz or dance band drum, which would suit it down to the ground.



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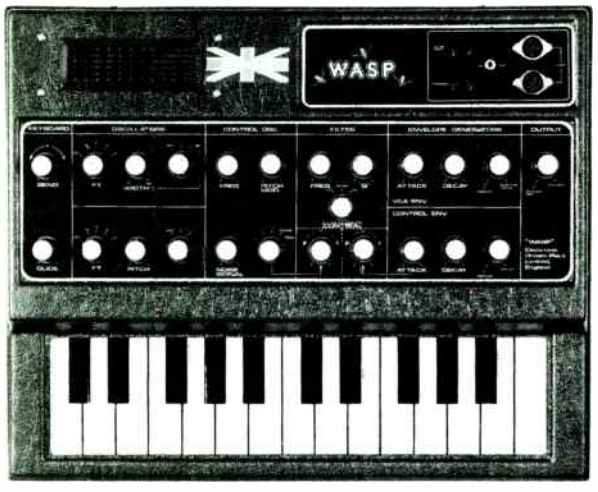

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ACCESSORIES

The tripod-based snare drum stand has a smallish diameter center tube (by present-day standards) but substantially thicker legs fitted with the screw adjustable and lockable rubber or metal spike ended feet. The basket-type holding mechanism at the top has an innovation. Besides the normal gripping tension in the centers and underneath the basket actuated by a large knurled thumb screw, there is a lever-operated quick-release mechanism which works on a cam and makes snare drum removal extremely fast. The height adjustment is held with a T-bolt shaped like a bass drum tensioner, and the playing angle is extremely well-held with two substantial "L" screws, one at the pivot point and one just below. There's another bass-drum-type tensioner bolt which locks the tripod legs in the out position.

The cymbal stands have amazingly wide-spreading and substantial double legs, again with the adjustable feet. The leg spread is adjustable and lockable, again with bass drum tensioner-screws, as is the cymbal height at two positions. There's a stop at the bottom of the largest tube to prevent the legs from sliding off and a very substantial cast tilter at the top which is removable to accommodate Sonor's boom convertor if you wish. The ratchet tilter has thick felt washers on it and a wing nut with a thoughtful locking nut beneath it.

Sonor's hi-hat for the XK1025 is not their top-of-the-line one with adjustable springs but it does come with three springs of different strengths which you could fit yourself. The hi-hat is numbered Z5456 and has tripod legs with the adjustable feet. There's a rubberized two-piece footplate, a substantial adjustable bottom cymbal cup and a hefty turned top cymbal clutch with a large height adjustment screw. The top rod is made from hexagonal rod which is much better and effectively stops the clutch from slipping around in use. There's now a cast height-adjustment clamp fitted to the top tube.

The double tom-tom holder is more or less the one which the company started out with years ago. Basically, it's a cast ratchet tilter which holds the angle adjustment and is attached to a splined tube which locates into female carriers fixed to the bass drum and tom-tom shells. These carriers are very well constructed with a cast tube-retainer behind them (inside the drum) which keeps it steady for a few inches instead of the usual inch or so most holders of this type give. The height adjustment of the unit itself is held by a large T-bolt similar to a bass drum tensioner. The top two ratchet arms (left and right) locate into a pair of blocks fixed first to a plate and then to the top of the down tube. These arms can be adjusted toward or away from the player in a horizontal arc, held fast by two screws. The whole thing looks sturdy, works admirably and can be adapted via its plate to support another tom-tom or maybe a cymbal arm.

The bass drum pedal supplied (the Z5317) has its two-piece footplate rubberized like the hi-hat's and clamps to the drum from a convenient position half-way up the left hand side of its cast frame. There are two adjustably-sprung but bluntish spurs and a strong looking industrial fiber strap with a ribbed bottom which fits around a pivot bar on the footplate and then comes back to be joined to itself with a nut and bolt. This elminates the wear at the strap contact point, which is where most straps break. The other end goes around a very large circular boss, fitted to the cam bar, which I think serves to de-gear the action and makes for a slightly longer strap than usual. The beater position, relative to the drum's head, is adjustable on a splined ratchet. The pedal uses twin needle bearings, one in each post, and providing nothing unusual happens, should last a long time. As with the hi-hat, three different strength springs are supplied. These are expansion springs which fit the pedal with a locking nut and give a smooth action.

The rosewood drums without doubt look superb inside and out, but since the outside finish itself doesn't appear to be protected in any way it would need careful packing away so that nothing knocked against the shells to mark them. I suppose, though, the sort of guy who's likely to pay 50% more for this set is also likely to look after them.

The set was also beautifully tuned up, I presume ex-works, and was definitely the set I've had to do the least to to evaluate at optimum levels.

Bob Henrit

Bob Henrit has been a professional drummer since the Sixties and worked with a string of top bands, including Argent and Phoenix. A busy session musician, he has recorded with Roger Daltrey and Leo Sayer among others, and has also found time to present drum clinics.

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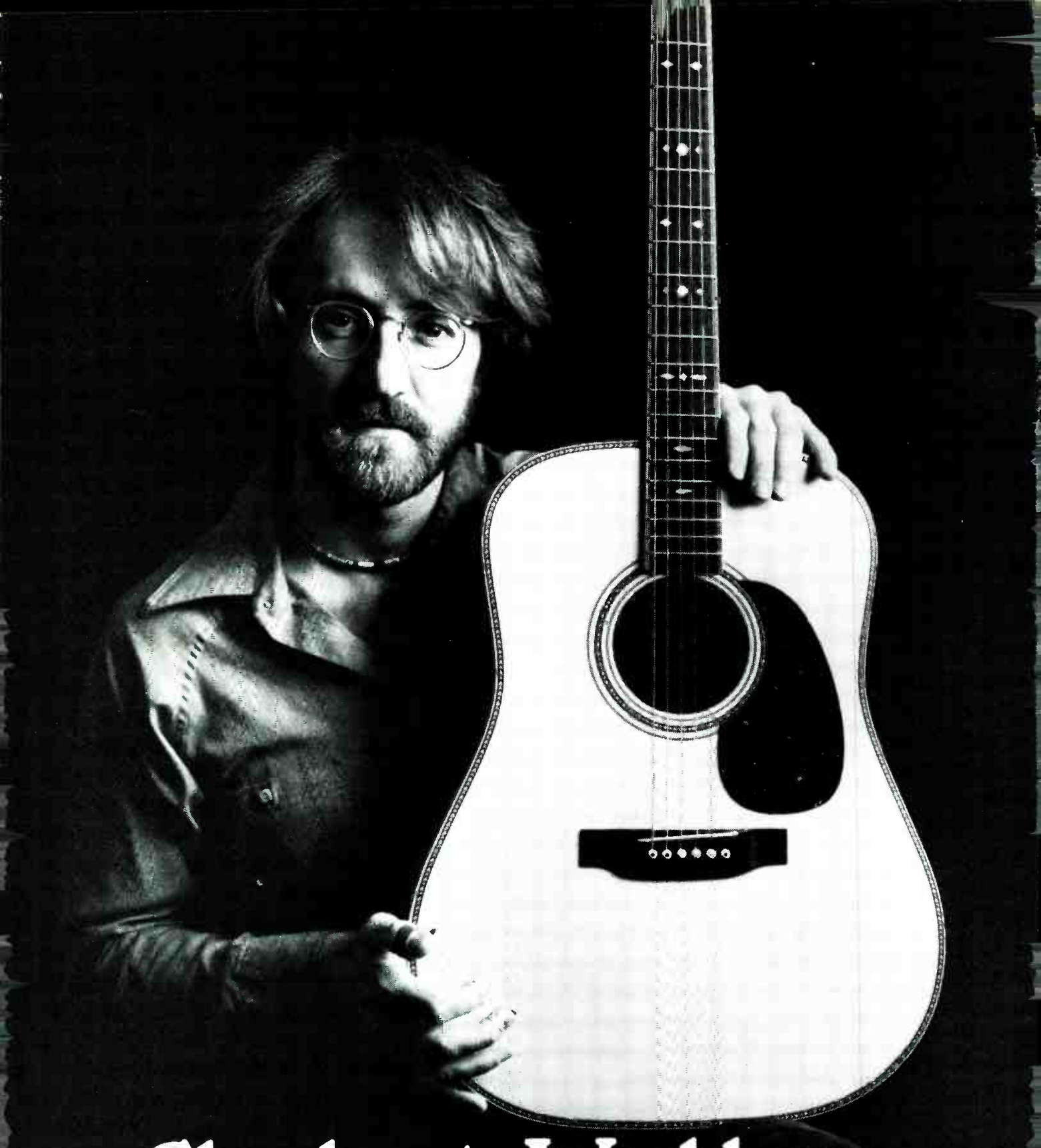

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Keyboardcheck

Wurlitzer 200A electric piano $755

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

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

The compass is just over five octaves – A two octaves and a third below middle C to C three octaves above. A description of the controls is necessarily brief because there are only two (plus a pilot light) on the front panel and none anywhere else. These are volume (on-off) and vibrato. This last controls the amount of vibrato but *not* the speed, which is set fast. Perhaps this vib speed is a sound cliche that you get accustomed to because a vib set at that speed on the Rhodes sounds wrong to my ears, whereas on the Wurlitzer it sounds just right. If you're thinking that's a subjective opinion you're dead right. It's just that the vib does go hand in glove with the sound.

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

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

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

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

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

Tony Hymas

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

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Effectscheck

Boss Touch-Wah $105.50 and Phaser $99.50

These are two pedals from the Boss line of effects units from Roland. Like the rest of the range, they can be battery-operated or connected to the power source via an AC adaptor.

The Touch-Wah is a nice little unit which gives automatic wah-wah effects but with adjustable sensitivity. At the top of the unit there is a small red indicator lamp for checking the battery. Next, there are two rotary controls for adjusting sensitivity and peak. Below these controls, a miniature toggle switch is located. This is labelled Drive and is a two-position switch for tonal switching. Finally, the bottom two-thirds of the unit is taken up with the pedal switch itself. This is a changeover switch for switching the effect in and out. This switch uses FET electronic circuitry making it absolutely silent in operation and completely eliminating pop noise when activated. This really is an excellent idea and makes the unit ideal for studio work. How many "takes" have been ruined by the "pop" when an effect unit is switched in? An old Jeff Beck instrumental, "Definitely Maybe" from the *Jeff Beck Group* album is slightly marred by an unwanted "click" halfway through the track where Beck brings in a wah-wah pedal. Oh, to have had FET circuitry in those days!

Anyway, back to the pedal. It's obvious that a lot of thought has gone into the design of the TW-1, especially with regard to the controls. The Sensitivity knob controls the sensitivity of the wah effect against your own picking intensity and can therefore pre-set the amount of wah attack required. Turning the control clockwise gives wah effects on weak or softer picking. Turning in counterclockwise means the wah is effected only when picking strongly.

The Peak knob controls the tone color of the wah effects. Turning this control clockwise gives a deeper sound – and vice versa. The Drive switch controls the mode of tone variation. When the switch is set to "Up," the wah shifts from hard to mellow, or treble to bass. When the switch is set to "Down," the sound changes from mellow to hard. In other words, it reverses the "wah" in the same way as moving the pedal "up to down" or "down to up" on a manual wah-wah does.

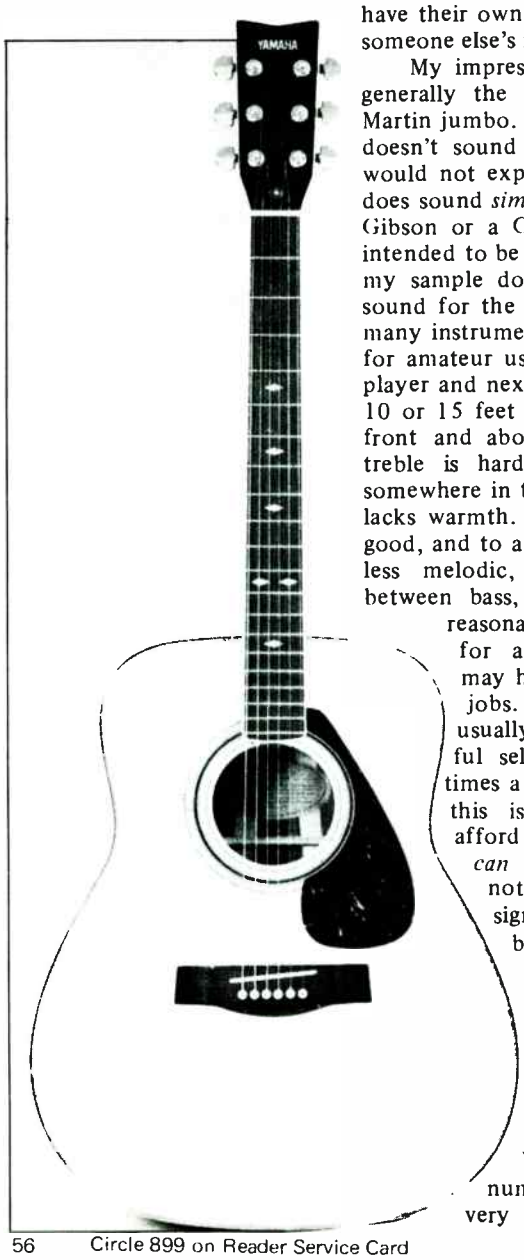
The input and output jack sockets are located either side of the unit, while the AC adaptor jack is situated on the front of the unit. Another nice point about it is the battery check lamp. When you tread on the pedal, this lamp lights if the battery is OK. It also confirms the actual changeover between Effect and Normal modes. All in all, a great little unit, even if you only want to use it on "Nutbush City Limits"!

The Phaser, too, is a good unit. The same kind of FET switch is employed for the pedal, the same battery check lamp facility is provided and all references to the input, output and AC adaptor jacks on the TW-1 also apply to this unit.

There are the two controls you would expect to find on any phaser – Rate and Depth. The Rate knob controls the speed of the phase effect. Turned fully counterclockwise, its slowest speed, 16s, is effected and, turning it clockwise, it finally reaches 100ms. The Depth control alters the actual depth of the phase effect and works very well indeed. These Boss units are both around the same size – a very compact 5" (L) x 2½" (W) x 2" (H). As with most products from Roland, they're well worth checking out.

Eamonn Percival

Yamaha FG365C Steel-string Acoustic $305



This is a straightforward sort of big acoustic guitar. It has a solid spruce front, comes with good strings and good machine heads and plays correctly in tune at the 12th fret. The spruce front looks as though it grew in Canada, the guitar was made in Taiwan and the technology is originally Japanese. That sounds like a fine example of international guitar-making.

Although this instrument is in no way intended as a direct copy of a Martin Dreadnought, it is the same general kind of guitar, and it is inevitable that the Martin originals should be used as a standard of reference when comparing less sophisticated instruments. The Martin Dreadnought tone is a classic, and has become, by influence and by imitation, characteristic of a certain *style* of guitar, rather than a certain make. Although this may not be entirely convenient for the Martin company, it is certainly a considerable compliment. Unfortunately, some guitar-making companies have extended the "compliment" to include producing "look-alike" copies of current production instruments. I am generally happier about instruments such as this Yamaha, which are influenced by famous American guitars, but have their own style and do not try to ride on someone else's reputation.

My impression of this guitar is that it has generally the same sort of sound as a large Martin jumbo. It doesn't look like one, and it doesn't sound as good as one (at $305, you would not expect it to sound as good) but it does sound *similar* to a Martin, rather than to a Gibson or a Guild, for example. This is not intended to be a very expensive instrument, but my sample does seem to offer rather a good sound for the modest price. In common with many instruments which are intended primarily for amateur use, this guitar sounds best to the player and next-best to an audience at perhaps 10 or 15 feet away. To someone listening in front and about four or five feet away, the treble is hard, there is a general emphasis somewhere in the upper mid-range and the bass lacks warmth. To the player, it sounds quite good, and to a more distant audience, it sounds less melodic, but generally well balanced between bass, middle and treble. This is a reasonable performance and normal for a modestly - priced guitar which may have to do a variety of different jobs. To improve on this performance usually requires skill, experience, careful selection of materials and sometimes a bit of guitarmakers' luck. All this is readily available, if you can afford $2000 for a guitar. Even if you *can* afford such a guitar, you may not want to take it on tour, consigned to the tender mercies of baggage-handling machines. When I last counted up, I found several owners of famous and rare old Martins, who actually played Yamahas on all but the most prestigious and well-organized gigs. I think that speaks for itself. Of course Yamaha make an enormous number of guitars, and if you are very discerning about such things as action and tone, you may have to use as much care picking the right cheap guitar as you would apply to picking the right expensive guitar.

A case in point is this particular review sample, which arrived with a moderate action, the neck curved slightly forward and the string slots in the nut higher than necessary. At least, I thought they were higher than necessary until I straightened out the slight bow in the neck. When the neck seems to be almost straight, and as it should be, my measurements suggest that the second and third frets are a little higher than the first and fourth frets. You could say that the neck bends slightly, but sharply, backwards between the second fret and the nut. When I adjusted the nut slots so that the strings were at what seemed a reasonable distance from the first fret, I got buzzes. The first, second, fifth and sixth strings tended to buzz easily when played open, or at the first fret. By leaving the nut alone, I could have had clean-sounding open string notes, but there would still be the buzzes at the first fret: no amount of nut adjustment could cure that. Now think for a moment; when you last tried out a guitar, did you actually check out the notes at the *first* fret? Very few people do, and that is probably how this guitar managed to pass inspection. The only ways of losing the buzz by adjustments would be either a very high action, or putting the bow back into the neck (which also effectively makes the playing harder). This is not, in my experience, a typical fault in Yamaha guitars. It appears only occasionally, in many different makes of guitar. The actual discrepancy in fret heights is small, compared to the height of the frets, and a light and careful fret stoning would make the guitar work right with a straight neck and a nice low action. The neck is not wobbly; it is good and stiff, but it just has a little kink in the end. The moral is not that Yamaha make sloppy guitars – they don't. Their quality control seems to be better than average. The moral is that if you know a little about what truss rods are for, and you buy a bargain-price guitar (of any make) with a slightly bowed neck, it may be a bargain . . . or it may not. It may be wiser to try to adjust such bargains *before* you buy them. In this case I estimate it would take an average repair man about 15 minutes to have this guitar stripped down, straightened out and tuned up again, so it is not really a serious problem. As it happens, the bridge saddle is perfectly positioned for this type of bridge arrangement and it is the right height and shape to give a nice playing action. One could easily spend 15 minutes putting these points right on some different guitar.

The soundboard of this guitar, as I have mentioned earlier, is of solid spruce – not laminated. Put at its simplest, this means that the guitar is more likely to develop a really nice tone with continued playing, but it is more likely to break if you treat the guitar badly. It is also likely to crack or warp it you keep the guitar in a very dry or very damp place, without using some sort of humidity control. Most problems come from excessive dryness, and I have found that a 'Dampit' is very effective if you follow the instructions consistently. This problem applies to most high quality stringed instruments. (If you give your guitars a hard

time, or if you live over a swamp, try a slightly less expensive Yamaha with a laminated front.)

The back and sides of my sample appear to be made from laminated Indian rosewood, and there is some decorative inlay down the back and at the end by the strap-button. I regret that some of the internal jointing is not up to the standard I have come to expect from Yamaha – even on their cheap guitars. For instance, one of the sockets in the corner linings which accepts the end of a back strut, has enough room for three more strut-ends apart from the one which is supposed to be in there. At the moment this does not cause any trouble, but if the back gets a bit of a knock against something, you could easily find yourself with a loose strut, which rattles when you play. I think this aspect of production really ought to be tightened up.

Fingerboard and bridge on this guitar are of rosewood, stained black, presumably to appear like ebony. The head and fingerboard and body edge are neatly bound with various decorative plastic strips. The fingerboard has diamond markers at the front and small black dots set in the edge-binding. The frets are fairly narrow, well rounded on top, and a bit sharp at the ends. Yamaha seems to be one of the very few Japanese guitar companies who do not use one of the common varieties of Japanese machine head units. They seem to have a policy of designing and making their own. The machines on this review sample look solidly-made and work smoothly and accurately. That is good for a $300 guitar, and also one of the points which makes this Yamaha rather a good standby for anyone who doesn't want to travel with their best instrument.

Conclusion

A sensible guitar without a lot of fancy decoration and giving a good sound for the money. Our sample was a bit rough in places inside and needed a light skim over the frets for optimum performance, but it was reasonably playable as delivered. Good value for money, but check for neck straightness and/or fret buzz.

Stephen Delft

Measurements on Yamaha FG365S Ser. No. 1477686

Scale length *635mm*
String spacing at bridge *50mm*
String spacing at nut *36mm*
Fingerboard width at nut *44mm*
Depth of neck: 1st fret *23mm*/10th fret *26mm*/12th fret *34mm* (heel begins fret 11)
20 frets on fingerboard
Body joins at 14th fret
Action as supplied *2.4mm* treble/*3.4mm* bass
Action possible after some adjustments *2.1mm* treble/*3.0mm* bass

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

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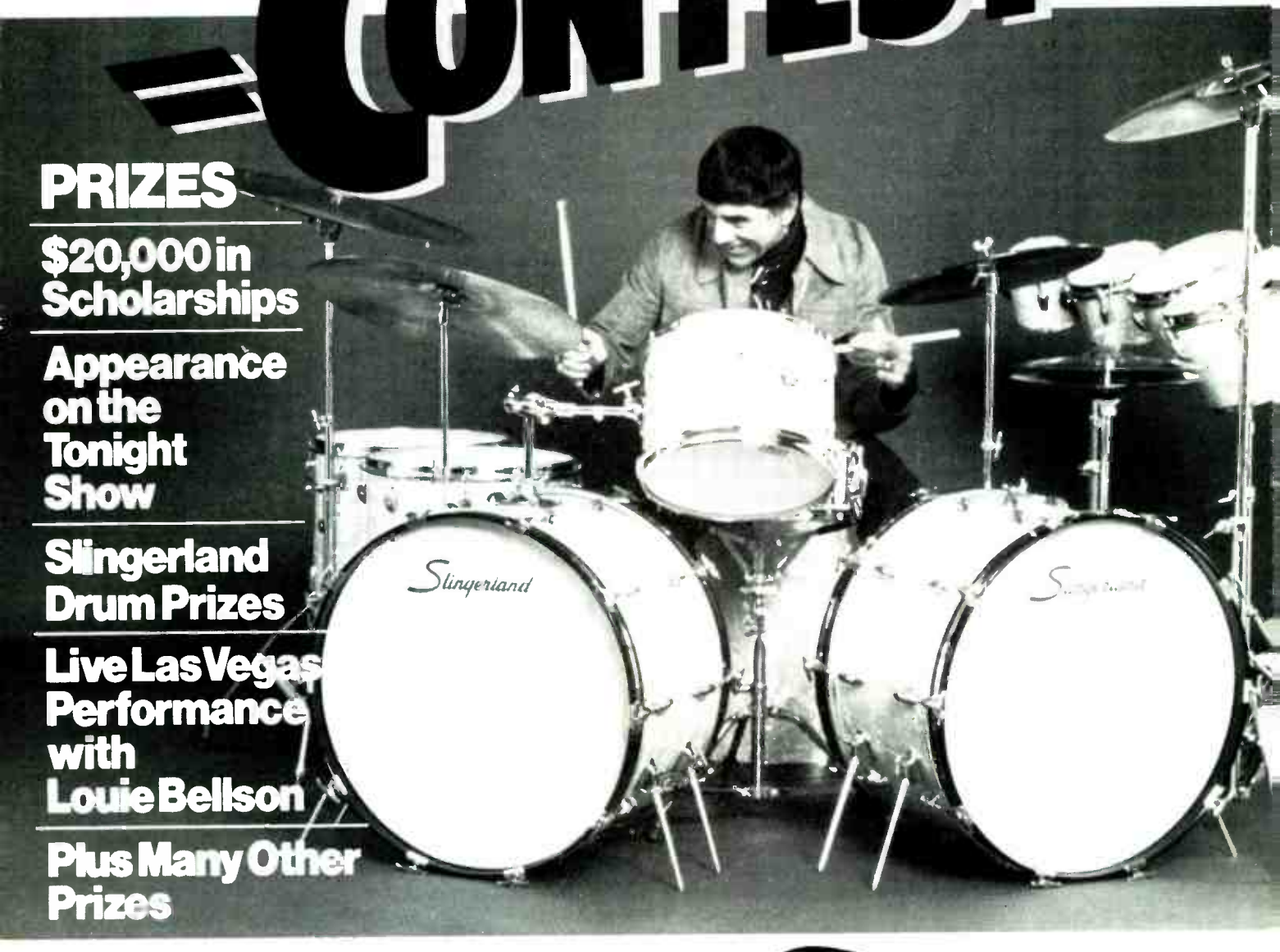

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TECHNICAL SPECIFICATIONS

INPUTS Electronically balanced with active gain control, switched 30dB pad on input. Maximum gain +60dB, minimum gain -15dB, headroom +20dBm, input impedance less than 5k ohms, optimum source impedance for microphones = 200 ohms.

EQUALISATION Treble ±16dB at 10kHz, mid ±16dB at 400Hz to 8kHz continuously variable, bass ±16dB at 30Hz to 300Hz continuously variable.

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

METERS 0 VU = +4dBm.

LINE INPUTS Line inputs are preset for an input of -10dBm. They may be very simply modified for an input of +4dBm.

The following applies from a microphone input & line output with EQ flat: - 1kHz distortion at +4dBm less than .015%, 1kHz distortion at +20dBm less than .015%, maximum gain throughout mixer +70dB, maximum input level before clipping +35dBm, equivalent input noise (200 ohms input resistor, 16.7kHz 6dB/octave filter giving 20kHz noise bandwidth) less than -125dBm, signal to noise ratio with line output fader down -90dB, line output fader nominal, channel faders down -88dB, one microphone channel at 40dB gain -84dB, four microphone channels at 40dB gain -80dB, sixteen microphone channels at 40dB gain -72dB.

OPTIONS & EXTRAS

ADD ON MIC CHANNELS Add on units of four mic channels are available to expand your existing mixer up to a maximum of twenty channels. If you wish to expand beyond 20 channels the power supply in the mixer can be modified to power an additional 8 channels, a request when ordering your mixer!

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Our 16/8 Expandable to 32/8

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INPUT CHANNELS The 16 input channels each accept balanced or unbalanced inputs in the range -60dBm to +15dBm. Input impedance is greater than 5k ohms optimum source impedance is 200 ohms.
The equaliser provides ±16dB at 10kHz, ±16dB at 400Hz to 8kHz, continuously variable, ±16dB at 30Hz to 30kHz, continuously variable.
There are separate level controls for sends to Foldback (prefade) and Echo 1 and 2 (postfade). Routing to the 8 output groups is selected via four push button switches, each one selecting left and right sides of the pan-pot to a pair of outputs. A fifth push button selects that channel prefade to the PFM bus. This allows the signal in the channel to be read on meter 8, and to be listened to 'solo' on the monitoring system.

OUTPUTS The eight output groups, as selected from the individual channel routing, represent the eight sends to the eight track tape recorder. Each group has its own fader, followed by a line amp with 10dB gain feeding the line out sockets on the back panel of the desk. The other outputs are the two Echo (effects) sends, (i) The foldback send (which may be used to drive a power amp or up to 10 pairs of 600 ohm phones directly). (ii) And the Monitor (loudspeaker) sends (to drive external power amps or 1 pair of 600 ohm phones).

MONITERING A stereo loudspeaker mix is derived from the eight monitor channels situated directly above the group output faders. Each channel may be selected to monitor either the group line out or the sync/playback return from the tape recorder (the signal presented at the line in sockets at the back panel). The meters follow this selection. A Foldback signal may also be derived from each monitor channel. These facilities allow the loudspeaker mix and the Foldback mix to be derived from either tracks being recorded or tracks already on tape. The loudspeakers may also be selected to be fed from the PFM system for channel checking. In this mode, meter 8 is switched to read the level in the PFM bus, and from that level in the individual channels.

TRACK STATUS SWITCHES These switches have two positions – (i) Record, in which the desk operates as previously described. (ii) Remix, when the playback returns from the 8 track recorder are re-routed through mic channels 1-8. Outputs 1 and 2 are converted to remix groups and are sent to the two track (stereo) line outputs on the back panel. A stereo tape recorder may be left connected to these outputs in order to record the final remixed stereo program.

AUXILLARY FUNCTIONS 1. Echo Returns. These may be panned across consecutive odd and even numbered pairs of output groups or the monitors. 2. Oscillator. When activated, the oscillator output is sent to all output groups for lining up purposes. The signal is a 1kHz low distortion sinewave. 3. Talkback. A back panel female socket (XLR) is provided to accept a low impedance mic which, along with a volume control and a conveniently placed button, allows the soundman to talk to Foldback.

LEVELS The 16/8 operates basically at the studio line level of +4dBm (about 1.2v). Certain facilities have been included to allow it to operate successfully at other levels (i.e. 0dBm or -10dBm).

CONNECTIONS Mic inputs are D3F (female XLR) type, wired 1. Earth, 2. In Phase, 3. Out phase. Line inputs are mono jack sockets. Line outputs are mono jack sockets, echo send and returns are mono jack sockets, foldback sends are stereo jack socket for direct headphone connection, or D3M (male XLR) wired 1. Earth, 2. Signal for connection to a power amp or headphone distribution system, monitor outputs are via two D3M's wired 1. Earth, 2. Signal for connection to a stereo power amp, and a stereo jack socket for direct monitoring on 600 ohms by the soundman, talkback input is D3F wired 1. Earth, 2. Signal, power input is via a multipin connector and requires a positive and negative supply of 15 volts (each capable of supplying at least 750mA) and an earth connection.

EXTERNAL POWER SUPPLY The power requirements of the mixer are supplied by an external power supply in order to avoid the possibility of induced hum from an internal transformer. The unit supplied with the 16/8 will produce in excess of 1500mA and hence will support a number of additional input channels.

SPECIFICATIONS Inputs – Maximum gain +60dB, minimum gain -15dB, headroom +20dBm, input impedance greater than 5k ohms, optimum source impedance 200 ohms. Equalisation – Treble ±15dB at 10kHz, mid ±15dB at 400Hz to 8kHz (continuously variable) bass ±16dB at 30 to 30kHz (continuously variable). Outputs – Gain after fader +10dB, output impedance less than 10 ohms, minimum impedance 600 ohms (except Foldback 8 ohms) maximum output level +20dBm. Meters – 0 VU = +4dBm. Line inputs – Preset to level of +4dBm, will accept down to -10dBm. The following applies from a mic output to a line output with eq flat – 1kHz distortion THDI at +4dBm less than 0.5%. 1kHz THD at +20dBm less than 0.15%. maximum gain through mixer +70dB, maximum input level before clipping +35dB, equivalent input noise (200 ohms input resistor 16.7kHz 6dB/oct filter giving 20kHz effective noise bandwidth) less than -125dBm. Signal to noise ratio, line output faders down -90dB. Line output fader normal, channel faders down -88dB. One mic channel at 40dB gain 84dB, four mic channels at 40dB gain -80dB, sixteen mic channels at 40dB gain -72dB.

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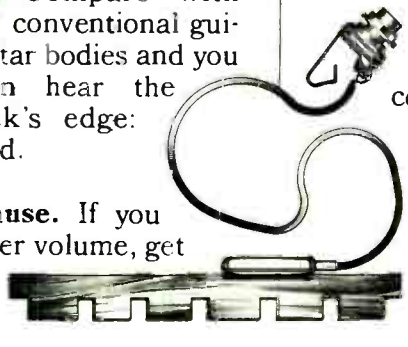

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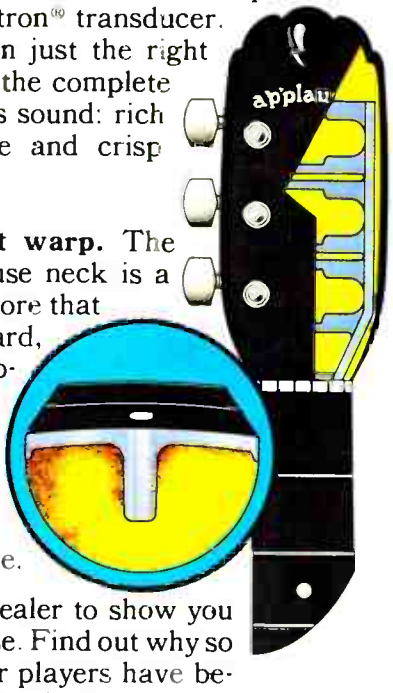

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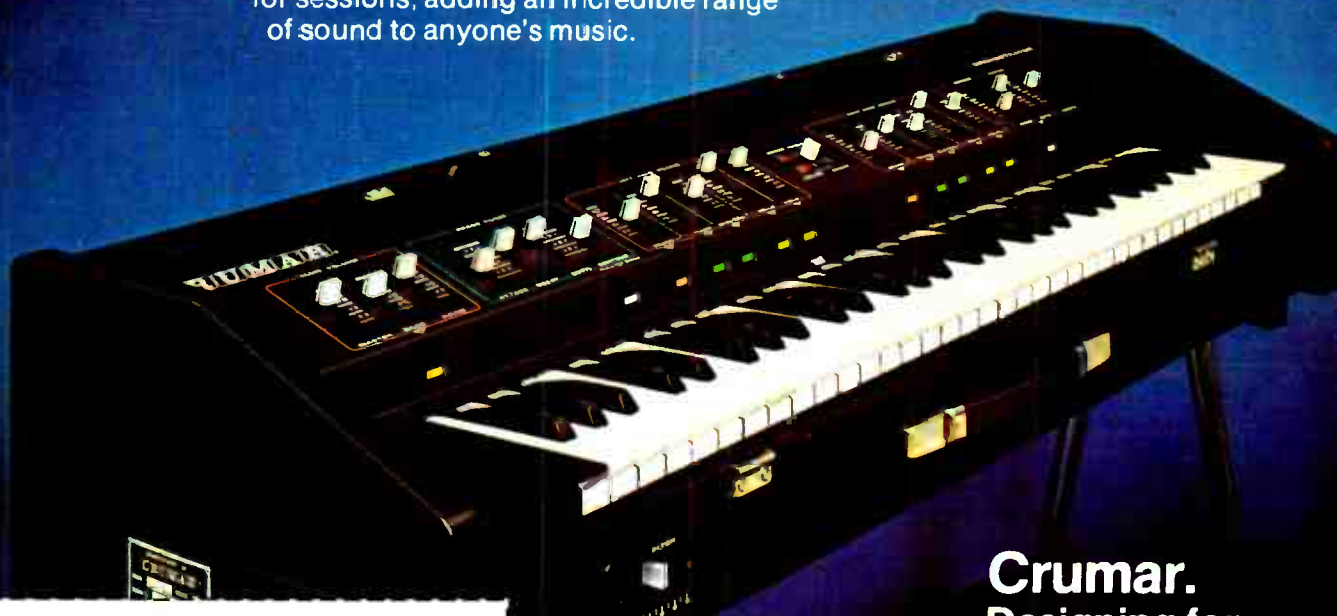

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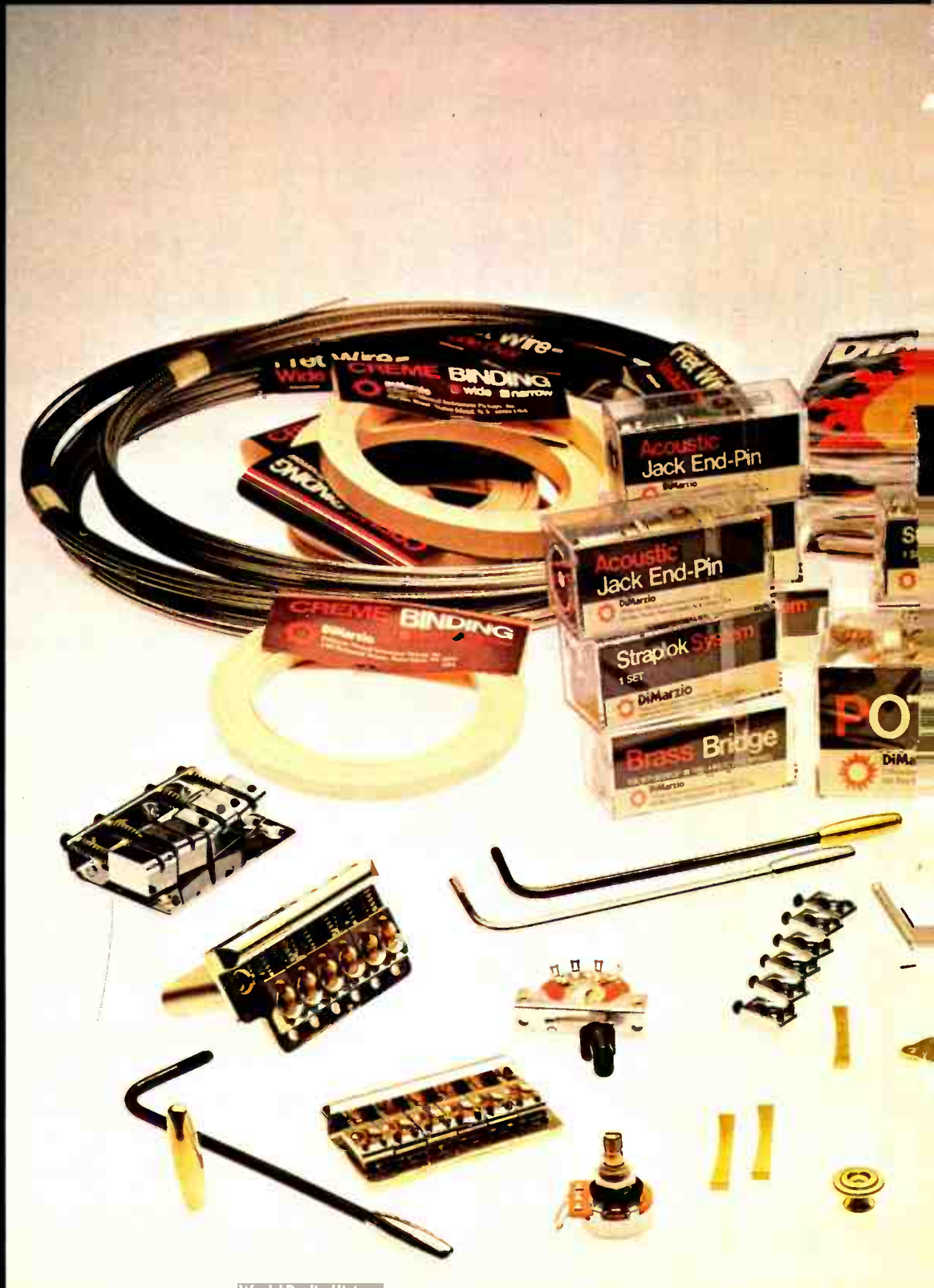

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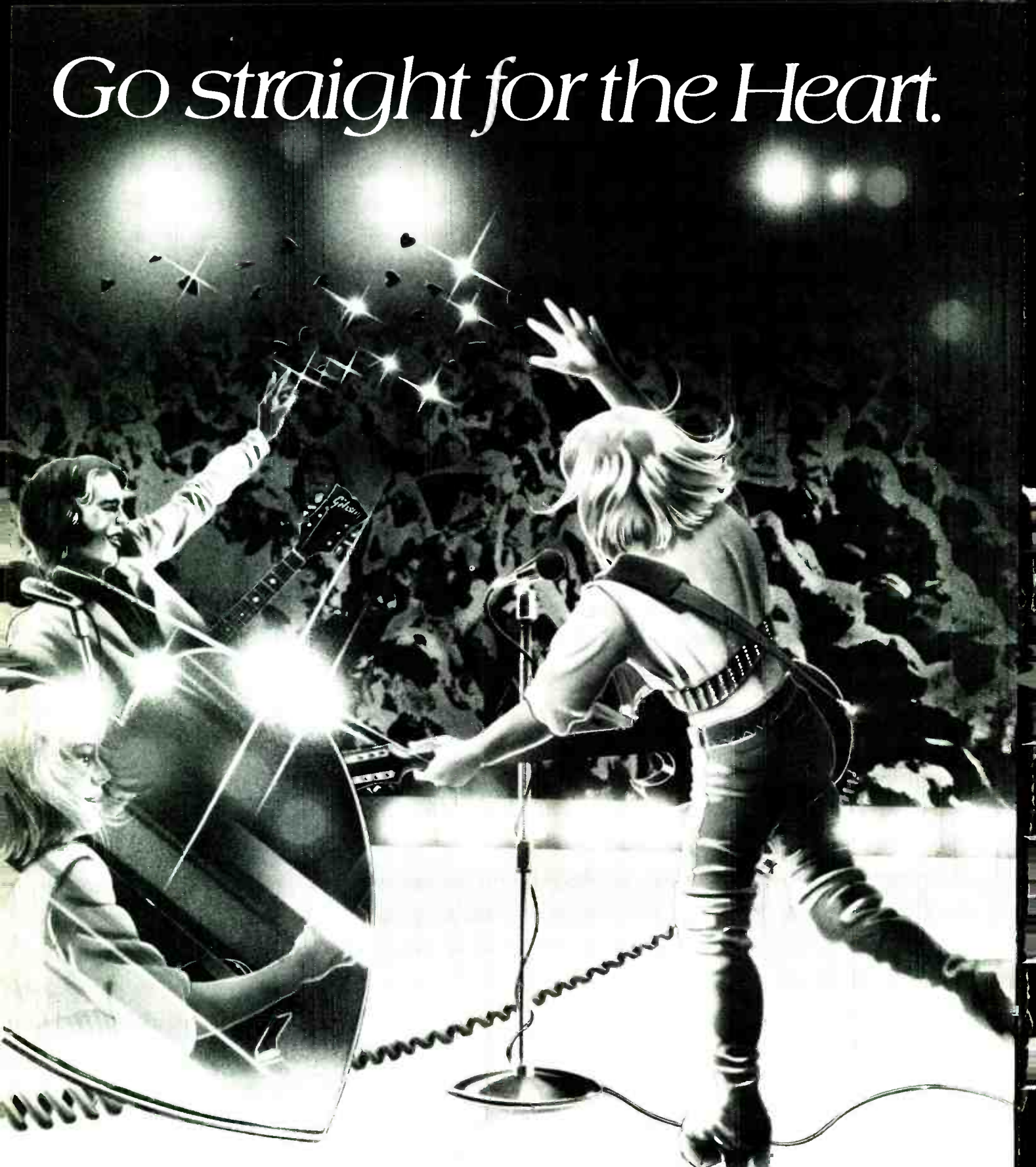

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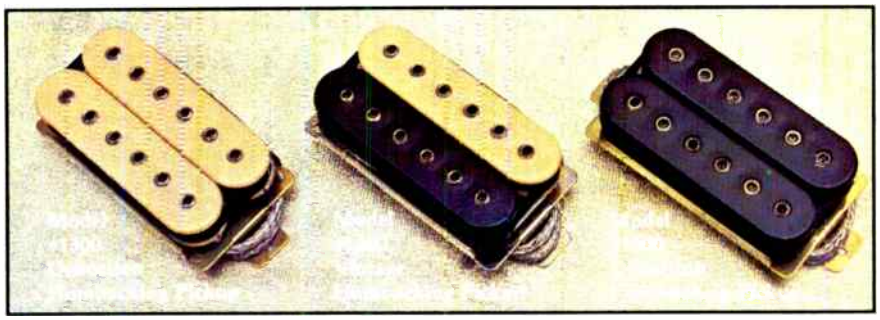

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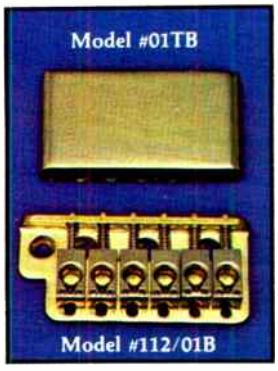

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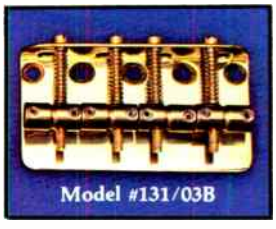

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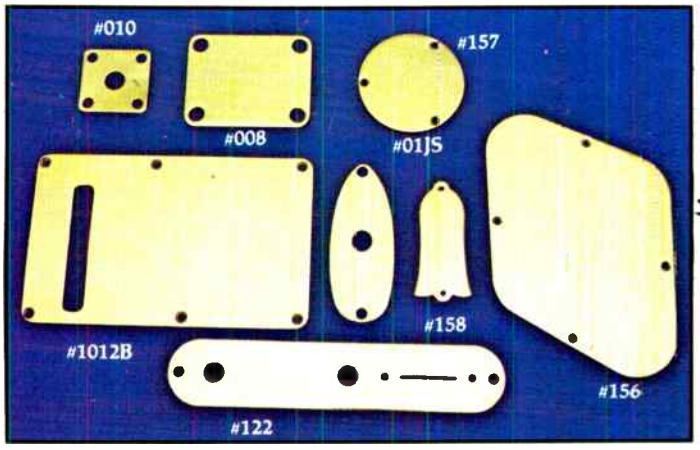

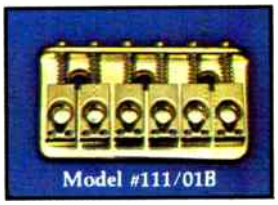

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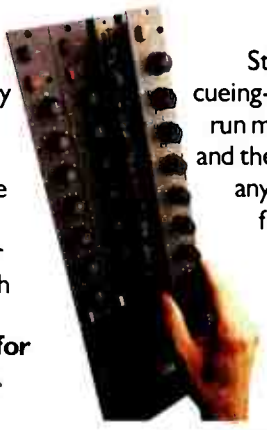

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No riffs for Pat Travers

He tells EAMONN PERCIVAL why Ted Nugent is redundant

Pat Travers is a name currently being bandied around by "those who know." His band recently supported Journey on their British tour and actually gave the bill-toppers a run for their money, at times coming close to blowing them off the stage. Travers has just turned 25 but has a wealth of musical experience behind him. He started playing guitar at the age of 12 and soon formed a band called Red Hot, playing in and around his native Ottawa, Canada.

A few years later he was working with Merge, an Ottawa-based French group. But this didn't last too long as he got a call from legendary rock & roller Ronnie Hawkins asking him to join his band. The money was good but Pat felt very much the junior partner and so, in 1975, he moved to London where he secured a management deal with David Hemmings of Arnakata and a recording deal with Polydor.

With management and a record company behind him, he set out to find a permanent band. With Peter Cowling alias "Mars," on bass and Roy Dyke on drums, he recorded his debut album *Pat Travers*. With this line-up, the Pat Travers band also undertook a long series of club and college gigs throughout Britain. By early 1977, his second album, making *Magic* was released, Pat having written 90 per cent of the material. A year later, his third album was released — *Putting It Straight*. This album prompted Gig magazine to label Travers "the guitar hero of 77." Pat supported the album with an extensive US tour and it was at this time that ex-Black Oak Arkansas drummer Tommy Aldridge joined the band. While Travers never wanted the band to be just a trio, he'd never found the "right" guitarist until Pat Thrall joined in May last year. With the release of the latest album, *Heat In The Street*, a growing army of fans and the band's new line-up, '79 could be the year of Pat Travers.

According to his biography, Travers was originally influenced by Hendrix but this, it transpires, was a quote taken out of context.

"I'd really like to dispel that rumour right now," he says, "because I've been very pissed off about that. Obviously, I was influenced by Hendrix, so was every guitar player who was around in Hendrix's heyday. I was influenced by every player. I never set out to emulate any particular style. I just absorbed a lot."

Pat's interest in music goes way back. During Britain's golden era of the Shadows (and the Ventures in the States), he hadn't even started playing guitar, but he was listening to and absorbing rock's roots. "I remember the Ventures thing but it was really the Beatles that turned my head when they came to the States and did the Ed Sullivan Show. Then, when I heard *Purple Haze*, I thought 'Whoa! Hold the phone — there's some other kinda shit here"! I was never really into old blues or anything, although a lot of people say I sound bluesy. All my blues was picked up secondhand. I've been influenced by a lot of things and it just so happened that the guitar was the first thing I got my hands on. People always label me with that guitar hero thing. I'm flattered that my fans like my playing, but there's 101 guitar players that could blow me off the stage. I just make it look good"!

Guitar hero or not, the label is inevitably applied to most guitarists in a rock trio line-up. "That was always the problem. I never wanted it to be a trio, it's just that we could never find anyone who was compatible until we met up with Pat. You see, I never set out to be "A Guitarist." I wanted to A Musician. I think I realized that the the guitar hero thing was just an empty goal, it just didn't warrant the time to spend practicing and practicing just to get fast. I mean, even Hendrix didn't play particularly fast. He was more of a melodic player. On *Axis Bold As Love*, for instance, he wasn't playing riffs, he was playing melodies and that's the kind of thing I like to play. It's more in my nature. Any fool can sit down and practice scales. But scales are nice to tie melodies together, not to use them for their own sake. Like Al DiMeola. I suppose I shouldn't put him down but I get tired of that really quickly. It's purely a speed trip and to your average listener, even if he has a certain amount of musical knowledge, it's just gonna go right over his head."

Travers applies the same melodic approach to his songwriting, even more so recently as his latest album shows. "I find that it's more valid to have a song that can stand up with just an acoustic guitar or a piano maybe. It's nice to write a classic riff like *Sunshine Of Your Love* was a classic riff — but you can spend years trying to write one. Riff-rock, you know? I mean, Nugent has gotten redundant. All due respect to Ted, he's a good friend of mine, but that is his attitude. I saw him in Miami recently and we talked and he said 'Man, I wanna write the classic riff. Cat Scratch Fever, bang, bang, bang.' He's still playing the same damn thing. Ted, there's other keys than A, for God's sake. Explore that thing!

"I try to be a little more sophisticated and I think the band's musical background dictates that we should be a little more sophisticated because everybody's capable of playing more than two time signatures. It's got to be felt, and a lot of it is down to communication within the band. It's also got to sound uncontrived. It's strange because the title track of the album is in 13/8, if you can dig that. But I didn't realize until about a year after I wrote it. I don't know too much about time signatures but I can play 'em. On that one it just felt right."

Apart from recording and live gigs, Pat also gets a chance to "work out" on various clinics he undertakes to promote the Dean Markley range of strings, a brand the whole band use, and of which Pat says quite simply "They're great strings.

"The first thing I noticed about them was that, because I'm so energetic, I really like to whack the strings sometimes and usually, the low E or A would go sharp. But with these strings,

although they're the same gauge, they stay in tune, they somehow feel like a stiffer string. They're still as easy to bend but I think the wound strings have a slightly different alloy. I don't use super-light strings really. I go from a .009 to 0.34 and Pat [Thrall] uses the same gauges. The bass strings, too, are really good. They're nice and bright but they also last much longer."

Although Pat's effects units include a Cry Baby, MXR Phase 100, MXR Blue Box and two Maestro Echoplexes, he also swears by a small American company called Analog Digital Associates who manufacture a new flanger.

"It really is the best flanger I've ever heard," he enthuses, "and it flanges in the true sense of the word.

Apart from a Leslie 122 cabinet, which is really for added depth rather than amplification, Pat's onstage power comes in the form of two Marshall amps a 100 watt and a 50 watt.

"I use them both linked up and I set them so I get a fuzzier kind of sound from the 50 watt and much cleaner sound from the 100 watt. Some effects go to one and some go to the other, so I can get as clean or as messy a sound as I need. I get away from the problem of noise by using a transmitter. The basic idea was to get away from guitar leads but I also found it cuts down all the hum and noise. I've also got a compressor which cuts out all the dead spots on the guitar so I can get sustain just about anywhere. Not only that, I don't have to run my amps so loud because it gives me so much output gain. I run the 50 watt on about 4 and the 100 watt on 2. It's just incredible."

Pat's guitars include a Gibson Melody Maker which he has fitted humbuckers to, a Les Paul Junior and a Telecaster Custom. He's used the Melody Maker consistently for the last couple of years and plans to stick with it. "It really is a beautiful guitar, especially now I've got the humbuckers on. I recently stopped using the Telecaster because it has a maple neck and a 21-fret neck. When my fingers get a little sweaty, I start to lose my grip. I found it was getting hard to bend the D flat to an E. Plus the fact that the Melody Maker is a double cutaway and much, much lighter. The Junior is really there as a spare."

Away from guitars, Pat also owns a Hammond B3 organ and an ARP Odyssey synth, both of which were used on the new album. While he doesn't feature keyboards onstage at the present, he intends to devote a segment of the show to keyboard-oriented numbers in the near future.

The near future also includes the release of a live album, due out in the States soon, although its release date in England depends on the success of *Heat In The Street*.

"I also want to bring out a couple of singles this year," he concludes, "because that's something the band really need at the moment. A lot of our immediate future plans depend on the success of the album and the success of this tour, which has gone down really well so far. I'd be happy to play anywhere but, with managers and accountants to take into account, it's not always possible."

Albums

Supertramp
Roxy Music
Doobie Brothers

Supertramp

Breakfast in America (A&M)

Staccato electric piano intros and plaintive vocals aside, there are certain things about Supertramp's music that are very endearing. They have an articulate and inventive bassist in Dougie Thomson and a sometimes exciting ability to juxtapose keyboard and rhythm section parts to make a taut sympho-rock song. We know their classic sounds so why should they remind us of those oft-played themes with another album full of them?

Breakfast in America is a clean, well produced record that follows its predecessors so closely it is almost uncanny. But a good radio single in *The Logical Song* and some Bee-Gee-esque vocal harmonies do not an album make. All the bits are there – thundering bass and drums on *Gone Hollywood*, a dispeptic sax solo on *The Logical Song*, memorable harmonica on *Take The Long Way Home*.

Quite a few bands must envy Supertramp's melodic hooks, their sense of melody and vocal prowess but their adolescent lyrics are lamentable. This album is slick but not sophisticated, perfect for their growing mass of US fans.

Sean Hogben

Produced by Supertramp and Peter Henderson, recorded by Jeff Harris and Lenise Bent at the Village Recorder, Los Angeles.

Roxy Music

Manifesto (Atlantic)

What we have here is a consolidation-of-gains, and a rather good one considering that Roxy was on the point of extinction not long ago. Tailored for commercial accessibility without obvious concessions to contemporary standards of bad taste, *Manifesto* is Roxy Music's most streamlined achievement in terms of technology and instrumentation.

The second, or "West" side has the best songs (by Bryan Ferry, naturally) and "Dance Away", a tuneful little satire from Mr. Suave stands in imminent danger of becoming a hit disco single. *Best* songs in the sense that they are carefully constructed and unabashedly eclectic. The first, or "East," side plods a bit in its effort to maintain Roxy's penchant for mechanico-bizarre muzik with dense blends of synthesizer and diamond-edged Phil Manzanera guitar work. Ferry's romantic persona, with its slightly "used" charm, is still the most successful vehicle for communicating Roxy Music's particular ethic of elegance under pressure. Whether it's the languor of "Ain't That So" or the adoptive funkism of "Cry, Cry, Cry," Ferry manages to project a mood as well as anyone in the rock cabaret genre.

Andy McKay's saxophone is restrained and, in this context, a joy to behold. The addition of Gary Tibbs, Alan Spenner and Paul Carrack has given Roxy a fullness and precision it lacked, something old-time fans may regret. Still, the only band who manages to vamp on trendiness while being the most "au-courant" fellas on the block.

J.C. Costa

Produced by Roxy Music; Engineered by Rhett Davies, Jimmy Douglass, Phill Brown, Randy Mason; Recorded at Ridge Farm and Basing Street.

Doobie Brothers

Minute By Minute (Warner Bros.)

Survivors in the best sense of the word, the Doobie Brothers continue to flourish by re-charging their conceptual approach and avoiding the easy out of coasting on past triumphs. The timely addition of singer-composer Michael McDonald – a noted session player, he'd done a lot of vocal work for Steely Dan, among others – in recent years gives the Doobies a "new & improved" musical signature that has a virtual lock on FM radio programming.

Minute By Minute is dominated by McDonald's seductive title track and the pointed "How Do Fools Survive?", written in collaboration with Carole Bayer Sager, and genuinely catchy up-tempo numbers like the hit single "What a Goold Believes," written with Kenny Loggins. This tells us that he keeps good company in terms of songwriting partners, he is obviously obsessed with "fools" and he intuitively understands the internal dynamics of writing a hit single – a gift that could keep him in the chips until retirement age. That full-throated roar of a voice doesn't hurt either. Sliding up and down the scale with seamless precision, McDonald projects a hurt-but-still-passionate quality that can send little tingles up a young girl's spine. This man is going places.

The other Doobies? Pat Simmons, quiet man and stout heart of the band's instrumental axis through thick and thin, is here as always to take up the slack. He *is* the long-haired, free tokin' spirit of the Doobies and songs like "Don't Stop To Watch The Wheels" – jump-started by a killer guitar riff that quickly establishes the propulsive momentum of the song – keeps the band's San Jose Cal. roots alive with lines like, "I was trashed, ridin' on my 74." He and Jeff Baxter play elegant, if somewhat understated, guitar, highlighted by the crisp interplay on the "country-ish" instrumental "Steamer Lane Breakdown" and a smooth son-of-Wes-Montgomery effort from Mr. Baxter on the closing moments of "How Do Fools Survive?"

Templeman's production is, as always, hospital clean and so slick it doesn't sound slick. "What A Fool Believes" has been re-mixed for disco and is bulldozing the album into the all-time platinum category. And Tom Johnston even got to sing harmony vocals on "Don't Stop To Watch The Wheels."

J.C. Costa

Produced by Ted Templeman; Engineered by Don Landee; Recorded at Warner Bros. Studios, North Hollywood.

Supertramp

Johnny Winter

White, Hot and Blue (Blue Sky)

No surprises at all but, if you're a blues or a Winter fan, it's an excellent album. As usual, the material is a mixture of Winter originals and old blues standards but his own material is as close as dammit to old blues standards anyway, so there's no lack of consistency.

Musically, you can't fault Winter – his voice is strong, his playing superb. His own *One Step At A Time* is one of the better examples of good blues guitar on this album, while the opener *Walkin' By Myself* features some excellent slide guitar. Particularly effective is another Winter original, *Nickel Blues*, with just acoustic guitar and piano (courtesy of lil' brother Edgar).

A couple of standards are re-arranged and rocked up slightly and these work well. Taj Mahal's *EZ Rider* and Mel London's *Messin' With The Kid* are two such cases given new life with this treatment. As I said, no surprises but still a good blues album.

Eamonn Percival

Produced by Johnny Winter, recorded at The Schoolhouse.

Muddy Waters

Muddy "Mississippi" Waters Live (Blue Sky)

McKinley Morganfield is an uplifting live performer and this collection of concert recordings conveys much of the gutsy excitement of his show. Seven longish tracks, all blues, all straining with the raw Chicago sound, and all tinged with Muddy's wry humour and bonhomie. His rich voice sounds as mellow as I've ever heard it and his lean guitar playing has a nerve-tingling edge to it. Good harp playing by (variously) James Cotton and Jerry Portnoy, a couple of rangy guitar solos by guest Johnny Winter, and lots of raucous audience reaction. All very live, very sweaty and very satisfying.

Jeff Pike

Produced by Johnny Winter, engineered by Dave Still. Recorded by Metro Audio and the Record Plane, mixed at the Schoolhouse and the Hit Factory.

Joe Sample

Carmel (ABC)

The Crusaders are such a tight, happy family that it seems to be impossible for any of them to make a solo album without all his brothers joining in – and the result is often indistinguishable from just another Crusaders album. Sure enough, pianist Sample has help here from Wilton Felder and Stix Hooper in the production department, Stix plays drums on most tracks and ex-Crusader Hubert Laws pops up playing flute. But it sounds very different from the Crusaders we know.

The main reason for this is the instrumentation: Sample plays acoustic piano (beautifully recorded) on all but one of the tracks, there's no saxophone, the guitar and bass have much less prominence than in the Crusaders, and even Hooper is less thrusting and aggressive than usual, in keeping with the style and mood of the music. For it's a very relaxed collection of tunes. Even the numbers with perky Latin rhythms (Paulinho da Costa doing his usual tidy job on congas) are restrained and thoughtful. Sample is a good improviser but not a great one. Quite simply, he doesn't have enough creative ideas to string together a long jazz-style solo. And sensibly, he doesn't even try. He relies instead on good tunes (all his own), pretty melodic decorations of them and an assured, solid command of the keyboard. It all makes for very comfortable, unpretentious listening.

Jeff Pike

Produced by Wilton Felder, "Stix" Hooper and Joe Sample, engineered by Rik Pekkonen. Recorded at Hollywood Sound Recorders Inc.

Johnny Winter
Muddy Waters
Joe Sample

Joe Sample

Muddy Waters

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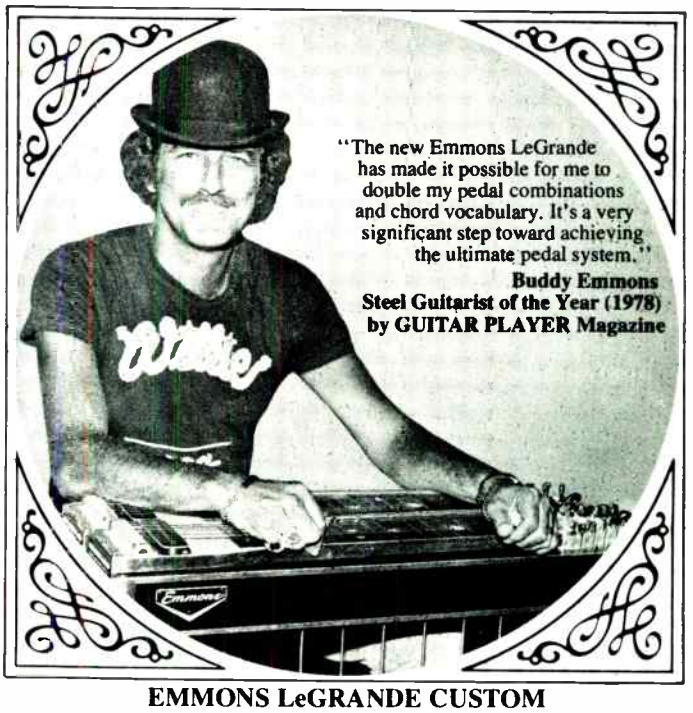

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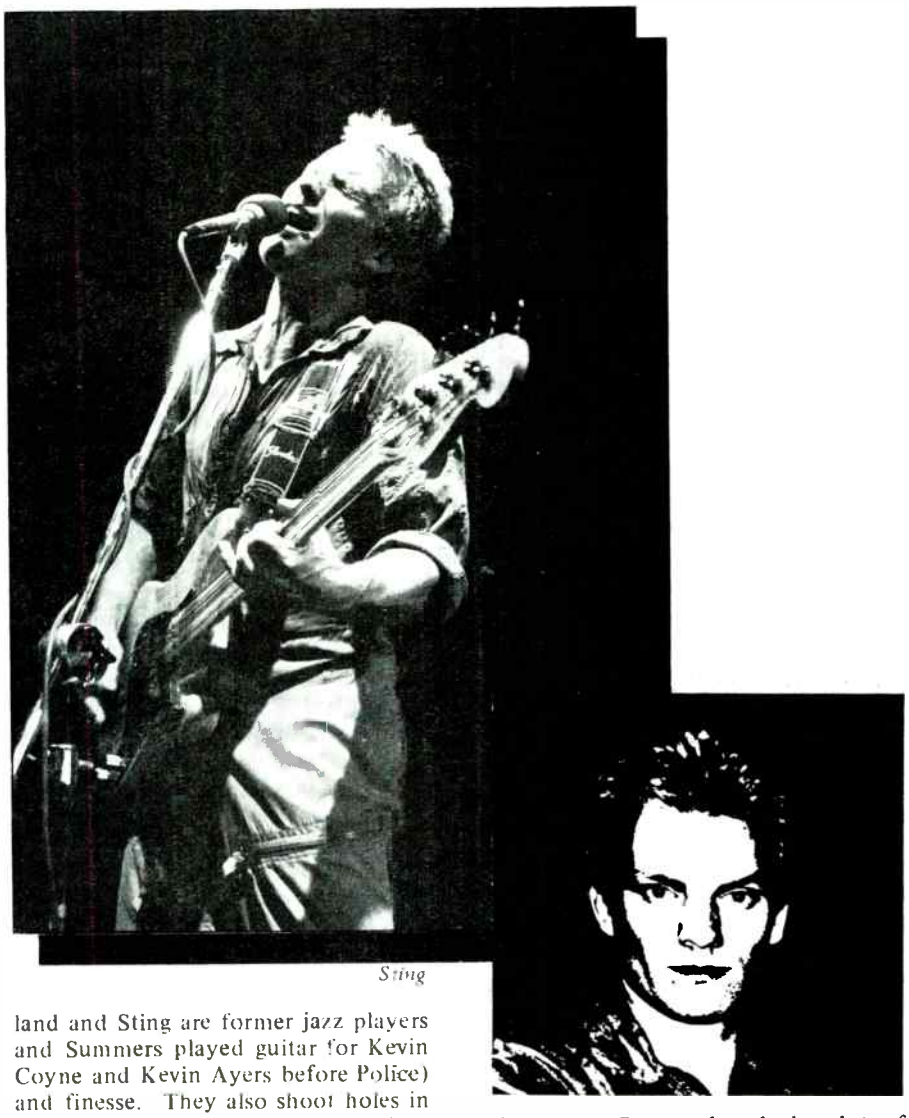


Sting

Grouchy and skeptical, I sat in a corner nursing a beer waiting for a band called Police. Great. Someone I trusted had ordered me to see them before they went back to England, and this act, I decided, would be the barometer of any future trust. Anyway, out come these three guys – two with bleach blond short hair and one who almost looked blond by birth. I figured they'd probably do punk versions of Beach Boys tunes. They tuned up (!?) and jumped into a typically super fast rocker (*Truth Hits Everybody*) as if they were late for their next gig.

But wait. This was different. There was a certain sprightliness in the air. They played hard and fast but not as if their only objective was to dismember the audience with sound waves. And their singer (bass player) had a good voice. Maybe even a great voice. I wasn't ready for what came next.

They followed with a tune called *I Can't Stand Losing You*, which began with a few guitar power chords through an Echoplex, some furious drumming, dove into a quick reggae verse, a powerhouse rock verse and a devastating chorus. And then back again. Sort of like the Wailers meet the early Kinks meet the Who. Great tune. The rest of the set was no less impressive. They did *Roxanne*, *So Lonely* and about six others. I even stayed for the second show.

Four months later, and two months after the release of their first American album (on A&M) titled *Outlandos d'Amour*, before they do their official New York showcase at the Bottom Line. That night, in a club called The Decade, one of the locals in the audience says to his friend before the show, "This should be a good test for this band. If they can make it in a working class town like Pittsburgh, they can make it anywhere."

After the show, one thing was obvious: The Police can make it anywhere.

The Police are Sting (real name Gordon Sumners, age 26), on bass and lead vocals, drummer Stewart Copeland, 25 and gutarist Andy Summers, 28. They're not you typical punk band. In fact, they're not a punk band at all. They share the punk ethic of Hard and Fast, yet add to that base infectiously melodic songs, strong expressive vocals, musicianship (Copeland and Sting are former jazz players and Summers played guitar for Kevin Coyne and Kevin Ayers before Police) and finesse. They also shoot holes in most of their tunes allowing their material (and their audiences) to breathe. Most of these holes are filled with reggae breaks which, when fused with catchy verses and/or choruses have enabled the Police to come up with a new approach to rock and roll. The basic watchword of the band is "less is more" and in their case, that certainly is true.

Fast picking up new fans (*Outlandos d'Amour* will most likely go gold), the Police are sometimes hard pressed to explain their success. "To tell you the truth," says Stewart Copeland after the Pittsburgh gig, "we just play. But we do get ridiculous responses everywhere. Every single city we play in everybody goes crazy! We wonder if it's the 'Have a nice day' syndrome where everybody just naturally speaks in superlatives.

"So we try and figure out what the reason is, and I suppose there are two things that emerge: one is the energy, but our energy is a little more sprightly, and the other thing is the rhythms. Reggae has had a lot of effect on us but we don't exactly play reggae licks. It's kind of like honky reggae." He stops to ponder his new phrase and realizes he forgot something. "I almost didn't mention the songs, we take the songs so much for granted. That's the number *one* ingredient."

It was Stewart Copeland who formed the Police two years ago but it is Sting, a comparatively quiet, ex-schoolteacher from Newcastle, England, 300 miles north of London, whose musical version is the guiding force behind the band. Copeland is the only American in the group but spent all but three of his years living in England and Europe as the son of a Service Airman. In the mid-Seventies he drummed for Curved Air but stale albums and huge overheads forced him to re-evaluate the road to Nirvana. Bitten by the punk ethic, Copeland ran across Sting in a jazz group. In no time, he talked him into leaving.

Sting relates the story of the

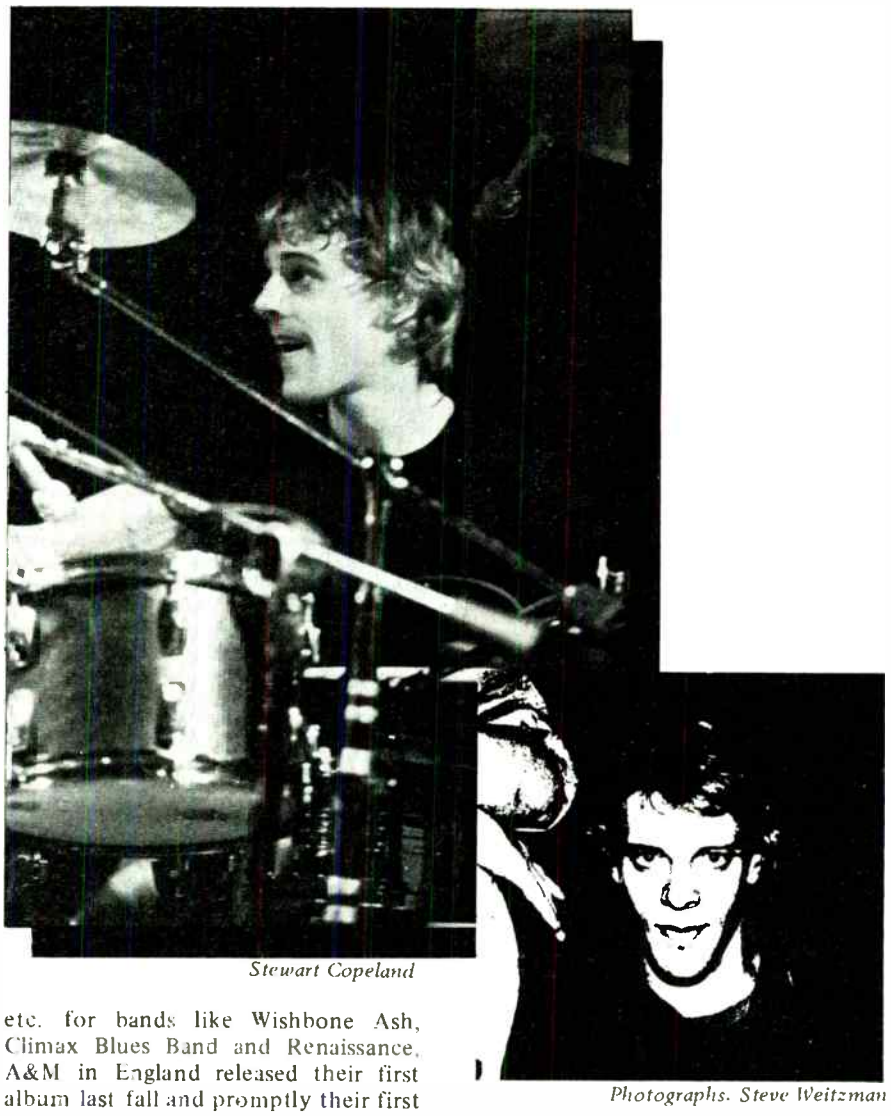
following morning over an omelet. He begins by talking about a jazz band he had prior to the one Copeland discovered him in. "I played bass for the Newcastle Big Band which was made up of lots of old guys," he says fondly. "I was the youngest member of the group. We used to get huge crowds on Sundays in big bars pissed out of their heads. Out of that, the piano player, who was about my age, and I formed a small jazz-rock group called Last Exit. We copied a lot (Chick Corea, Billy Cobham). We used to play *Hymn of the Seventh Galaxy* note for note. Then I met Stewart and we decided to form the Police. The next week we were practicing. He had written five or six songs inspired by new wave. At first I thought, 'It's crap. It's only got three chords in it – E, A and D, (laughs).

"I got into it," he explains, gulping coffee, "by seeing a new wave audience." Copeland describes English audiences as being "half the show. They bounce off each other, strangle each other. It's like a barroom brawl."

The Police played their early gigs a year and half ago at the Roxy in London and the other punk clubs in town. They went through one guitarist who was given his walking papers, settled on Andy Summers and began to put the pieces together. All three of them.

First, Sting started writing songs, which the band realized were so good, Stewart says, "We couldn't not do them." One, right now, is a bona fide smash in America. *Roxanne* is her name. "For *Roxanne*, Sting just had the chords and some words. I liked the chords and we started working on it. We didn't quite know what to do with it so we tried a sort of reggae approach and that was really the genesis of our style. Two weeks later, he came in with *I Can't Stand Losing You* which was immediate. *So Lonely* (the other partial reggae tune) was written before *Roxanne* but we weren't playing it with quite as much reggae feel. Once we got into *Roxanne* and *Can't Stand . . .* we re-arranged it. We've got a great new one Sting also wrote called *The Bed's Too Big Without You*. It's a killer reggae track."

While the songs were spewing forth from Sting, the business end began to be taken care of by Stewart's older brother, Miles Copeland, a veteran of many tours as road manager



Stewart Copeland

Photographs: Steve Weitzman

etc. for bands like Wishbone Ash, Climax Blues Band and Renaissance. A&M in England released their first album last fall and promptly their first two singles were banned by the BBC for reasons which stagger the mind: *Roxanne* because it's about a hooker and *Can't Stand Losing You* because it mentions suicide. For once an English band has had to come to America to make it. They will return to England after this tour as stars. They can't wait to see the reaction. Much has been written about being banned on the BBC being the best thing to happen to a band, but without BBC airplay, *Roxanne* went to 42 and died. In America it is headed for Top Ten. So much for theory

Censorship in England notwithstanding, the Police are having an incredible amount of fun in America. "We're having an amazing time cruising across the country," says Andy Summers. "It's great right now because we're really in the embryo stage and everything's happening. Every day it seems to improve for us. And we're getting better with each gig."

They even played to three people not too long ago and actually enjoyed it. How many bands could do that? It was, in fact, one of the highpoints of the tour.

"That was in Poughkeepsie and it was one of our best shows," Summers laughs. "There were only three people in the audience and a bartender but for some reason our spirits were really up. We had just come over from England and we were determined to do well. There was a pioneering spirit in the air and it was amazing! We did three encores and after the show we introduced the audience to each other. The guy who promoted the show flipped out over the band. Even though he lost $200. he called our agent and demanded to have us back! We'll always remember that gig."

Sting expands on his own theory of performing. "I spent a long time learning to play my instrument and singing," he offers, "but the one thing which is probably more important than those two put together is the ability to have a rapport with the ▶▶

audience, to let them have as good a time as possible. The more people who go away from a gig talking about you, the better it does you."

The Police are on the way to becoming one of the great ones. They as inspirational a live act as Bruce Springsteen or The Clash. And because of the nature of the band – paring down to the barest of necessities and experimenting with song styles and new rhythms – they might be the most ideal rock band ever assembled. Amen, and pass the salt.

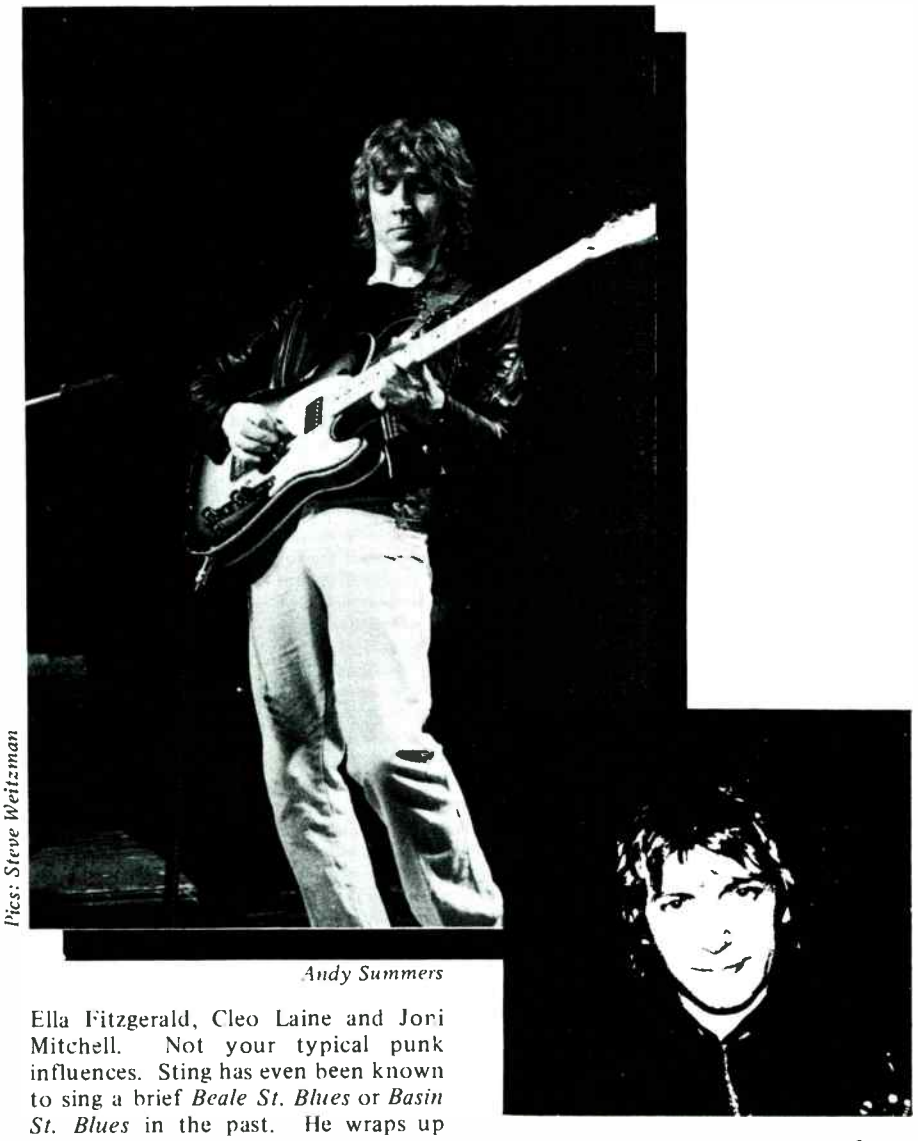
Sting does consider them ideal, as he ponders the Police as an entity. "For all of us," he says, "it's a perfect vehicle for everything we want to do. We don't just see it as a three-piece group that plays rock and roll. It doesn't have boundaries or limitations. Next year we might be doing something totally different. We're not going to play the same thing year in and year out. There's a lot of different music in my brain."

Songs for instance. Great songs. He usually starts with a title as a hook line, he says, "like *Born in the Fifties*. I'll work backwards and build a song around a hook, rather than start from A and work to Z. A genius would do that. Occasionally, the magic happens, which is totally inexplicable, and you get a great song. I think, blowing my own trumpet, that *Roxanne* is a great song. It's a really strange feeling when that happens."

He could always write a *Roxanne* part two. I suggest *Roxanne Got Married*. "Milk it for all it's worth," I kid.

He cringes. "No, *please* . . ." He starts to laugh. "I'm saying no and I'm thinking (scratches his head), *Roxanne Got Married* . . . It might be more appropriate to write *Roxanne Got The Clap*."

Apart from the songs, the energy and the rhythms which Stewart Copeland had mentioned as the keys to the Police, another major factor is Sting's singing ability. His voice, which can sound anywhere from Jon Anderson to Rod Stewart depending on what part of the tour you hear him on, is in fact, one of the first things you notice about the band. It leads you into the songs like a magnet drawing pins. He also intertwines his vocals around his bass playing (Jack Bruce and Paul McCartney come to mind) in a carefully thought out manner. He lists his early singing influences as



Pics: Steve Weitzman

Andy Summers

Ella Fitzgerald, Cleo Laine and Joni Mitchell. Not your typical punk influences. Sting has even been known to sing a brief *Beale St. Blues* or *Basin St. Blues* in the past. He wraps up breakfast with a dissertation.

"What I actually have developed," he offers, "is a unified style of singing and playing in that in order to make space for one, you have to refine the other. There's a lot of holes in my bass playing, basically, because you have to sing in the holes, but also it sounds quite groovy if you leave a lot of holes and spaces. Space is music as much as sound is. That kind of refining process is one of necessity because you can't go playing amazing Jaco Pastorius bass lines and also contrapuntal voice. It doesn't happen unless you're born with an amazing gift and even if you had it, it wouldn't sound that good. So you have to work around the problem of doing two things at once. I think in my case I've succeeded in a style of bass playing and singing – not that I'm a great bass player or singer – but the two together make it sort of appealing. I'm very proud of that."

In the van headed for Cleveland Stewart uses the back seat as a forum to explain why English punk as a musical phenomenon didn't make it in America as quickly as it did in England.

"In those days," he says, referring to a couple of years ago, "there was a very reactionary attitude toward the way we looked and the things we were saying about music. Our attitudes in general were considered part of something that was unpopular at the time – the dreaded new wave. But now it turns out a lot of people are waking up after all. All it's taking is for a few people to explain what it's all about. When the Sex Pistols came over, they didn't explain what it was all about because the language they used and what they said when they got the media attention were messages that didn't apply in America. Their message was about social disruption and so on, which there's no need for in America. The American youth is well satisfied and all the things Johnny Rotten said didn't apply here. *Musically*, what

they accomplished in England, America is definitely ready for."

Rock and roll once again seems to have as many bands writing pop tunes with an irresistible juvenile abandon as it did during the Kinks' heyday, around 1965 . . . a band which, by the way, was one of the favorites of the Police.

"The Kinks' first records came out, which were the only ones I liked," Copeland says, "when I was 11 or 12. It's interesting to look at the things that keep coming back whenever a new generation breaks off and sets up a new set of ideals. The same ingredients are there every time. One of them is rough edges showing. It's more real. It's not like you're supposed to play out of tune; it's just that when you get the real thing, it's not perfect."

What are the rough edges of the Police? The question takes him by surprise.

"God knows!" he smiles. "Pretty tight band, actually. I don't think there *are* any rough edges. (Laughing) We're getting too goddam slick if you ask me!"

For those interested in re-creating *Roxanne* et all in their living room or neighborhood club, Stewart Copeland regularly abuses Tama drums. "I've got one of the first kits they ever made. I got the huge Tama kit with fourteen drums years ago when I was with Curved Air and they were just amazing drums, better than anything I'd ever used. I remember the first gig I used them, our PA guy said, 'Stewart, burn your Ludwig kit.' He pleaded with me. In England, I'm considered an expert on drums. I even write drum reviews!"

Andy Summers has a 1963 custom Fender Telecaster. "It has a little preamp built in the back which I sometimes use for lead guitar as it gives extra sustain. It's the one guitar I'd never be able to replace." He's had it for six years.

Sting plays a Fender Precision bass. "I bought it last November at Manny's," he says. "We arrived in New York that day, had a gig at CBGB's that night and I fell in love with this bass. I took it to the gig and it was standing at the side when I broke a string on my Fender Jazz bass – a normal fretted bass – and gleefully picked up my new bass and haven't put it down since." He had played his other one for nine years.

In the front seat of the van, Sting is now oblivious to a bad Barry Manilow song emanating from the radio. In the back seat, Stewart can't stand any more. "Can't you find anything better than that?" he yells. Sting searches the dial. He discovers WMMS just as they put the needle to *Roxanne*.

"SHIT!" Sting says, amazed at his timing.

"Meet with your approval?" I couldn't help asking Stewart.

"It'll do," he grinned.

In the front, Sting mouthed the lyrics and played an imaginary bass. Stewart couldn't help but drum along. What could be more appropriate? The Police rolling into Cleveland for a gig, hearing *Roxanne* on the radio . . .

It made me think of something Sting had said the day before concerning perseverence. "We went through hard times," he said of their first year together, "but always in the back of our mind – God knows why – we were confident. I see other bands in that position and I think, '*God*, what you're going to have to go through! Is it worth it?' But all bands must have that gutsy survival instinct no matter what. You know, the belief that you're going to do something Good and people are going to like you all over. We've been lucky. It's still going up for us. I dread to think of it peaking and going down."

No way, Jose. Not for a long, long time with this band.

Steve Weitzman

Pic: R.J. Ferrell

Police and friend

The Power and Effect of the Police

Guitarist Andy Summers utilizes a guitar pedalboard made by Peter Cornish in London. "He has a whole book with pictures of boards he's built and you can tell him what pedals you want on it. I like to play the guitar orchestrally and I get to do that in the Police because I'm continually changing from flanging to echo and doubling the echo effect.

"I have an MXR Phase 90, an MXR compressor, MXR fuzz, Electric Mistress flanger, MXR dynacomp, Cornish fuzz and a Mutron 3 which is basically an envelope filter – also an automatic wah-wah and a volume pedal.

"Each pedal is now preamped so they're all the same volume; there's an echo send and return so I can send the signal to the echoplex, have it echoed, and it comes back into board and then goes to the amp so everything is very clean that way. That board is a new thing for me so this tour is the perfect trial for it."

Andy plays through two Marshall 220s. Sting puts his bass through a 180 watt Ampeg Twin Bass with two cabinets. By way of effects, he utilizes an MXR phaser and a Moog Bass Pedal. And, just to complete the sound survey, drummer Copeland mikes his kit directly through whatever PA's available.

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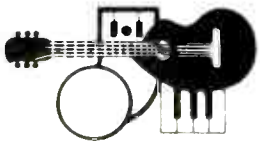

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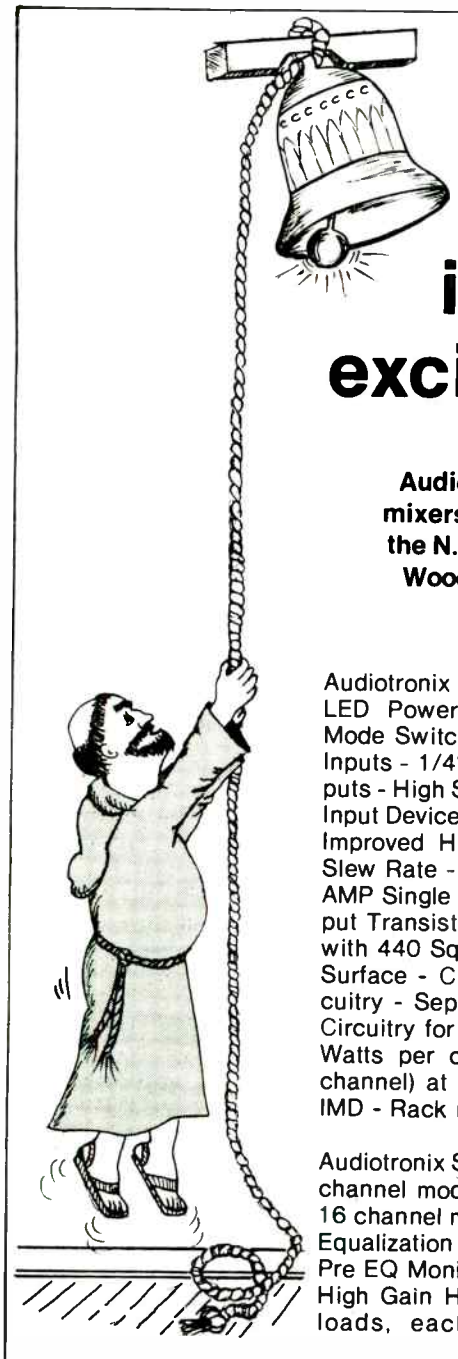

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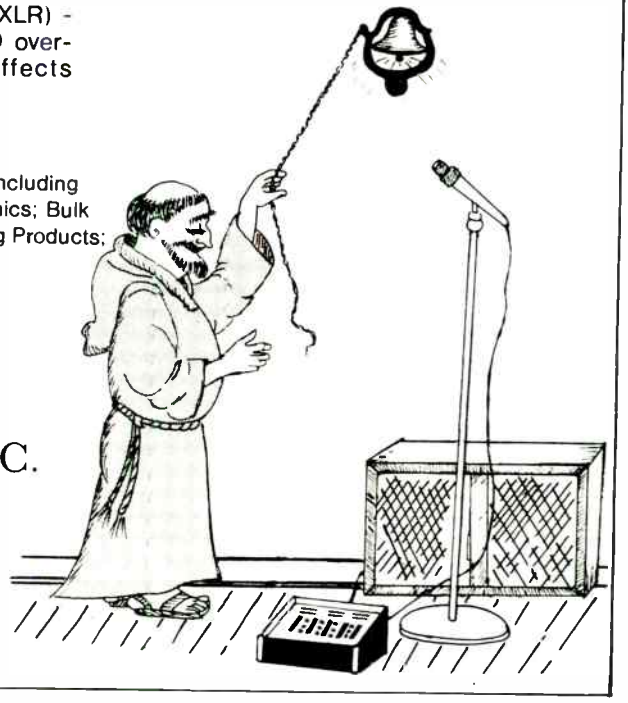

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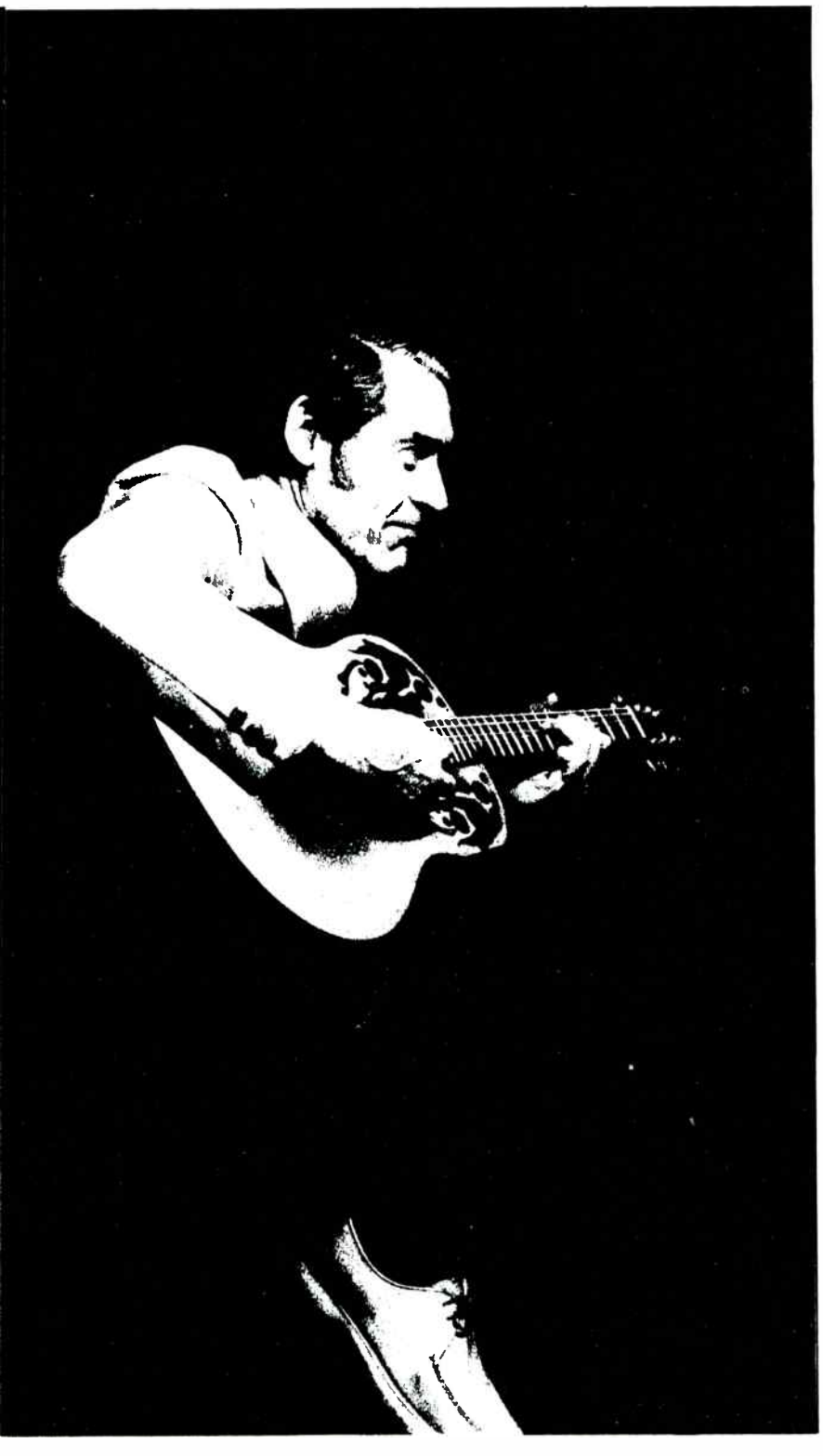

From Aerospace to the Adamas - finding a better way

You're barely out of Hartford's Bradley Airport and there's already a large Kaman Aviation sign staring you right in the face. A few miles further down the road, driving up to the Kaman Corporation itself, a low-profile industrial park on the outskirts of Bloomfield, Connecticut (home of Ovation Instruments, Kaman Bearing, Kaman Aviation and Kaman corporation headquarters) you can't help but arrive at the conclusion that Charles Kaman is evidently a man of some stature in these parts.

Ushered into Ovation's headquarters – the guitars are actually manufactured at plants in nearby Moosup (Adamas) and New Hartford (Ovation acoustics and electrics) – a title from one of Hemingway's better-known short stories, "A Clean Well-Lighted Place", comes to mind. A spacious ground floor building with efficient work cubicles occupied by youthful employees who exude the kind of relaxed, low-key friendliness that happens to be an intregral facet of Charlie Kaman's personality as well as Ovation's general outlook. The surroundings seem to promote the kind of open-ended internal dialogue that one is hard pressed to find at most modern companies.

Following a brisk round of introductions and a short technical discussion of the Adamas line – Mr. K's current "obsession" – with a genial marketing representative, they are tactful enough to leave you alone with a generous sampling of Ovation guitars in the company's spacious new sound room.

After playing the guitar for a while, the lion's share of your resistance to the space age materials like Lyrachord and the carbon graphite ebbs. Retaining the crystal clear top and beefy mid-range characteristics that are an integral part of the "Ovation sound," the Adamas seems to offer an infinitely more varied and better integrated spectrum of sound than seemed possible from a guitar with this particular birthright. The innate stability of the neck, which is reinforced with a K-bar, a precision aluminium casting designed for maximum stiffness at the lowest installed weight housing, the ¼" steel tension rod, and the smooth, comfortable fingerboard (both made of resin impregnated Black Walnut) make this instrument a total joy to play, especially for fast single-note runs. And the complex layout of smaller soundholes on the upper bout of the guitar seems to bring the sound "closer" to the ear. Some time with the Adamas makes you ready to find out from its creator what it's all about.

Mr. Kaman, a tall, genial man with an informal manner, meets you at the corporate headquarters door and brings you into his expansive office to meet an assistant and his dog Max, an intelligent and beautifully trained German Shepherd. In fact, Kaman is deeply committed to a charity which supports the breeding and training of seeing-eye dogs. As Max settles quietly into a corner of the office under large windows offering a panoramic view of the Kaman complex, you can't help but notice another Green Sunburst Adamas nestling on the couch. This underlines a fact that will be brought out repeatedly in the interview; Charles Kaman is a guitar *player*, and he will jump at the opportunity to sit down and jam with someone if he can squeeze out the time from what is understandably a hectic schedule.

Jumping right into the middle of it, you ask Kaman about the top of the Adamas, a radical departure from the traditional spruce made from two thin layers of carbon graphite, the most striking feature of the instrument.

"The important thing to me is how it sounds, not

what it's made of. To make a better sound for the Adamas guitar we had to have wood in it, and that .030 of birch veneer in between the layers of carbon graphite is what maintains that 'woody' sound – which is a hysteresus (sic) property in the engineering sense, a little bit of internal drag in the way the material works."

Is the birch veneer really that crucial to the sound? How would it sound without the wood interfaced between the carbon graphite?

"Metallic. Harsh. The wood makes for a very soft, clear sound. The thing I've been trying to do with guitars for all these years – I do a little amateur recording for fun and what always got me about these basic X-brace dreadnoughts is that when you record them live, you've just got this enormous hole in the middle. If you really hit it hard it'll break up, and if you try to do single string, it's all uneven. This guitar here (gestures to the Adamas), if you play it evenly from the bottom to the top, you've got plus or minus 2dB – which is in the range of modern recording."

Kaman is thoroughly convinced that the Adamas top is both the thinnest and strongest available, both of these characteristics being highly desired if you want to generate a *lot* of sound out of your acoustic instrument. This is especially interesting in light of the fact that most Ovation guitars have spruce tops. Did this new approach signify an end to his reliance on spruce?

"It wasn't not relying on spruce. I just said to myself, 'I want to make the greatest sounding guitar that anyone's ever heard,' and that started right around 1970, '71. So it's been a long time in coming. I've been a student of what produces sound in old violins, basses and guitars, and I've felt the one key to *get it* would be to have amplification and harmonics while maintaining all of this 'fill' we've been talking about. There's just no other way to do that except to have a nice *thin* top that can carry *and* be very responsive. But there's really no way to build a guitar with a hole in it thin. With that hole in the middle of it, you've got to have a brace or it'll cave in on you. So the problem with spruce was the structural limitation of getting it thin enough without splitting.

"When I undertook the design of the guitar, I decided to solve all of these problems at once and that's how this all came about. We moved the (sound) holes to the upper bout, put straight-through bracing and that has all been carefully developed. And then we came up with the combination of the *sandwich*, and the wood in that sandwich is very critical to the sound of the guitar. Not only that, but the angle (60 degrees) of the wood. If that's off one way or another, you will produce very different inflections and contouring of the sound – which is not too good because it'll create holes in a portion of the spectrum and I was trying to get it to where it was a nice smooth envelope and could respond. And that's how I arrived at that particular angle."

That complicated layout of smaller soundholes looks like it took a while to figure out. What process was followed to arrive at that particular configuration?

"On the first ones we did, I put a couple of round holes up there and that was close to 85 per cent of it. This particular configuration came about as a refinement of that original one. They do make a contribution to the sound."

With the impending shortage of rarer woods like rosewood and German silver spruce, it almost seems as if Kaman subliminally computed this eventuality into the original Adamas concept. His characteristically straightforward answer bears this out.

"I did anticipate that to be an eventual outcome and I'll tell you why. Our first helicopter rotors were made out of sitka spruce with reinforced retentions out of higher density material like maple, so we were familiar, from 1945 on, with the fact that the general supply of lumber and quality woods was not an endless thing. Since then, I've become quite a bit more prejudiced, in this respect: Today, ebony has almost become a vanishing species. It's very, very difficult to get good ebony – people don't like it with streaks or spots. And yet, you hang up a guitar with ebony and pretty soon you try to play it and the frets cut the hell out of your fingers and you've got all this warping. I had a hundred year old bass worth $10,000 where the neck broke because the ebony and the maple were fighting each other. The Adamas has impregnated woods where we take out that tendency to shrink and warp – it's a better value. We now have better material than ebony for fingerboards. Wood has become less of a boon than an inconvenience."

Now that he has crowned the acoustic line with the Adamas guitar, would he be turning his attention to the Ovation electric instruments which, truthfully, haven't been faring quite as well as their acoustic counterparts?

"We've been building electric guitars for years and years. They were more 'conventional' at the outset and we are now moving in the direction of accomplishing significant advances in electric guitar technology. The acoustic has taken up a lot of our time and attention, but now my son Bill has come into the business and is building these guitars, as well as the Adamas guitars. He has the same ear, the same dedication to achieving a higher quality instrument as I do. One of the things that I like about this whole music business – I look at it as a very solid bunch of people. I respect their stability, their adherence to tradition. Because of that stability, we have moved rather slowly, as we see it, in the development of the Ovation electric guitar. But the fact that we've 'Been there' has earned us a ticket of admission to the show."

Since Kaman had already earned the reputation as something of a maverick in the occasionally staid musical instruments industry, what did he think of the "young turks" who were turning the electric guitar business into such a fiercely competitive struggle?

"I think it's great. I see a real proliferation of ideas in the electric field. I've been very impressed by Hartley Peavey's entry, for example. I think that's a contribution to the field – a good one. And DiMarzio's efforts with the pickup – it's all been great. I welcome that kind of stuff. Let the guy who comes up with the best thing walk off with the girl."

As the interview slowly winds down and the imminent arrival of Larry Coryell, a recent convert to Ovation acoustics, is announced, Charles Kaman gazes fondly at Max and casually mentions of few of the things Ovation has on the drawing board for the future.

"Now that we've achieved our goal of having a full acoustic line – from one end to the other – we are working on some new sound and technical innovations on electric guitars. There's so much that can still be done. As you may know, we've sold Black Diamond strings and are working on revolutionary strings that will represent a whole new concept in winding. You know, you really can't stand in the way of progress. You've got to move."

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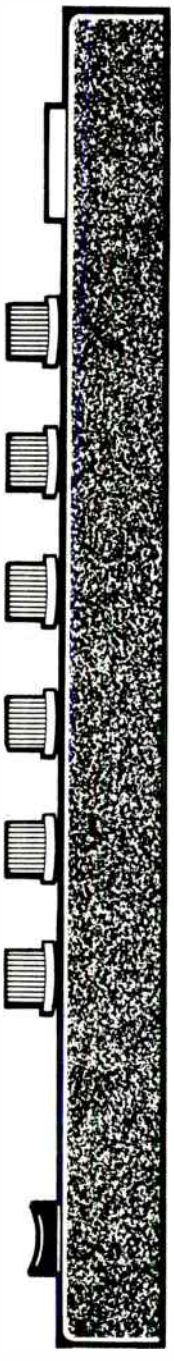

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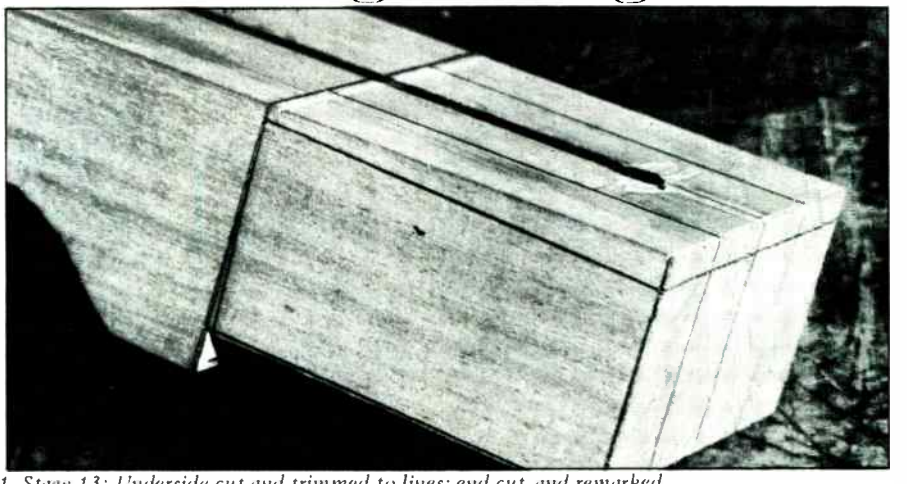
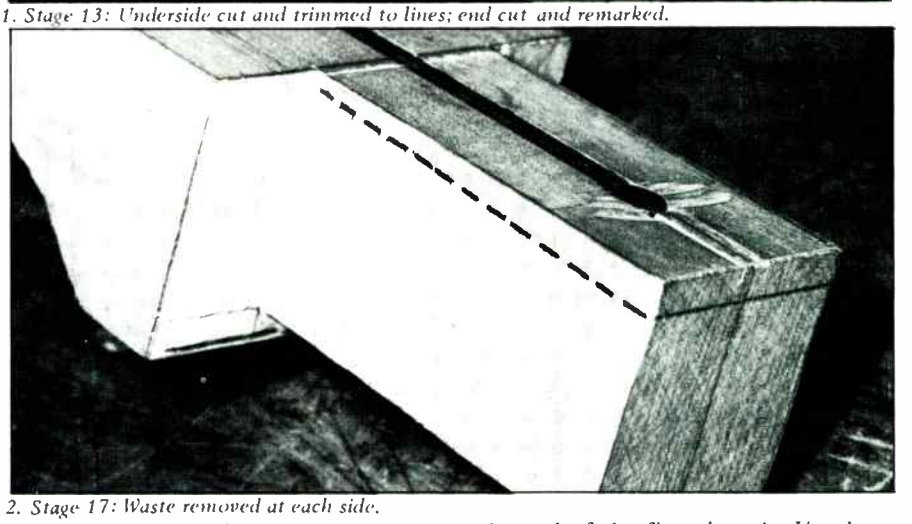
Building a Solid Guitar

Part 5: Making the neck joint and adding the fingerboard



1. Stage 13: Underside cut and trimmed to lines; end cut and remarked.



2. Stage 17: Waste removed at each side.

The neck joint cannot easily be marked from a template, and the lines should be marked directly on the neck in the following sequence:

1. Pick the straighter side of the neck blank and mark it. Always use this edge as a reference when marking lines across the front of the neck with a square.

2. Knife the Datum line on the neck to give a clear sharp measurement point.

3. Measure 386mm along the center line and along both edges. A square placed on the reference edge of the neck should join these three points. If it does not, find and correct the error, don't just take the average of the three. Knife a line through these points and continue it, with a square down each side of the neck. The sides should be marked faintly.

4. Mark a point on each side line, 40.5mm down from the front of the neck. Draw short pencil lines each side, through these points, approximately parallel to the front of the neck.

5. Measure back along these pencil lines from the knifed line, 1.5mm towards the *head* end. Nick these points with a knife or sharp scriber. Knife faint lines from these points to the ends of the '386' line on the front of the neck. Mark these lines specifically in the direction stated, and after checking them, cut them a little deeper. Continue these lines to the back of the neck blank, and join them across the back. This is roughly the angle at which the heel fits the body. It can be trimmed for a precise fit later. It is called the "heel line" and it connects with the '386' line on the front of the neck. Check what you have done so far with the plan.

6. From the '386' line across the neck, measure 70mm along each front edge towards the end of the joint. Check with a square, as you did when marking the '386' line, and, if correct, knife across the front and (lightly) down each side.

7. On each side measure two points down these lines at 5.5mm from the front and 40.5mm from the front.

8. Similarly, mark two points down the "heel line" on each side at 2.5mm from the front and 37.5mm from the front.

9. Join up the four points on each side of the neck. You should now have most of the side profile of the neck joint, except that the end of the joint is not parallel to the "heel line." To correct this, shorten the bottom line of the joint each side by 1.5mm and join these new points to the points 5.5mm down from the front. (Not to the front surface of the neck.) This means that the end of the neck joint appears "bent" at 5.5mm down from the front. This is intentional so that the finished job looks right.

10. Continue the new lines of the end of the joint to the back edge, and join them across the back.

You can now start cutting. *As you remove any line, replace it by referring to the nearest marked-out surfaces. Cut on the waste side of the lines to allow for trimming.*

11. Cut off waste at the end, and re-mark.

12. Cut off waste below the bottom line of the joint and trim this surface accurately flat, and to the marked lines, with a sharp chisel and a straight-edge. (Photo 1).

13. Do NOT remove the section above the marked joint. This later supports the end of the fingerboard. You have now cut the side profile of the joint. Check with the plan.

14. *Marking the face of the joint.* Mark points at 18mm each side of the center-line, across the '386' line and across the end of the joint. Join up these four points to give the 36mm width of the joint, and continue the lines, with a square, down the end of the neck.

Also with a square, continue the center-line down the end of the neck. The width of the neck does not give very much for the body of the square to rest on. It usually gives better accuracy if you rest the body of the square right across the neck and use what would normally be considered the "inner" edge of the blade for marking lines.

15. Put a center-line along the back of the neck tenon which you have just trimmed flat (12). It should exactly meet the center-line on the end of the neck. If not, stop and find the error and correct it.

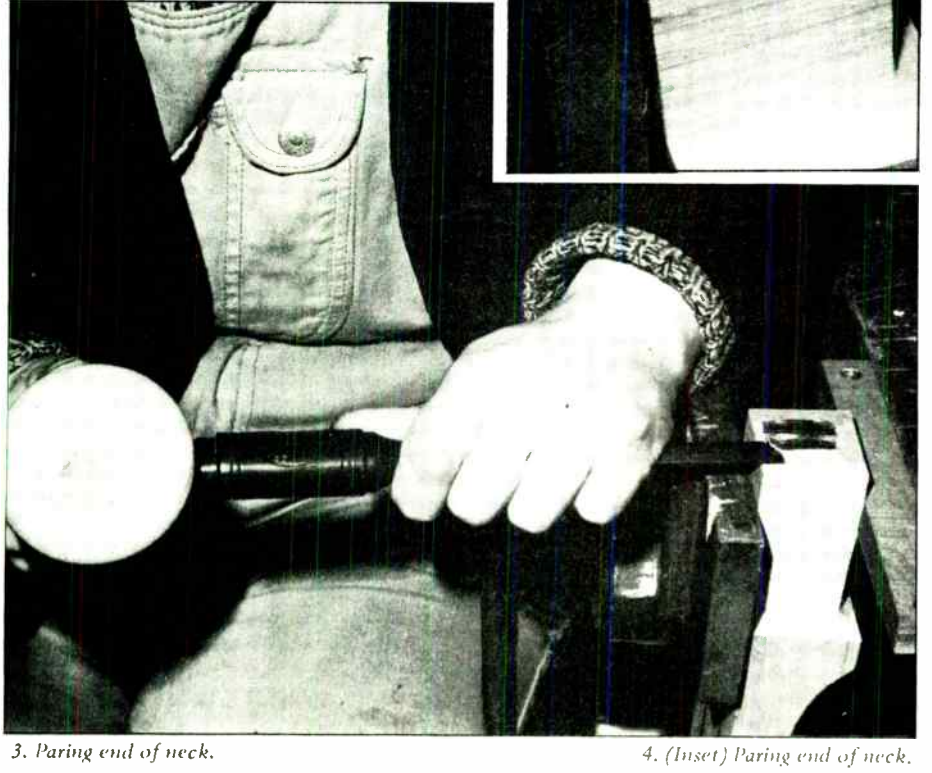
16. Repeat step 14 on the back of the neck tenon. "18mm each side" lines should match those on end of neck. If

they don't, find out why and make corrections. Again, don't take averages.
17. Saw off the waste side-pieces on each side of the joint and re-mark cut surfaces. (Photo 2).

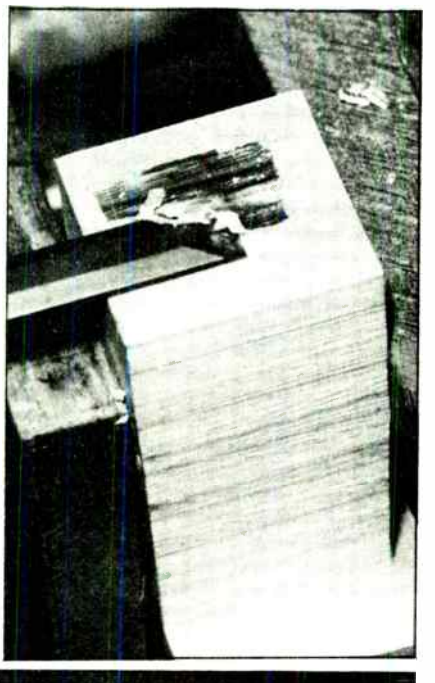
Trimming the neck joint

Unless you plan to join your guitar neck to its body with plenty of faith and half a liter of epoxy, you must be able to trim the surfaces of the joint accurately to the marked lines. The most critical parts of the joint involve paring across the end-grain of the wood at the shoulders of the neck tenon. Maple is pretty hard wood and, unless you have a good chisel, sharpened appropriately, you are not going to make much impression on it. Forget what the do-it-yourself manuals say; for this job, your chisel needs to be ground to about 16 degrees and honed to between 18-20 degrees. If you do not immediately understand how to do this, refer to a good book on sharpening woodworking tools.

Unfortunately, there is no form of file, rasp or patent D-I-Y tool which will do this job for you, so you may as well start practicing on the end of the tenon. There should be a line scribed all round. I would not advise your trying to pare off more than about 1mm at a time, so if there is more than this on the waste side of the line, you will need to carry out the following process more than once. (If there is 4mm or more of waste, saw most of it off, but with less than 4mm the saw will tend to wander erratically and it becomes impossible to cut straight.) You will need to clamp the end of the neck in a vise of some sort. If necessary, improvise with screw-clamps, blocks of hard wood and something like a table or a strong window sill. Because the heel is deeper than the joint part of the neck, you will need a packing piece in the vise, so that the tenon is held close to the end. Hold the chisel as I am doing in Photo 3, place it *in* the scribed line, or above it if there is more than 1mm of waste to take off, and gently tap with a mallet. The chisel should go in about 2mm. Move sideways to the next bit of scribed line and repeat. Overlap your cuts by 50% where possible. (Photo 4). Work all the way round the neck, turning it in the vise as you complete each side. Try to keep the neck tenon vertical and your chisel roughly horizontal. Remember that the end face of the neck has a "bend" in it (see plan), you will need to hold the chisel at slightly different angles when cutting the edge near the front of the neck. If you have lost this slight "bend" by the time the paring is finished, it doesn't really matter, but it will be good practice for you if you try to preserve it.



3. Paring end of neck.



4. (Inset) Paring end of neck.

You will now understand why I prefer scribed lines to pencil lines for marking out joints: you can actually put the chisel edge in the line! (If this sort of woodworking is new to you, angle the chisel so that the end of the neck tenon will be left slightly higher in the center. You can trim off the hump later and it is better than ending with a hollow.)

Brush away the loose chips of wood with your thumb, and go round again with chisel and mallet, taking your cuts about 4mm nearer the center. Repeat this until you reach the center. Photo 4 shows this operation, near the end of the third time round.

When you have got this far, you know that the edges are all correct to their lines, so you can easily check whether the end face is flat, with a straight edge. Remember the intentional bevel on the end, near the front of the neck, but if the end face is not flat in any other respect, sharpen the chisel and remove the surplus wood. Whenever you sharpen a chisel, before you use it remove every trace of oil and grit and wash your hands. Oily fingermarks are unsightly and they prevent lacquer or glue from adhering properly.

Fine paring does not require a mallet. Your right hand wraps around the end of the handle and holds it to your chest. Your left hand rests on the side of the work or on the edge of the vise, and at the same time holds the chisel blade firmly with two or more fingers to guide its cut. The cutting action comes from leaning your body forward slightly – much easier than using a whole series of arm muscles to do the pushing. If you can learn the trick of overlapping each cut half-way over the last one (see Photo 4), the chisel is partly guided by the previous cut, and it is easier to produce a flat finished surface.

With both hands on the chisel and all your fingers *behind* the cutting edge, it is unlikely that you could manage to cut yourself. I *have* pared my fingers on two occasions – both caused by using a thin rubber mat on the bench to protect finished parts of the work. Don't do it. If you want to keep your work clean, keep the *bench* clean. After practicing on the end of the neck, I hope you will understand better how to pare to a line so that your finished, pared surface is flat, and at the correct angles to other surround- ▶▶

There was a tiny printing error in last month's Build a Solid article. On page 109 we referred to wrapping the truss rod in ¼ inch tape. This is possible, but it should have read ½ inch tape, which makes the job easier.

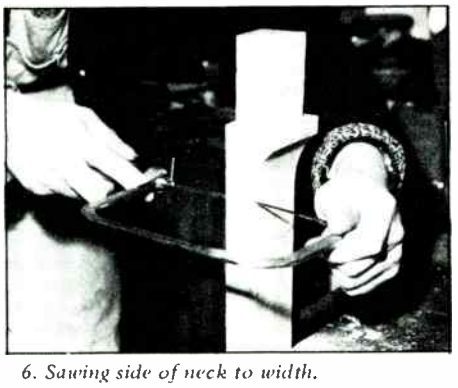
ing surfaces. You may also have been tempted to pare off more than 1mm at a time and discovered that the wedging action of the cut forces your chisel past the line into the wanted part of the work.

The other thing you may have noticed is that some well-known brands of chisel will not form or retain a really sharp edge. It is not entirely a matter of quality: many tools have been tempered differently to cope with the abrasive nature of chipboard, and they are no longer as successful when used on real wood. If you want proper paring chisels for careful hand work, ask for the older pattern of Bahco/Berg Swedish chisels like the one in the photographs. The older ones had a nice round forged shoulder on the blade where it enters the handle. Newer ones are apparently stamped out of a thick sheet and forced into the handle. For all I know, they may cut just as well, but I distrust such rationalized production methods. You will need a "bevel-edge" type of about 15mm and you may find one of about 10mm useful as well. These are precision hand tools: if you use them to chop deep holes for door locks, or to open cans, they will break. Used as intended, they will last a long time. If you have inherited decent tools from your father or grandfather, you are likely to have better chisels than you can buy, but don't expect them to cut chipboard!

You should now be able to approach trimming the neck joint with confidence. For some parts, you will still need to rely on a carpenter's square to check squareness to the front of the neck. This means that the front must be clean and free from bits of glue. For the same reason, you should check that the front of the neck is still flat and that neither the truss-rod anchor, nor the glued-in wooden strip, project above the surface.

Trim both shoulders of the joint and both sides of the tenon. Remember that the line of the shoulders, as marked on the sides of the neck, is not quite at 90 degrees to the front. There are two lines very close together. If in doubt, check with the plan. Now, with the body of the square across the axis of the neck, extend the lines which show the width of the neck, down the end-grain of the shoulders, to the back of the neck. Mark first with a scriber, and then run a fine pencil-point down each groove. Clamp the neck upright as shown in Photo 5. Using a tenon saw, cut down *on the outside* of these lines until you are through the heel and some way down the sides of the neck itself. Take out the tenon saw and use a coping saw (Photo 6) to continue the cuts down the sides of the neck, and round the widening of the head between the nut and the 1st and 6th machine heads. From here, lead the saw cuts out through the sides of the neck block, and then cut out the rest of the head as a separate operation.

5. Sawing heel of neck to width.



6. Sawing side of neck to width.

Marking head thickness

Have a look at the plan and you will see that the head has constant thickness from the end up to the widest point by the 1st and 6th string machine heads. Beyond this point it gradually thickens and blends into the back of the neck. The exact depth which you mark on the head will depend on the head-facing (if any). If you intend to use a separate facing, you can safely accept the thickness shown on the plan. Set a marking gauge to 1mm more than the thickness of the head. That is 15 is you intend to use a facing: 17 if you do not. Scribe round the sides and end of the head (Photo 7). Scribe only the parts of the head which are shown as constant thickness on the plan. If you want to show an approximate thickness for the part where the head blends into the neck, mark this only in pencil.

Press the body of the tool hard against the head but put only light pressure on the marking point. Most of the back of the head can be pared down to the edge lines in the same way as the the neck tenon. Because you are cutting into the side of the grain, and not the end, you will need much less force behind the chisel, and it is more likely to dig in. If you aim the chisel so as to leave the head a little thicker in the middle, a few erratic cuts should not be disastrous. Leave the head thicker where it starts to curve into the neck, a sharp corner here looks bad and the extra wood should be left until the back of the neck is blended into the back of the head, later on.

The rest of the back of the head can be cut down level with the edges, with a straight-edge and a sharp cabinet scraper and/or scraper-plane. These tools are most valuable, but it takes quite a lot of practice before one can use them – or even sharpen them properly. Care and use of scrapers is covered very thoroughly in many books on woodworking. Try your local library. As a general guide, these tools should produce fine shavings: if what you get is dust and bits, then something is wrong. If you find that you can't cope with a scraper, or that it is tearing the edges of the head, you could use a block of wood and some 80 or 100 grit garnet or aloxite abrasive paper. Once the head is at its intended thickness, you can then cut its outline back to just outside the lines marked from the front-of-head template. At various times I have used files, fine rasps, chisels, spokeshaves, scrapers, rifflers and sanding-sticks for this job. You will probably have most success with a small round bottomed spoke-shave, and a variety of shaped blocks and sticks, covered with very coarse and medium abrasive paper. You can obtain a very useful coarse, heavy-backed abrasive from part-worn industrial sanding belts. For best results, at least the coarse papers should be glued to the shaped backings with something like rubber cement. Continue this shaping round to the nut and then down the sides of the neck.

Keep the sides of the head square to the front of the head, leave the back of the neck rectangular. Do not try to round it or shape it at this stage.

The fingerboard

You have now reached what I think is the best stage to glue on the fingerboard.

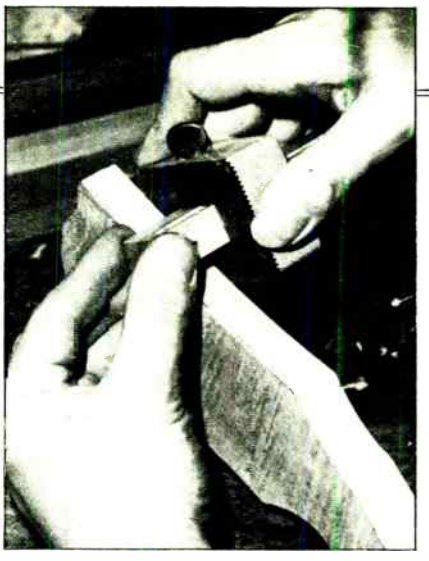
Plane both sides of the fingerboard and select the best-looking side. Move the transparent template about until the selected area has the straightest grain, after you have avoided as many small blemishes as possible, and scribe round it. Check that it has not slipped while you were doing this. Cut out the selected part leaving a margin of about 1mm all round. Good ebony makes superb fingerboards, but good South American rosewood is better than poor ebony. Neither is cheap or easily available, and neither is essential for a first instrument, or for one which does not have to meet the highest professional standards. You can make adequate fingerboards from Madagasgar rosewood, bubinga,

mansonia, apple wood or hard maple, to give only a few examples. Most of these are pale in colour and soon become dirty unless lacquered. Ebony or hard rosewood fingerboards are advisable if you use American mahogany for the neck, but the greater density and rigidity of maple or sycamore necks allow a wider choice of fingerboard woods.

It is well worthwhile buying seasoned fingerboard blanks from a supplier of instrument makers' wood; you have less work to do and less waste. I would not rely on the stability of any recently purchased fingerboard blank, but you probably have no other choice. The best you can do is to buy now the fingerboards which you intend to use several years in the future. Put them "in stick," and weighted, in a normal living-room climate. (See any good book on preparation and seasoning of timber. "Sticks" should be about a hand's breadth apart.)

There are many ways to glue on fingerboards, and many useful tricks which you will no doubt discover if you are determined, but the following method works for me. As I mentioned on the section about glues, you will need to keep the wood and the air warm during the gluing operation. I suggest you refer to the section on animal glues so that I don't need to repeat it all here. Use an "extended assembly time" Prepared Hide Glue and make the fingerboard warm enough to give an assembly time check of about three minutes. You will need an accurately flat bench-top or a carefully planed lump of hardwood, significantly stiffer than the neck. Make a dry run with no glue. Put the fingerboard face down on the bench, place the neck upside down on it and clamp both down onto the bench with between four and eight screw clamps depending on how many you have or can borrow. Each clamp will require a block to protect the back of the neck. When this is set up, clear the rest of the bench and, as you take off the clamps, lay them out tidily with their packing blocks so that there is less reason for hesitation while gluing.

Check that you can see whether the fingerboard overlaps both sides and the end of the neck, and is beyond the datum line by the nut. Put a sheet of newspaper on the bench to keep the glue off, spread glue thinly and quickly on fingerboard and neck, and clamp up for 24 hours. If you apply too much glue, the fingerboard will slide about as you tighten the clamps. This happens to some extent anyway but there is no point in making it worse. Check the position of the fingerboard on the neck as you press the glued pieces of wood together, and after you tighten each pair of clamps. If the wood is warm enough, you will have time to take the joint apart and re-align it. If you are too late and the glue has gelled, wash off, dry and re-glue as described in the "glues" article (April issue).



7. Marking head thickness.

Neck stability

I suspect that one of the causes of unstable necks on recent guitars is that they are roughed out and finished much too quickly. Although such necks are no doubt shaped with great precision, if the wood is still shifting, the finished neck may not stay straight. I have found, even with old and well seasoned timber, that it is unwise to work too quickly. No special conditions are necessary for this "resting" time, but it is advisable, from now on, to store the pieces of your guitar in the same sort of climate in which the finished instrument will eventually spend most of its time. I usually leave my necks for two or three months at this stage, so that any stresses which have been released by removing most of the waste wood can work themselves out.

Body plan

The plan for the guitar body is available and I have tried to arrange it so that the critical dimensions are shown clearly, but you still have the freedom to design your own body shape and styling. The plan shows the neck joint, pickup location templates and the position of the mounting bolts for the bridge. If you get these right, your guitar should work and play in tune. The rest is up to you – so start drawing. I don't want to suppress your natural creativity, but don't make anything too wild the first time.

Neck shaping

You may also be pleased to hear that the neck is by far the hardest part of the job for a beginner. If you have managed accurately to carry out the work so far, the only large remaining hurdle will be shaping the back of the neck, which will be covered next month. When you have done this, the rest of the work still requires accuracy, but it becomes easier as you go on. For the neck shaping, you will find it useful to have some sheets of coarse and medium abrasive paper, a so-called "half-round" Surform file and a completely round one. I also find the smallest size of Stanley spokeshaves useful, both the round and flat bottomed ones.

The large ones with two knurled adjustment screws are really too big for the job, and I find them more difficult to control. The smaller ones are usually painted black and have just one screw which clamps the blade. They are crudely made, and the clearance for shavings in front of the blade is usually much too wide, causing the tool to "chatter" on hard woods.

They are all like this, and you have to modify them yourself. The simplest way is to move the blade forward, until, when adjusted to take on very thin shavings, the gap in front of the blade is about 1mm. This is done by putting a shim of hard veneer plastic, or sheet metal, between the back of the blade and the body of the spokeshave. It should have a clearance hole for the blade clamping screw, and cover all the points where the blade would normally rest. When you have the right shape and thickness, the shim can be glued to the spokeshave body with a thin smear of clear or contact adhesive and clamped in place with the blade and its fixing screw.

Before gluing, you should file this shim so that it just fails to project through the base of the spokeshave. This must be done to both the round and the flat spokeshave. When they are finished, get some practice in sharpening the blades and setting the tools to take off very thin shavings from pieces of scrap maple or other hard wood. Setting the blade is tricky if you are used to screw adjustments, but for trimming the round back of the neck it is acceptable to have one end of the blade cutting a little more fiercely than the other – as long as you remember which end is which.

This makes setting the tool much less critical; but don't try it on a flat surface such as the sides of the head unless you want a tapered head. Some model stores may have even smaller spokeshaves, which I have not tried, but you may find them useful. If you have not used a spokeshave much until now, get some practice on hard wood before you start on the neck.

Full-scale plans of Stephen Delft's D-I-Y guitar are available from IM&RW. There are separate plans for the neck and body and they cost $5 each (scaled-down versions appeared in the April issue). Write to Guitar Plans, International Musician & Recording World, Circulation Department, PO Box 44, Brooklyn, New York 11202. Specify whether you want neck or body plan or both, and enclose $5 for each plan.

Understanding Synthesizers

PART 4

By Tony Horsman

Introduction

In the first three parts of this series, I covered some of the more important terms used whenever synthesizers are described and introduced some of the very basic physics of sound synthesis. In this and future articles I will be writing about synthesizers themselves, taking the various parts (*modules*) of the synthesizer in turn.

Each module has its own role to play in the creation of the sound which finally emerges from the synthesizer. The most important modules of all are the *oscillators* which are primary sources of sound in all synthesizers.

Oscillators

There are two kinds of synthesizer oscillator. Both produce periodic (repetitive) voltage waveforms but their frequency ranges are different. *Low-frequency oscillators* (LFOs), which I will be describing next month, produce very slow, inaudible oscillations which are generally used to modulate (alter) other signals, producing effects such as "vibrato" and "tremolo" (see Part 1). *Audio-frequency oscillators* – or *audio-oscillators* for short – produce relatively fast oscillations in the audio-frequency band (20Hz to 20KHz; see Part 2).

Audio-oscillators

If you fed the output of an audio-oscillator directly into an amplifier and loudspeaker (see Fig.1; ignore the "control voltage" for the moment), you would be able to describe three different characteristics of the continuous sound you heard, its *pitch*, *loudness* and *tone quality*. The frequency of the oscillator's output determines its pitch, and the amplitude determines its loudness (see Part 1). Although the pitch and loudness would be relatively easy to describe in familiar terms, describing the tone quality could present problems; musicians would, if possible, liken the sound to that of other instruments (e.g. flute-like, clarinet-like, string sound, etc.) while others might use words such as "harsh" or "hollow."

Some of this may seem rather obvious but it has allowed us to identify the features of an oscillator's output which need to be varied in order to produce music and musical sounds. First of all, we can forget the amplitude control, because synthesizer oscillators produce a constant output of fixed amplitude; audio-signal amplitudes are varied by other synthesizer modules (e.g. voltage-controlled amplifiers, VCAs) designed specifically for that purpose. However, we clearly need a means of altering the oscillator's pitch and, because most of our sound generation is going to be achieved by subtractive synthesis, the more basically different tone qualities available from each oscillator the better. Last month, I explained that the tone quality of a continuous sound is determined by the relative strengths of the *harmonics* it contains, and how any periodic waveform is the sum of its harmonic components. Synthesizer oscillators provide us with the variety of basic tone qualities we need as a selection of output waveforms with different harmonic contents.

Oscillator waveforms

It is not difficult to see that, however many ways other modules in the synthesizer can modify the oscillator output waveform, the more choices of basic oscillator waveform there are, the greater the variety of sounds the synthesizer will be able to produce.

Fig.2 shows the shape and frequency spectrum (see Part 3) of five waveforms commonly available at the output of oscillators. Sometimes you can use only one at a time; on more flexible synthesizers, a combination of waveforms can be used simultaneously if necessary. Although the sine wave is often not available, it has been included to emphasize that this particular waveform contains no harmonics, just the fundamental; in fact, its total lack of harmonics is the reason why it is not very useful in subtractive synthesis. The triangular and square waveforms contain only the "odd" harmonics i.e. harmonics having frequencies 3x, 5x, 7x etc. – the frequency of the fundamental. The amplitudes of the harmonics decrease rapidly in the frequency spectrum of the triangular wave, which has quite a smooth sound. You might have expected this from the shape of the waveform; the sine wave and triangular wave look (and sound) very similar. In the square wave, the "even" harmonics are again totally absent but in contrast to the triangular wave the odd harmonics do not decrease in amplitude very rapidly. In the sawtooth wave, which has a rather harsh sound, all the harmonics are present. Finally, in the pulse wave, the harmonics are very strong in relation to the fundamental and give this waveform a very nasal, reedy sound.

Instrumental sounds

To put these oscillator waveforms in a musical context, I have listed in Table 1 some of the sounds which can be produced by subtractive synthesis from the different types of waveform. The sounds have been limited to familiar instrumental sounds; it would not help you very much to know that a Funny Cat sound is synthesized from a pulse wave, unless you're familiar with Funny Cats! It is clear from Table 1 that the sawtooth is a strong favorite for string and brass sounds. Incidentally, the reason the clarinet sound is synthesized from a square wave is that the cylindrical bore of the clarinet body only allows the odd

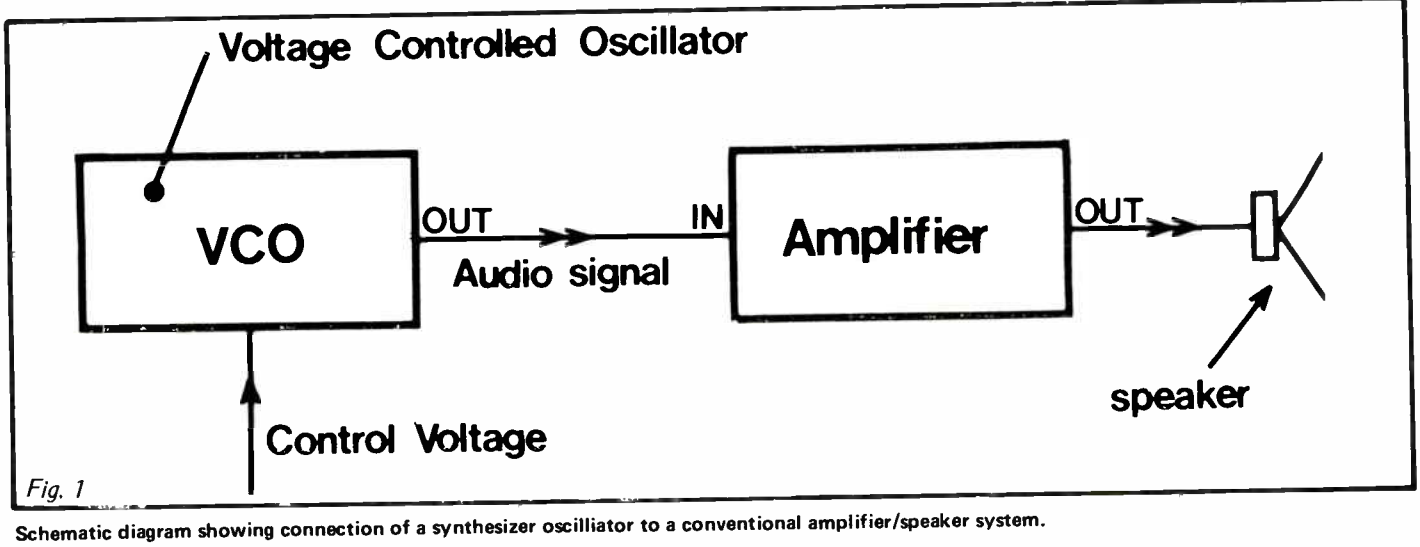


Fig. 1

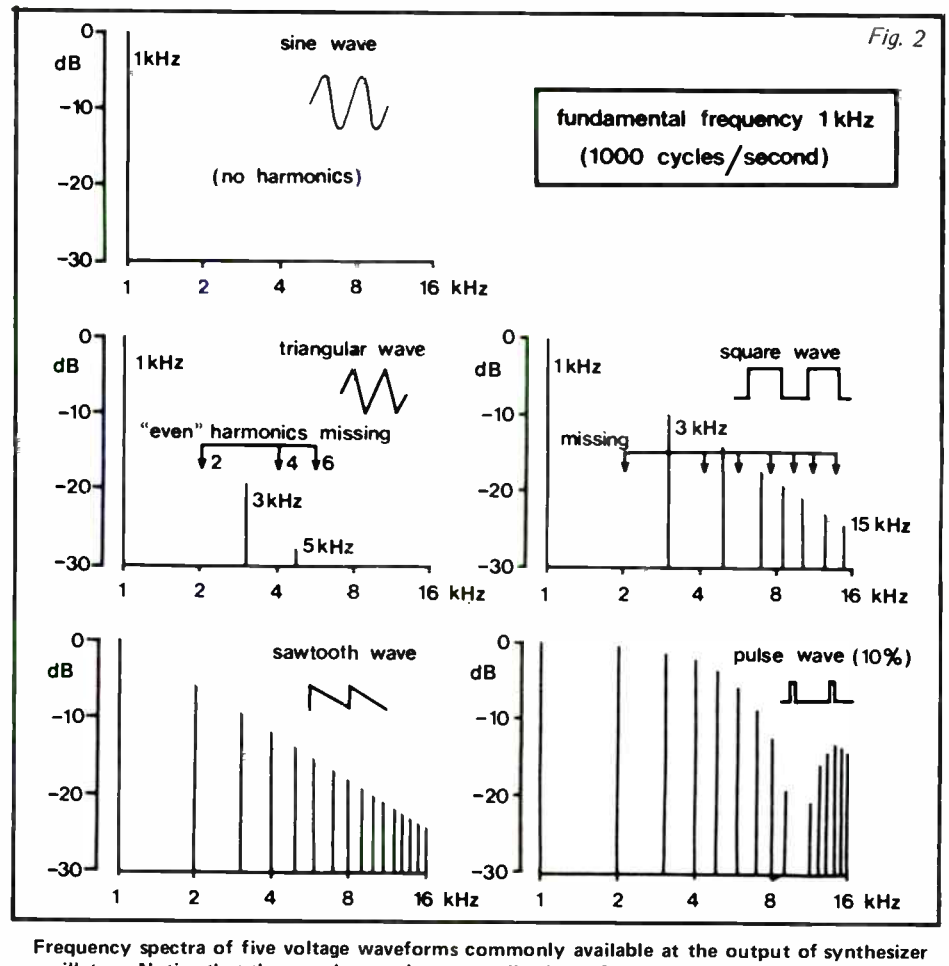
Schematic diagram showing connection of a synthesizer oscilliator to a conventional amplifier/speaker system.

harmonics to be generated in the air column; the frequency spectrum of a sustained note on a clarinet is very similar to that of the square waveform in Fig.2.

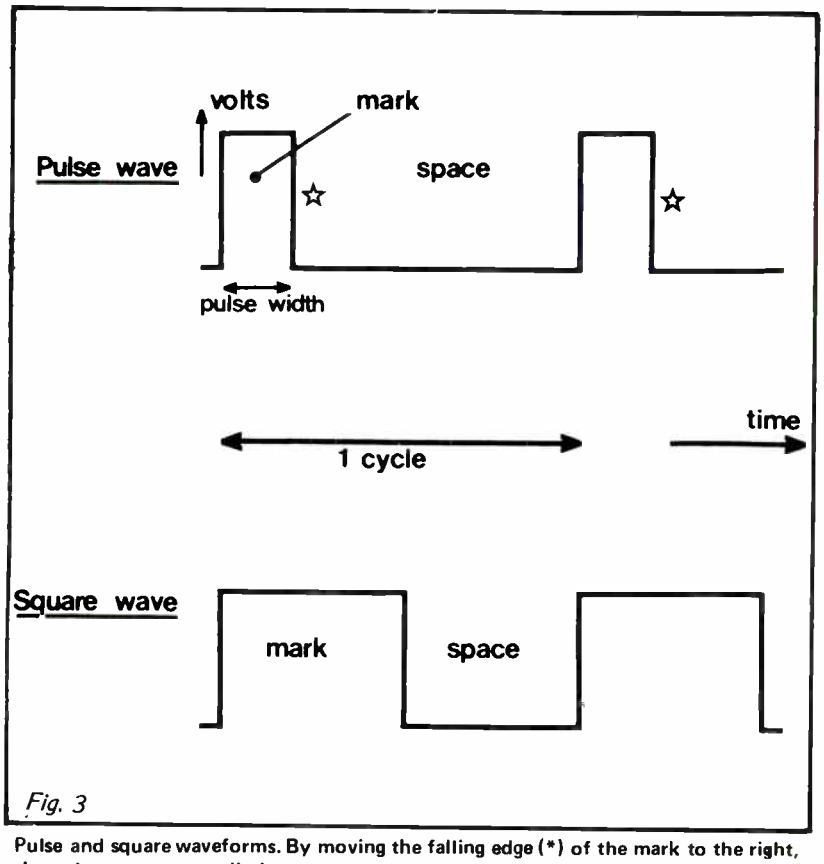
Pulse width

Because of its high harmonic content the pulse waveform is used very extensively in sound synthesis. The high part of the pulse waveform is called the *mark* and the gaps between the marks are called *spaces* (see Fig.3); the *duration* of the mark is called the *pulse width*. In some synthesizers, it is possible to alter the shape of the pulse wave both manually and electronically to produce some very exciting sounds. The pulse wave is altered by varying the relative lengths (durations) of the mark *and* space of each cycle but *keeping the total length constant* (otherwise the pitch would change). In the jargon of electronics, the *"mark/space ratio"* can be altered. With a bit of imagination, you can see that if the mark is lengthened and the space shortened, there comes a point at which the two are equal: the pulse wave eventually becomes a square wave (see Fig.3).

Remembering that the square wave contains only the odd numbered harmonics but that a narrow pulse wave contains almost all the harmonics (see Fig.2), it is clear that adjusting the mark/space ratio of a pulse wave *changes its frequency spectrum*. So



Frequency spectra of five voltage waveforms commonly available at the output of synthesizer oscillators. Notice that the even harmonics are totally absent from both the triangular and square waves.

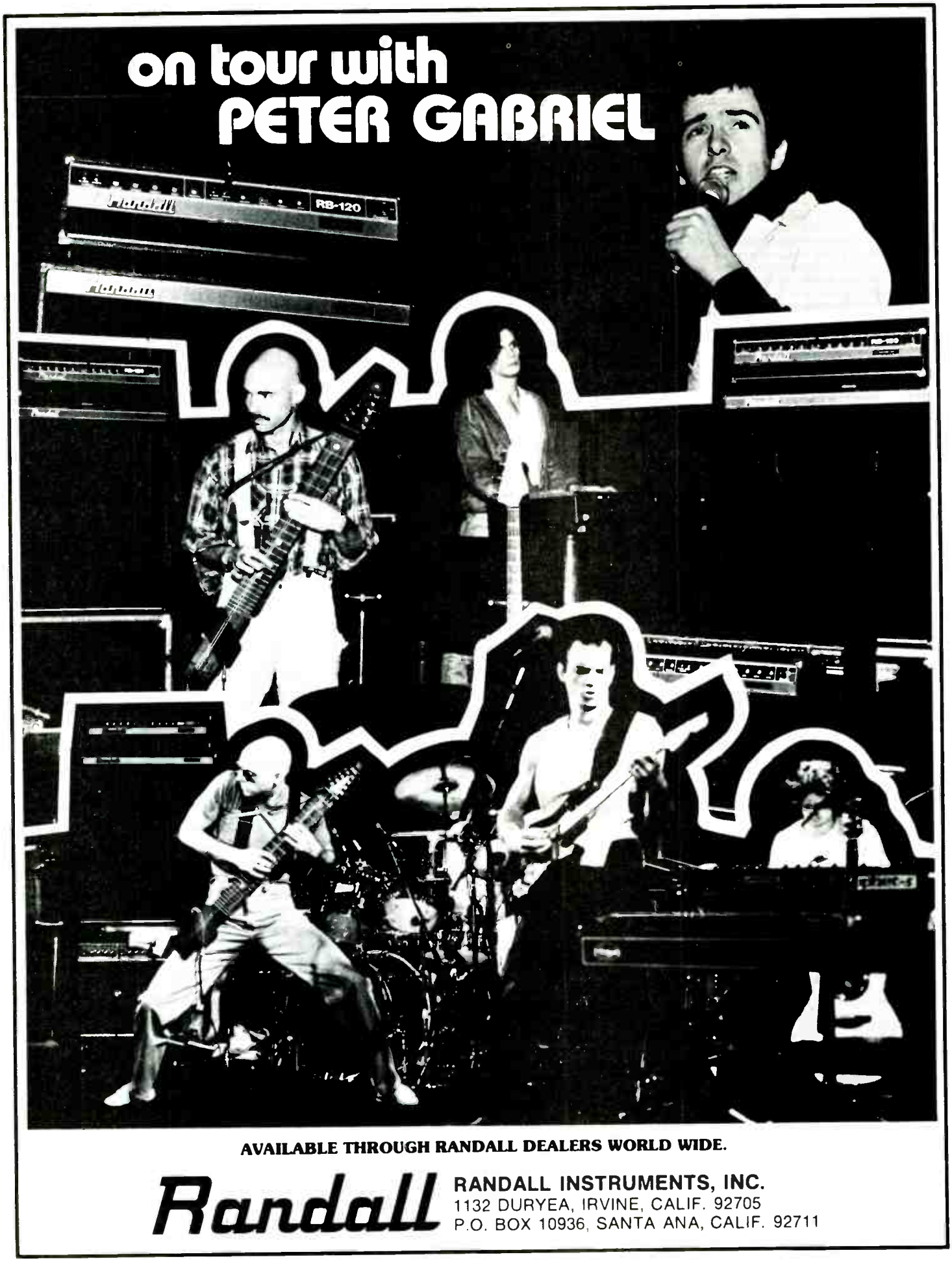


Pulse and square waveforms. By moving the falling edge (*) of the mark to the right, the pulse wave eventually becomes a square wave.

Triangular	Sawtooth
bass drum	'cello
flute	viola
celeste	violin
vibraphone	trombone
whistle	horn
–	–

Square	Pulse
clarinet	saxophone
xylophone	harpsichord
–	piano
–	fuzz guitar
–	oboe
–	accordion

Table 1. Basic waveforms used inthe synthesis of Instrumental sounds. The most useful are the sawtooth waveform, for synthesizing string and brass sounds, and the pulse waveform which is used for the more harmonically rich sounds.



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the manual adjustment of the "pulse width" (more correctly, mark/space ratio) allows you to find a basic waveform which produces just the sound quality you want, but, of course, once the control is set, the sound does not change.

You will often see a "pulse width" control marked 5% to 50%. This percentage is simply the fraction of each cycle occupied by the mark. The lower the percentage, the greater the strengths of the harmonics relative to the fundamental – so the 5% setting will produce the brightest sounds.

Voltage-controlled oscillators

The frequency of synthesizer audio-oscillators is governed by a voltage which is an *input* to the oscillator (see Fig.1); this voltage is called a *control voltage* (CV). In the same way that the steam pressure in a whistling kettle determines the pitch of the whistle, so the control voltage determines the pitch or frequency of a *voltage-controlled oscillator* (VCO). It is becoming increasingly common for oscillators to be designed so that a 1 volt change in control voltage produces a change in pitch of one octave. If, for example, a control voltage of 2 volts produces middle C (262Hz), when the control voltage is raised to 3 volts the oscillator pitch will rise to the C one octave higher (new frequency = 2 x 262Hz = 524Hz). If the control voltage is increased by one more volt to 4 volts, the pitch will rise another octave to the C two octaves above middle C (new frequency = 4 x 262Hz = 1048Hz).

In Fig.4, I have illustrated this in a slightly unusual way; you would often find only one horizontal axis marked "frequency" but it is easier to think first of the actual *notes* produced as the control voltage changes. The figure shows how you can predict the note which will be produced by first choosing the control voltage, looking horizontally across until you hit the line, then dropping your eye vertically downward to the horizontal axis. In the example I have chosen, 2.6 volts produces the A above middle C. This note has a frequency of 440Hz (now have a look at the frequency scale). When the pitch falls one octave, the frequency halves (e.g. A below middle C = 220Hz) and when it rises one octave, the frequency doubles. You can see that if we make the *notes* equally spaced, as I have done in Fig.4, *the frequencies are not equally spaced*; it is as far on this diagram from 220 to 440Hz (a change of 220Hz) as it is from 440 to 880Hz (a change of 440Hz). You will often see these "non-linear" or "logarithmic" (!) frequency scales; you may have noticed I used them in Fig.2. This sort of scale makes musical sense because *equally spaced musical intervals are the same distance apart on the horizontal axis and are produced by equal changes in control voltage.*

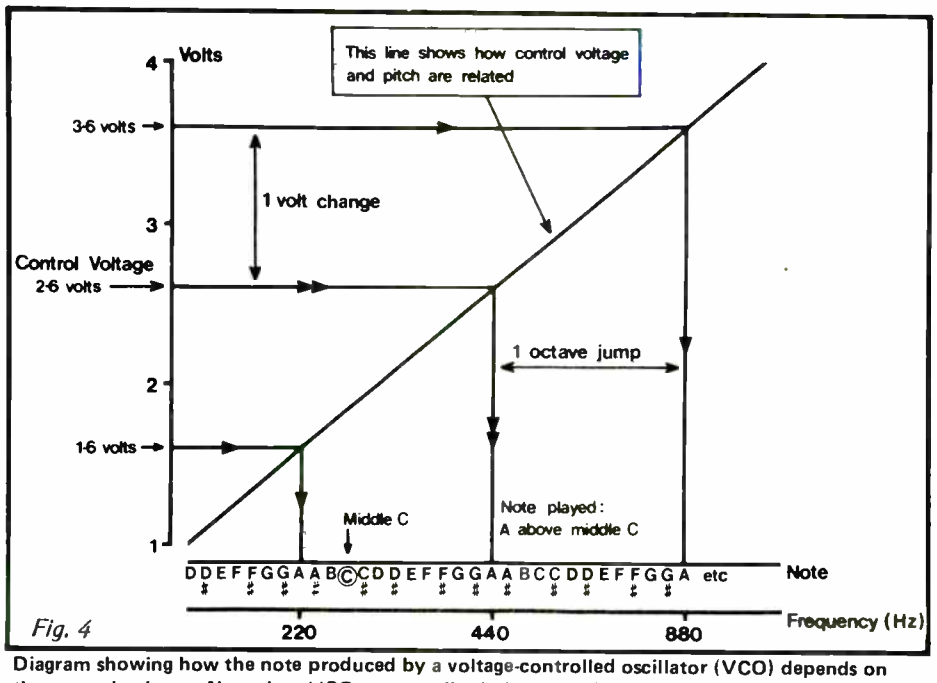


Fig. 4

Diagram showing how the note produced by a voltage-controlled oscillator (VCO) depends on the control voltage. Nowadays VCOs are usually designed so that a change in control voltage of 1 volt produces a pitch change of 1 octave.

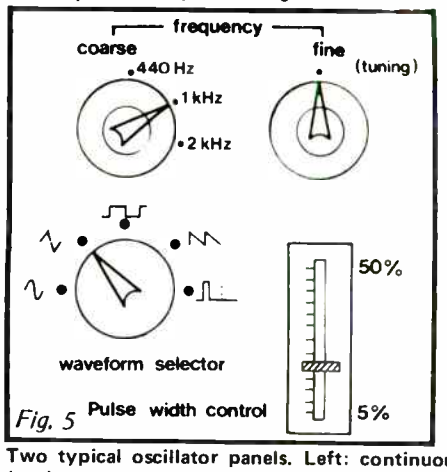
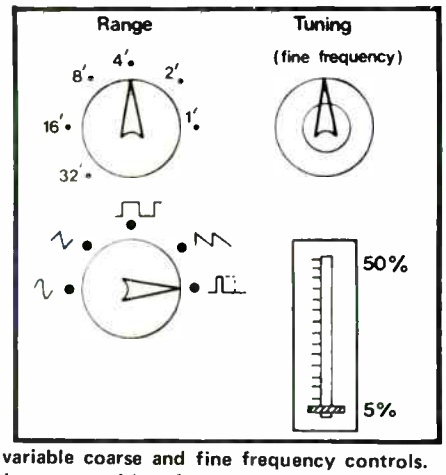


Fig. 5



Two typical oscillator panels. Left: continuously variable coarse and fine frequency controls. (top). The oscillator is set up to produce triangular waves with a frequency of about 1kHz. Right: frequency altered by range switch (marked in footages) and a tuning or fine frequency control. The oscilliator is set up to produce pulse waves having a mark which occupies 5% of each cycle.

On most VCOs, you will find either "coarse" and "fine" frequency controls or "range" and "tuning" controls. They all do the same thing – provide the VCO with a control voltage. On a VCO with "coarse" and "fine" frequency controls, the coarse control will shift the pitch over a very large range (probably seven octaves or more), so the fine control is necessary for exact tuning of the oscillator to the required pitch. On a VCO with "range" and "tuning" controls, the "range" control is usually a rotary switch marked in *footages* (e.g. 16', 8', 4', 2'). Instead of allowing you to vary the oscillator control voltage continuously, the switch provides fixed values – say 1, 2, 3 and 4 volts. Each position of the switch changes the pitch by one octave. The reason for indicating frequencies in terms of "footages" is that an organ pipe eight feet long plays one octave higher than one 16 feet long etc. – so the "footages" are a shorthand way of specifying the pitch the oscillator will produce. What's more, most keyboard players know what the different footages *do*, so this is more helpful to many people than indicating frequencies. On a synthesizer oscillator with a "range" switch, the "tuning" control will usually move the pitch over at least one octave so that the oscillator's frequency can be set to any value in the audio-frequency range.

Fig.5 shows two types of VCO layout, with the frequency controls at the top, the waveform selector switch and the pulse width slider below, which is effectively only when the pulse waveform is selected. As I introduce more synthesizer modules, the VCO layout will become slightly more complicated but this diagram illustrates the features I have discussed so far.

Next month I will be introducing the low-frequency oscillator (LFO) and explaining how it is used to produce vibrato and to change the pulse width.

SPEAKERCHECK

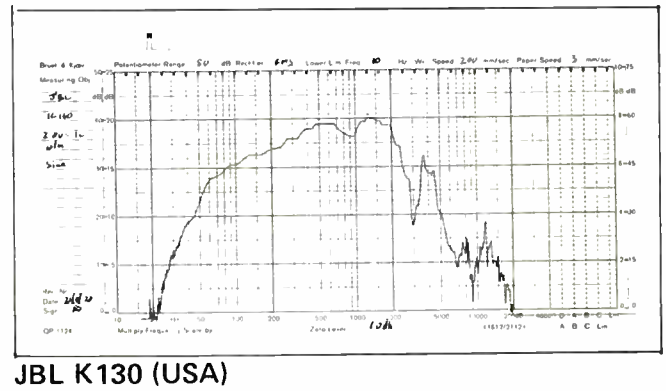
Having commenced our review of 15" chassis loudspeaker units last month, we now continue with a further collection of similar items from manufacturers from West Germany, Japan, Italy, the UK and the USA. I would refer you to the introduction to the series published in April for full details of the tests we carry out and the basic thinking behind the whole *Speakercheck* project, and to the introduction to the first of the 15" tests last month for the background information to the particular test now published. Therefore, without more ado, let us get on with the part that matters, the results of our tests, in the hope that our results will help those of you with an interest in loudspeakers, or contemplating the purchase of new drive units, to come to the right decision in selecting the drive unit best suited to your needs.

Next month we shall interrupt our series of tests on component loudspeaker units – which, incidentally, is scheduled to include 18" cone units, mid-range and high frequency horns, acoustic lenses, etc. – to publish an in-depth review on the new Bose 802 compact loudspeaker system. This was a particularly interesting test to conduct and promises to be an interesting review.

Ken Dibble

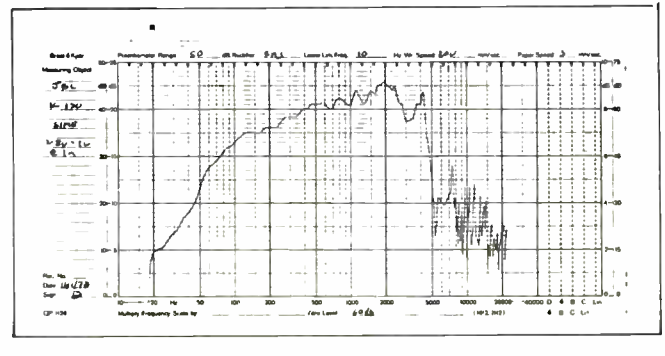
JBL K140 (USA)

Parameter	Manufacturer's rating	Test result
Power	150w cont. RMS 300w cont. prog.	Confirmed at 150w and 300w RMS sine wave
Distortion	Not stated	3% @ 150w and 300w as above
Sensitivity	98dB @ 1w @ 1m	98dB @ 1w @ 1w averaged between 300Hz and 3KHz
Resonance	30Hz free air	60Hz in 90ltr. IB enclosure
Impedance	8 ohms nominal	8-40 ohms (upper figure estimated)
Useful freq. response	40Hz-2.5KHz unqualified	40Hz-5KHz @ -20dB – see graph



JBL K130 (USA)

Parameter	Manufacturer's rating	Test result
Power	125w cont. RMS 250w cont. prog.	125 RMS sine wave
Distortion	Not stated	4% at 125w as above
Sensitivity	103dB @ 1w @ 1m	101dB @ 1w @ 1m averaged between 400Hz and 4KHz – see graph
Resonance	40Hz free air	80Hz in 90ltr. IB encl.
Impedance	8 ohms nominal	8-30 ohms
Useful freq. response	50Hz-6KHz unqualified	50Hz-6KHz @ -20dB – see graph



These superbly made and presented products from a leading international manufacturer are of substantial proportions and are built on a well braced, eight-spoked, cast alloy chassis of a particularly shallow design and are fitted with large Alnico V magnets. The K130 is intended as a general purpose musical instrument loudspeaker and is fitted with a medium weight cone with linen suspension and dural center dome, while the K140, specifically designed as a bass instrument reproducer, is fitted with a heavy ribbed cone and has a free air resonance some 10Hz lower than the K130. While both units have 4" voice coils, the K130 coil is of aluminium in order to provide a more lively response into the treble region, the K140 coil is of copper for sustained power handling at low frequencies. The delivery includes a full set of mounting hardware and a superb installation/operating manual, and the JBL five year Professional Products Warranty applies.

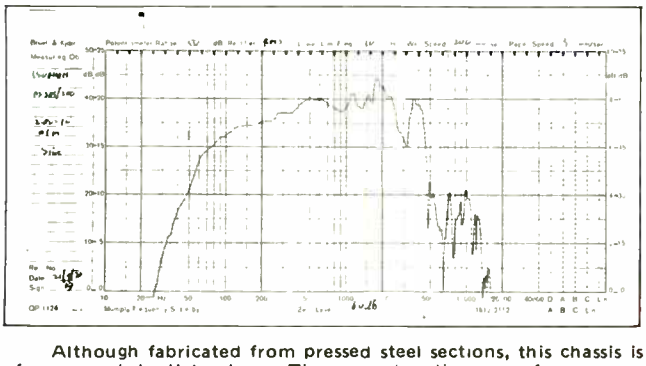
The lower sensitivity figure recorded on the K140 is due to the heavy cone assembly fitted and is an intentional sacrifice in the interests of improved low frequency performance. Along with the RCF L15P/06, (which would appear to be a virtual replica of the K140 anyway), this loudspeaker has the lowest in-cabinet cone resonance of any 15" unit tested, and a noticeable increase in low frequency energy over its obvious competitors. For its specific application, it is immaterial that the upper response rolls off above about 2KHz. At the maker's invitation, and in view of the low level of distortion measured at the published RMS power rating of 150w, we carried out a sine-wave power test at the full 300 watts program rating, and as the results table shows, there was little increase in distortion, that without going to decimal points of a per cent, we had to publish a constant figure.

The K130 similarly lived up to its reputation and basically does all that the makers claim of it. Sensitivity is high at 101dB, and varies from the maker's specification because our figure is averaged over a fairly wide band of frequencies. No power handling problems here either, although we did not run the unit at the 250w program rating due to time limitations in the lab.

In every respect, these products are of the highest quality and are fine pieces of engineering — as evidenced by the number of other manufacturers who, it would seem, copy the design features. You certainly have to pay for the quality, but I would suggest that in the case of JBL, you generally get what you pay for. In short, the product delivers the goods, and this must be the overriding concern to the professional.

ISOPHON PS 385/200 (West Germany)

Parameter	Manufacturer's rating	Test result
Power	"Musical load capacity, 300w. Nominal load capacity to DIN, 200w"	Confirmed at 200w RMS sine wave
Distortion	Not stated	3% @ 200w as above
Sensitivity	Not stated	100dB @ 1w @ 1m averaged between 300Hz and 3KHz
Resonance	50Hz unqualified	110Hz in 901ltr. IB encl.
Impedance	8 ohms nominal	5.5-30 ohms
Useful freq. response	50Hz-5KHz — graph given	55Hz-4.7KHz @ -20dB — see



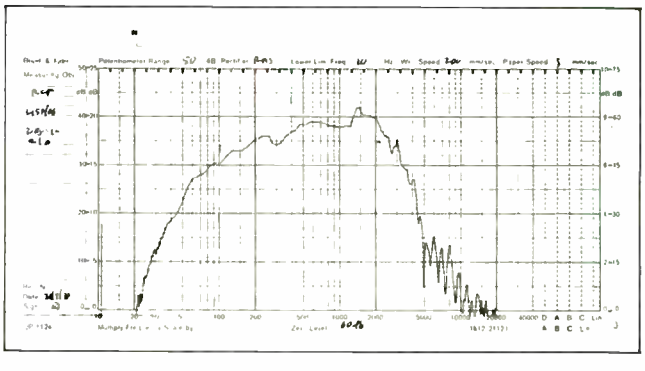
Although fabricated from pressed steel sections, this chassis is of a very substantial nature. The pressed sections are of a generous gauge of metal, and the whole assembly is well braced and is well able to carry and hold in alignment, the heavy magnetic structure fitted to this unit. It is an eight-spoked, shallow pattern chassis of the JBL general form and is fitted with a thick felt gasket for conventional mounting. A curved profile cone with paper composition dome is self-suspended, with doped, corrugated ribs formed into the edge of the paper cone itself. A black crackle stove enamel finish to the chassis and cadmium plated magnet gives an unassuming look of functional quality to this loudspeaker, which came bolted to a fibrous panel, inside a particularly substantial cardboard box.

As the table shows, the unit returned a very good set of results, with good sensitivity and confirmation of the maker's power rating at just 3% distortion. We did, in fact, try a re-test at a gruelling 300 watts RMS just to evaluate the maker's 300w musical rating, and although distortion increased rapidly to 6%, and showed other evidence of self-limiting, the unit withstood this punishment without complaint.

Altogether, a rather nice unit from a German manufacturer not as yet very active in the USA market. It is certainly at the upper end of the price scale, but from its performance and high power handling capability, this is probably justified. However, whereas a musician is usually prepared to pay these prices for a loudspeaker with a JBL or ATC label at the back, Isophon may not yet have established that market respectability necessary to command top prices.

RCF L15P/06 (Italy)

Parameter	Manufacturer's rating	Test result
Power	150w	Confirmed at 150w RMS sine wave
Distortion	Not stated	3% @ 150w as above
Sensitivity	Not stated	98dB @ 1w @ 1m averaged between 300Hz and 3KHz
Resonance	Not stated	60Hz in 90ltr. IB encl.
Impedance	8 ohms nominal	8-40 ohms (upper figure estimated)
Useful freq. response		50Hz-4.5KHz @ -20dB — see graph



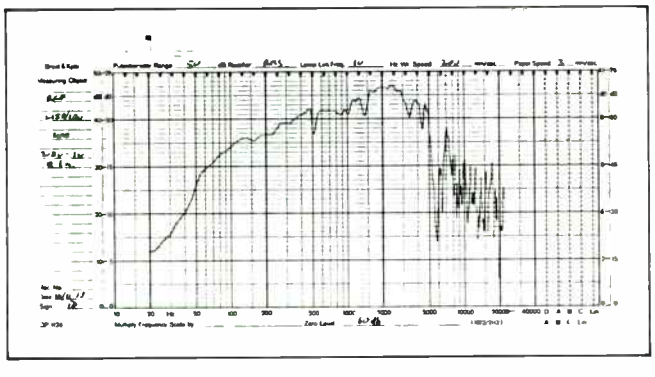
Apart from the fact that this loudspeaker is fitted with a composite paper center dome and that a differently formed cambric suspension is employed, the L15P/06 would seem to be an almost exact replica of the JBL K140. A comparison of the results table for the two loudspeakers will show that the similarity is not only confined to visual aspects, as almost identical figures were obtained. Comparing the two response curves, it can be seen that while the JBL has the edge in low frequency energy, the RCF does not suffer from the sizeable dip exhibited by the JBL at 3KHz. The JBL standard of finish and presentation is noticeably better, and the RCF has only solder tags for termination instead of the nice spring-retaining terminals fitted by JBL. If you want to pay for such refinements OK, but look at the results, and look at the manufacturing quality of the L15P/06, and decide for yourself if it is not virtually equal. Although a 300w program rating is not claimed for the L15P/06 we were invited to subject our sample to the same tests as were applied to the K140, and the unit withstood this grueling 300w test without excessive distortion. Remember, however, that this is only a short term test and must not be taken to imply that the loudspeaker will handle 300w as a rated power! A very nice loudspeaker indeed, in keeping with the quality and performance we have come to expect from RCF and at a sensible price for the moment, but the magnet is based on cobalt and will therefore be subject to market fluctuations. However, RCF have just introduced a ceramic magnet equivalent, and while I am assured that an almost identical performance has been obtained with the new magnet, we will reserve judgement on this until such time as I can individually test the equivalent models.

▶▶

SPEAKERCHECK

RCF L15P/100A (Italy)

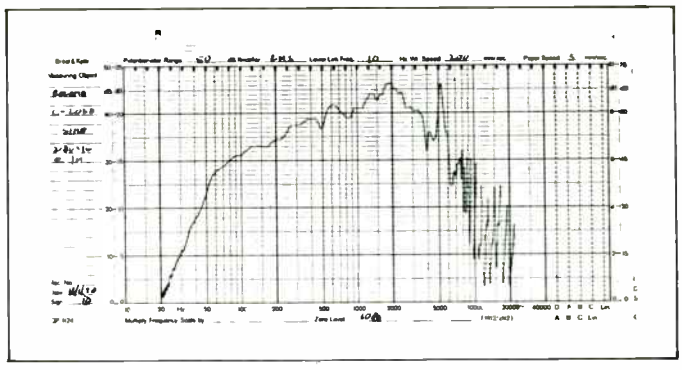
Parameter	Manufacturer's rating	Test result
Power	150w RMS	Just confirmed
Distortion	Not stated	6% @ 150w RMS sine wave
Sensitivity	Not stated	102dB @ 1w @ 1m averaged between 400Hz and 4KHz — see graph
Resonance	45Hz free air	80Hz in 90ltr. IB encl.
Impedance	8 ohms nominal	7.5-12 ohms
Useful freq. response	45Hz-10KHz unqualified	45Hz-18KHz @ -20dB — see graph



The loudspeaker is to all intents and purposes an exact replica of the JBL K130. The nicely finished cast alloy chassis is adequately strengthened to carry the weight of the magnet structure and is fitted with a light, shallow cone assembly with dural center dome and doped linen suspension. Like so many other units tested, the L15P/100A again only just scrapes through on the maker's power rating figure on account of a high second harmonic distortion of 6%, but in all other respects it performed impeccably by returning the highest sensitivity figure of any loudspeaker yet tested of 102dB. Note also the amazingly wide frequency response for a unit of this type and the exceptionally linear impedance characteristic. I begin to wonder whether RCF have somehow cracked the problem of designing a constant impedance transducer as the only other unit to contain its impedance range within reasonable limits was another RCF unit, the L12/31 reviewed in the April issue. This loudspeaker was delivered bolted to a hardboard panel and adequately boxed to ensure delivery in one piece after shipping from Italy. This is another very nice product from this manufacturer at a competitive price.

ROLAND C-2038 (Japan)

Parameter	Manufacturer's rating	Test result
Power	200w RMS	Not confirmed
Distortion	Not stated	10% @ 150w RMS sine wave
Sensitivity	104dB/w @ 1m	100dB @ 1w @ 1m averaged between 400Hz and 4KHz — see graph.
Resonance	Not stated	75Hz in 90ltr. IB encl.
Impedance	8 ohms	7.5-28 ohms
Useful freq. response	50Hz-10KHz — graph given	50Hz-9KHz @ -20dB — see graph

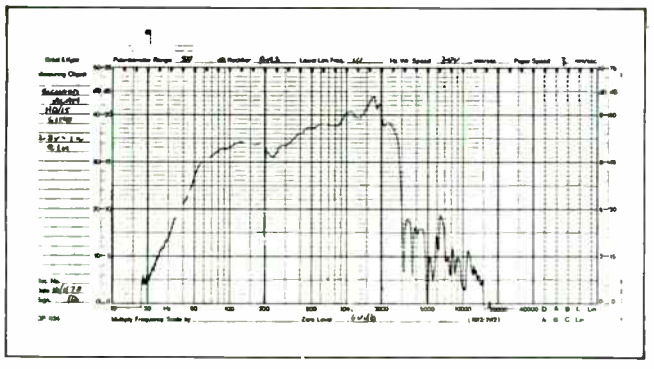


This is the only loudspeaker unit so far submitted for test from a Japanese manufacturer and it certainly is a beautifully finished and presented instrument. A superb 16-spoked, fabricated alloy chassis carries a very large magnet assembly enclosed with an elaborately finned cast iron cover, the dissipating fins of which are continued across the back plate of the magnet and up inside the rear vent passage. Whether this arrangement actually contributes in any real terms to the cooling of the voice coil is hard to say, but if it does then a huge proportion of the input energy to the unit must be dissipated as heat. As the item under consideration is designed as a loudspeaker and not an electric heating appliance, this cannot possibly aid its efficiency. Like the Gauss units, the voice coil terminations are not visible from without and the spring release terminals are found recessed among the finning on the back plate of the magnet of all places and I was unable to see (without dismantling the unit) how such an arrangement had been achieved. A shallow, textured, medium weight cone fitted with a dural center dome is carried by a fairly stiff, varnish impregnated linen front suspension. An exceptionally thick, solid neoprene front gasket is fitted for mounting to the rear of the baffle board, while a rubber "O" ring is supplied for mounting from the front of the cabinet. One problem, however, is that the chassis is of a non-standard size being considerably larger than most of its competitors and for this reason, it cannot be readily fitted to a standard enclosure.

The unit generally performed well by confirming almost exactly the maker's frequency response figures and showed an acceptable, though not particularly high, sensitivity. The in-cabinet resonance will be seen to be of a sensible order and the impedance range within some sort of reason. Then we come to the usual problem of power rating, and here we find that second harmonic distortion is in the order of 10% at any level between 100 and 150 watts and this is well outside our acceptance level. In fact, we were not supplied with a specification for this unit prior to testing and therefore were testing blind. Therefore, when the distortion reached 10% at 150 watts, we did not carry out a further test for fear of damaging the unit — there being no marking to indicate that it was in fact rated at 200w. In all probability, the distortion figure would not have increased much further than 200w, but this is only surmise based on the behavior of other similar loudspeakers under similar conditions. In any event, the unit did not meet our requirements in this respect. This was for me an interesting test, having not previously encountered a loudspeaker of this type. It is superbly made and presented and looks most impressive. Its performance is fair for a unit of its type but by no means exceptional. Its second harmonic distortion is far too high and it is very expensive indeed.

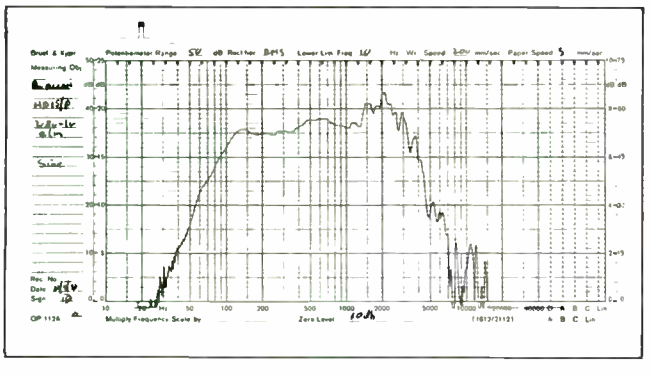
Richard Allan HD/15 (UK)

Parameter	Manufacturer's rating	Test result
Power	75w RMS	Confirmed at 75w RMS sine wave
Distortion	Not stated	3% @ 75w as above
Sensitivity	96dB @ 1w	98dB @ 1w @ 1m averaged between 400Hz and 3KHz — see graph
Resonance	Less than 35Hz	60Hz in 90ltr. IB encl.
Impedance	8 ohms nominal	8-40 ohms (upper figure estimated)
Useful freq. response	Graph given	45Hz-3.5KHz @ -20dB — see graph



Richard Allan HD15/P (UK)

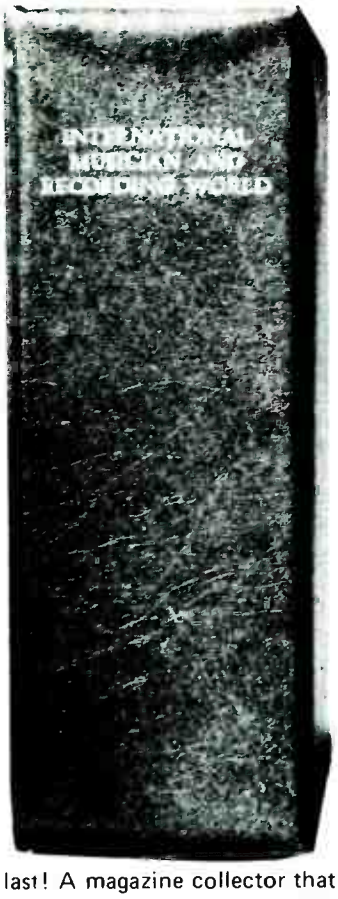
Parameter	Manufacturer's rating	Test result
Power	100w RMS	Confirmed at 100w RMS sine wave
Distortion	Not stated	3% at 100w as above
Sensitivity	100dB @ 1w @ 1m	98dB @ 1w @ 1m averaged between 300Hz and 3KHz
Resonance	85Hz free air	110Hz in 90ltr. IB encl.
Impedance	8 ohms nominal	8-40 ohms (upper figure estimated)
Useful freq. response	Graph given	60Hz-4.5KHz @ -20dB — see graph



These are the 15" versions of the new range of musical instrument loudspeakers from this small, long established family business in the north of England. We included the 12" version in the April *Speakercheck*.

A similar four-spoked cast alloy cast alloy chassis is employed for both units and would seem to be of adequate rigidity and strength. It is suitable for front and rear cabinet loading and gaskets are supplied to facilitate either method. Termination is by means o of color-coded screw terminals and fairly large ceramic type magnets are fitted which, as cobalt is not an ingredient, should ensure some price stability. The HD15 is fitted with a very nice, medium weight, deep ribbed cone carried by a particularly compliant cambric surround and fitted with a paper composition dust cover, while the HD/15P has a particularly stiff, lightweight cone, with its corrugated edge given a plasticizing treatment to form a stiff front suspension particularly suited to musical instrument application. Both loudspeakers have a nice substantial "feel" about them and can be readily identified by the unusual mounting lugs protruding from the front rim of the chassis, and by the bright red felt front gasket.

Performance in both cases is first class, with the maker's power ratings confirmed at low distortion figures, good sensitivity at this price level and a useful frequency response, although one would be justified in looking for an improvement in the top-end response of the HD/15P if it were to be used on its own as a musical instrument ▶▶



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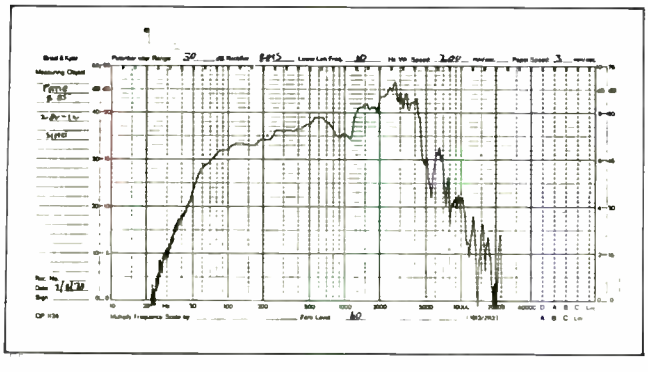
SPEAKERCHECK

loudspeaker without any support from horns, etc. The considerable difference between the maker's free air resonance figure of 35Hz for the HD15 and our in-cabinet figure of 60Hz is almost certainly due to the fact that a loudspeaker with a particularly soft suspension will not be used to any advantage in an infinite baffle enclosure of just 90ltrs. and I would advise care in the method of use of this particular unit. The unit should be housed in a larger than usual, particularly air-tight infinite baffle cabinet or in a properly designed tuned reflex enclosure in order to prevent excessive cone travel under high level drive conditions. Failure to observe this precaution will result in early failure of the unit, and in any event, I have reservations over its use for bass instrument applications. Used properly as the low-frequency reproducer of a two or three way PA or disco system, it should perform very well indeed. There are, however, no such restrictions with the HD/15P, which is suitable for most general pupose instrument/PA applications and is nowhere near as "fussy" as the HD/15.

I rather liked both units, especially at the present prices.

Fane Bass 85 (UK)

Parameter	Manufacturer's rating	Test result
Power	85w RMS	Confirmed at 85w RMS sine wave
Distortion	Not stated	3% @ 85w as above
Sensitivity	Not stated	99dB @ 1w @ 1m averaged between 500Hz and 5KHz – see graph
Resonance	45Hz	75Hz in 90ltr. IB encl.
Impedance	8 ohms	7.5-25 ohms
Useful freq. response	40Hz-7KHz unqualified	60Hz-7KHz @ -20dB – see graph



This loudspeaker is built on a larger version of the standard cast alloy chassis which we have come to expect from Fane over many years. Apart from being unsuitable for mounting from the front of the baffle panel, it is a good chassis and is of adequate strength and rigidity except where very large magnet assemblies are carried — as for example with the high power Crescendo range. For the Bass 85 it is more than adequate and is nicely finished and presented. An apparently untreated linen front suspension is employed and the cone is fitted with a linen dust cover — again painted silver. This practice really bugs me. I know that for certain applications, a dural center dome will enhance mid range bite and attack, but surely, it has not become so to the extent that a musician will be tempted to buy a given unit or cabinet just because a silver paint treatment to a linen dust cover gives an imitation metal dome look!

The unit performed well, and because of the low distortion at the rated input power we re-tested at 120 watts and distortion increased to 5% at this level. The sensitivity is certainly of the higher order for a "standard" loudspeaker and the maker's response figures were confirmed. Another nice product from this British manufacturer, giving good results at a sensible price.

On Guitar

Continued from page 11

guitar and which string or strings to pluck. This takes time, maybe just a fraction of a second. Pick out a piece you've played before and let's try something. Play the music and only look at the note being played at the time. Keep the tempo consistent and notice if you start to lag or even stop. What's happening? You're upsetting the cycle by not being ready to play the next note. Time is catching up with you. Try it again, only this time force yourself to look a note or two ahead. Now what do you notice? If you're doing it right, you will have less of a tendency to "goof" and be able to keep a fairly constant tempo. Why is that? What's happening is you're taking up that little slack in time between looking at the note and playing it. You're looking at the very next thing you will be playing and by the time you play it you're working out the next note, where to play it, etc. Do you see how this works? Reading ahead is one of the most important aspects of sight reading. Also try to look at a group of notes, not just one note at a time. If you have whole notes and half notes, you can read a whole bar ahead. If you have eighth and sixteenth notes, you can read one or two beats ahead.

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

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

On Sax and Flute

Continued from page 17

round the "oo" shape of the lips trapping the mouthpiece from all sides.

The tongue plays an important part as the bottom of the resonating cavity, and it also acts as a switch to start and stop the reed. The thick back part should rest normally in the mouth while the tip is concerned with controlling the articulation of the reed. The end of the reed is stopped from vibrating by the tip while air is pressurized by the diaphragm to provide a supportive column. When the tongue is released the pressure causes immediate vibration and speaking of the reed till it is replaced. Air is taken in with the teeth on the top of the mouthpiece by dropping the lower jaw and lip away from the reed, the lungs are filled by distending the abdomen, sucking down the diaphragm, the embouchure is formed and braced all round the mouthpiece and then the pressure is applied to the air column by the diaphragm which will be felt as pressure on the cheeks. This concept of pressurizing the resonating cavity before removing the tongue to sound the note is important if real control is to be achieved. All too often, you see a player puffing each note of a riff with a separate breath – which not only leads to dizziness but destroys the attack of each note. The throat becomes the start valve and has a much less staccato effect than the tongue. The result sounds very sloppy, for the removal and replacement of the lips in rapid succession means that the tuning will probably be inconsistent as the pressure of the lips varies for each one. This should be avoided at all costs as no instrument should be allowed to run out of control in this way.

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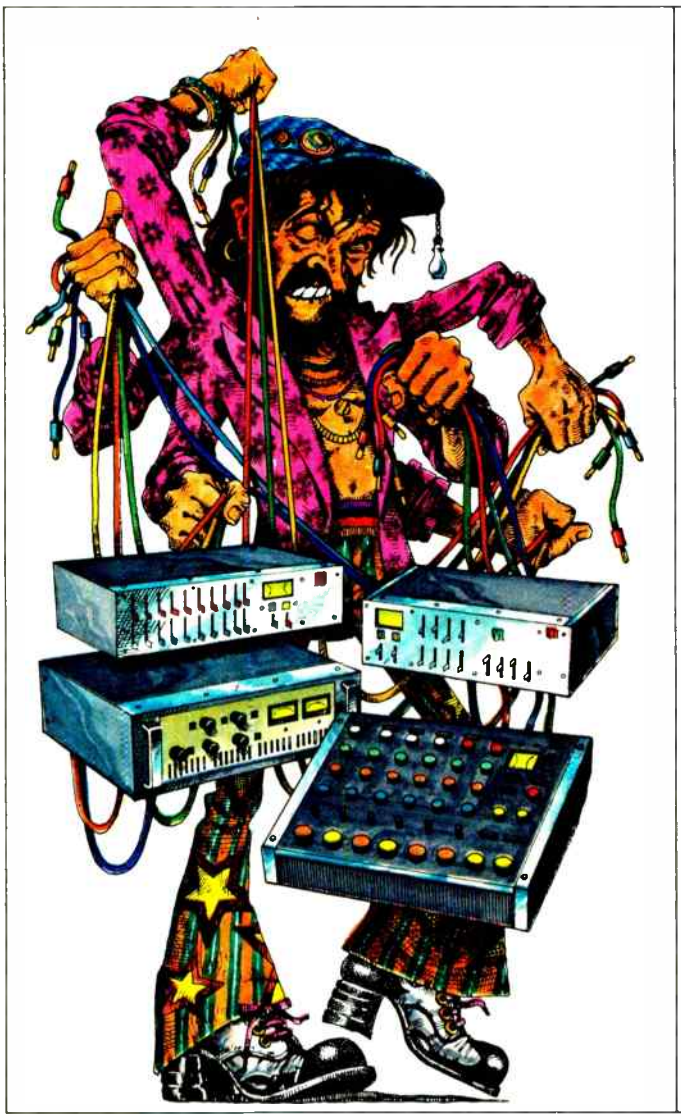
THE LONG AND THE SHORT OF SOUND REINFORCEMENT.



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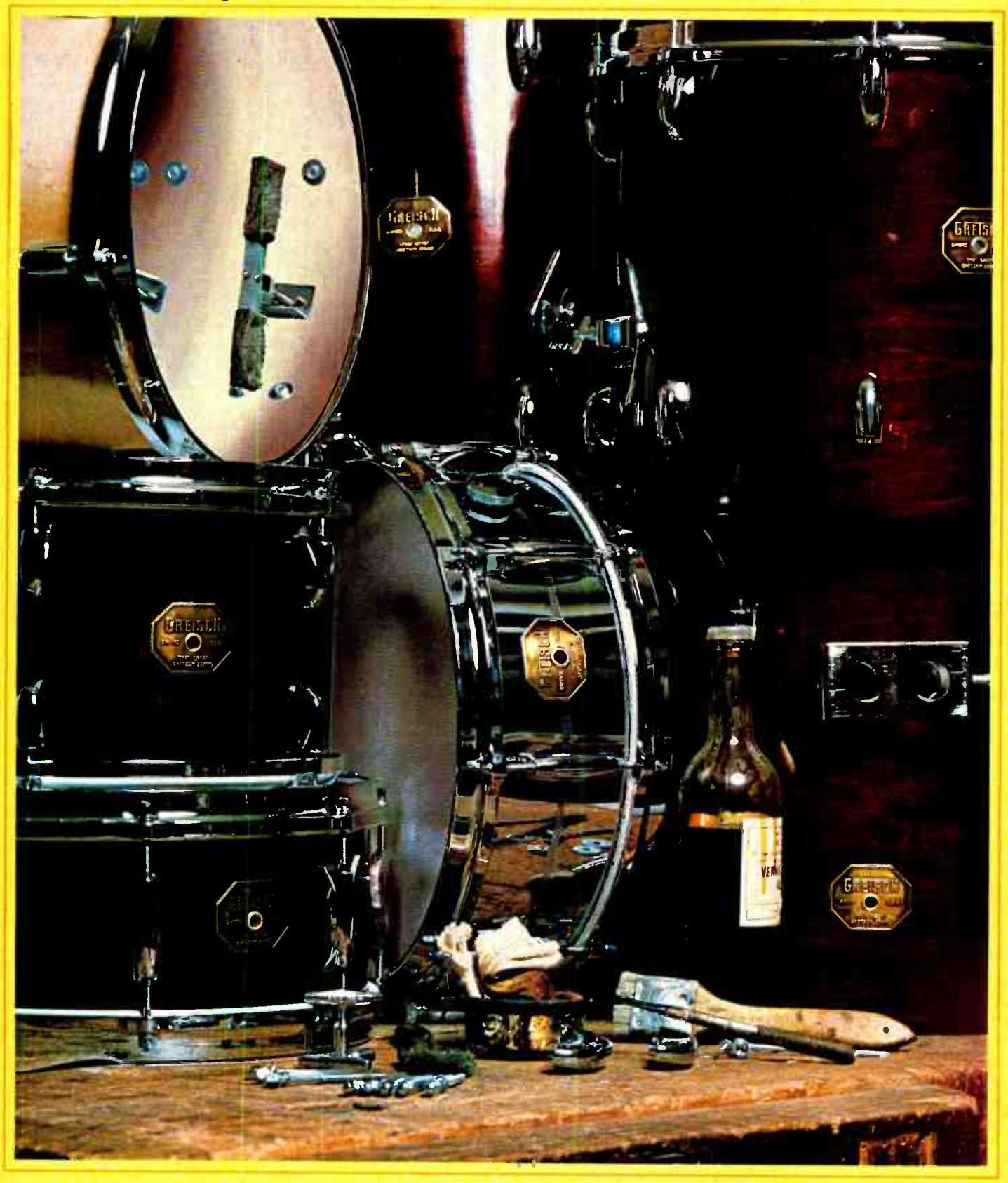

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RECORDING WORLD

Nashville

If I were asked to vote for an "Album To Look Forward To" at this point, it would go to a pair of albums—one gospel and one secular—recorded recently at Jack Clement Studio by **Johnny Cash** and producer **Brian Ahern** (as in **Emmylou Harris** and early **Anne Murray**) with Clement staff engineer Billy Sherrill at the board. An intriguing story about that series of sessions has to do with **Roy Acuff** insisting for quite some time that 18-year-old **Alissa Jones** bring her hammered dulcimer to the Grand Ole Opry sometime when she's singing with **Grandpa** and **Romana** (she calls 'em Dad and Mom). Well, Roy made space for her one night on his segment. Alissa played and next day she got a call from Brother Cash asking her to play on a couple of his sessions—just in case you think nobody listens to the Opry anymore, Johnny Cash obviously does. Further recent activity at Clement includes **Bobby Bare** with **Bird Burton** (formerly of the **Amazing Rhythm Aces**) producing and Gary Laney engineering; a hair-raising album by the **Earl Scruggs Revue** with Larry Butler producing and Billy Sherill engineering; **Sonny James'** first album for Monument with Fred Foster and Charley Tallent doing the honors; and the soundtrack of "The Villain," an upcoming **Kirk Douglas** film— **Bill Justis** arranged and produced the track for Raystar Films-Engleberg Productions. Clement Studio also got an award this year from Pro Sound News for producing three of the twenty top grossing albums in country music. The artists? **Kenny Rogers** on all three! . . .At press time **Carol Baker**, the Canadian country belter, was set for some recording at Woodland Studio that is to be filmed for a TV movie, in between sessions by **Dorothy Moor**, the **Wilson Brothers** and **Slim Whitman** . . .**Nancy Brooks** has virtually moved into SoundShop under the auspices of Arista Records—makes it handy that her husband, session drummer **Clyde Brooks**, is co-producer along with **Ralph Childs**, who's been known to play bass on a few sessions. Also at SoundShop: **Bill Anderson, John Wesley Ryles, T.G. Sheppard, Ronnie McDowell, Kenny Dale** and **Lobo** . . . .

K.C. and The Sunshine Band have been mixing two albums on the new Neve board at Soundstage. Producer Jimmy Bowen has also cut **Tricia Johns'** initial Elektra product there, **Mel Tillis** was in to do a soundtrack, Jerry Crutchfield produced sides on **Pam Miller**, and strings have been added on sessions by **Gwen Owens** (a new Wishborn discovery out of Muscle Shoals), **Roy Orbison** and **Wayne Newton.**

San Francisco

The studios around the Bay Area have really been cookin' with Tres Vergos Studios out in Mill Valley playing host to **Bill Kirchen and the Moonlighters** (ex-**Commander Cody** people). **David Shorey**, currently bassist for **Mike Bloomfield**, has also been working there with assistance from Bloomfield and drummer/percussionist **Keith Knudsen** (of **Doobie Brothers** fame) . . . In Richmond, Tewksbury Studios, after expanding to 24-track, has been putting down the music of **Grayson Street**, the **Psychotic Pineapples** and Marvin **Holmes**. . . Xandu Studios, in the City, has seen **Harvey Scales** working on his latest effort for Casablanca Records as well as **Frank Sousa** (ex-**Van Halen**). . . 1750 Arch Studios, in Berkeley, has had **Mark O'Connor** putting the finishing touches on his LP for Rounder Records with a guest appearance by bluegrass mandolin wizard **David Grisman**. Violinist **Frank Foster** has also been in the rooms working on the studio's own label as has **Art Lande** and his **Rubisa Patrol** . . . David Rubinson's Automatt has bosted **Greg Douglas's** (ex-**Hot Tuna** and **Steve Miller Band**) **Mistress** in its computerized studios along with EMI artists, **Spellbound**. . . The **Tasmania Devils** have been cutting tracks at Bear West Studios. . . Different Fur, meanwhile, has had owner **Patrick Gleeson** working on the soundtrack for **Francis Ford Coppola's** "Apocalypse Now." The music will be totally synthesized reflecting Gleeson's reputation as one of the industry's top synthesizer people. . . **Ron Carter** has been using the rooms at Fantasy Records in Berkeley for his latest album for the Fantasy label: **Chick Corea, Joe Henderson** and **Tony Williams** have been sitting in. . . Sonoma Recording, in Santa Rosa, has been hosting **Pee Wee Ellis** who's doing his latest album and **Berry Melton** (guitarist for **Country Joe and the Fish**) who's been working on a solo project. Ex-Spirit vocalist, **Al Stahley**, is back as well putting the finishing touches on an LP—with help from **Peter Sears** and **Marty Balin** . . .At Wally Heider/Filmways, the **Tasmanian Devils** have dropped in making use of two Bay Area studios and **David Crosby** and **Graham Nash** have been doing the final production touches on their latest, this time for Rudy Records. **Greg Kihn** is also finishing up his effort for Berserkley Records.

Chick Corea

On The Record

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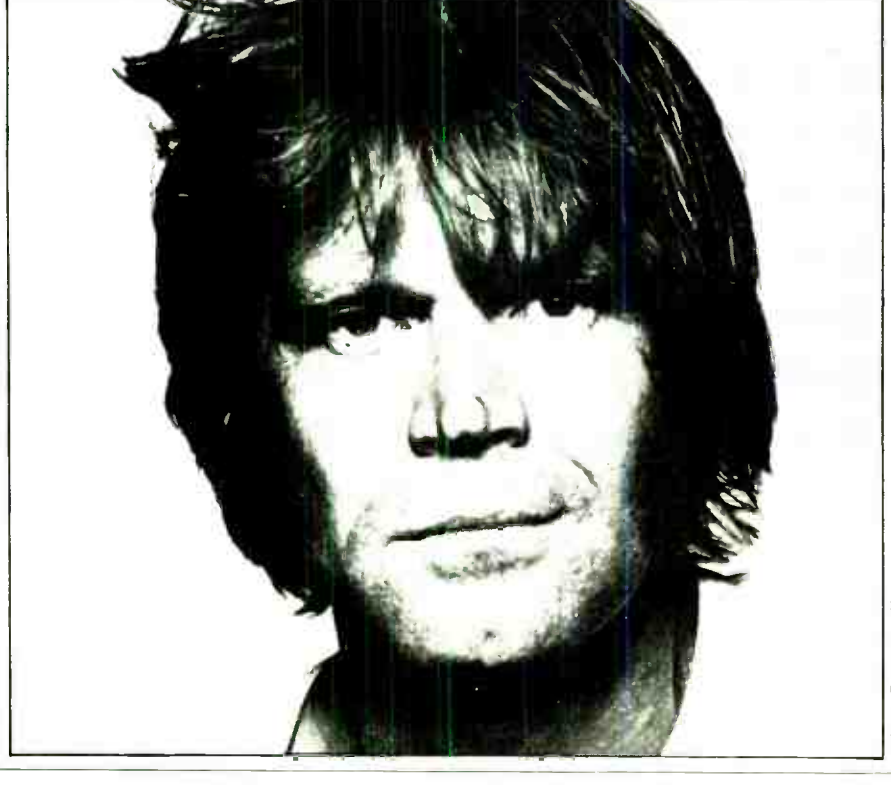
RECORDING WORLD

Los Angeles

LA's on the hop with **Leonard Cohen** in the A&M studios working on a project for Columbia. Also in the A&M booths are **Joni Mitchell** for **Elektra and Lani Hall** who just polished off an album . . .At Capitol Records Studio the mixture of talent is diverse with **George Benson** doing remixes and overdubs for his Warners release. **Glen Campbell** doing overdubs and **Paul Anka** doing a live orchestra gig. A new group for Capital, **Surrender**, is also recording there — as is **Ben Sidrin, Caldera** and the **Savannah Band . . . Neil Young** is mastering and mixing his Warners disc at Gold Star Recording while **Don Randi** and **Legs Diamond** have each finished their albums there . . . **Ronnie Hawkins**, along with members of **The Band**, is doing an album at Larrabee Sound where **Sparks** just finished working . . . At the Record Plant, **Aretha Franklin** is wrapping up her album for Atlantic and **1994** is putting down some tracks there. **Survivor** is also working out of the famed studio as is **Mark Stein . . . Chuck Mangione** has finished mixing his live album and begun work on his next studio disc for Atlantic at Westlake Audio. **Quincy Jones** is also at Westlake producing **Michael Jackson** and the **DFK Band** as well as **Valerie Carter**, are also putting in time there . . .Sunset Sounds has a varied lineup working out of its rooms including **Frankie Vallee, Nancy Wilson, Max Growenthal, Rita Coolidge** and **David Cassidy** . . . Over at Filmsways/Heider Recording **Peter Frampton** is working with producer Chris Kimsey on his newest. **Zazzo** and **Lee Ritenour and Band,** as well as **Sylvester** and **Martin Mull** are also working in the Hollywood studio.

New York

At Chelsea Sound Studios, the **Ramones** are putting the finishing touches on the soundtrack for their upcoming movie, "Hollywood High School," a Roger Corman AIP pot-boiler destined to carry on the tradition of classic teen epics. Others sharing Chelsea's facilities include new artists like **Paul Griffin, John Loeffler and Chris Evans** . . .At the Hit Factory, always a center for big time recording activity, **Daryl Hall** and **John Oates** are hard at work on their next biggie for RCA. **Tim Curry**, of "Rocky Horror" fame, is recording an LP for A&M records and **Kenny Passarelli,**former bass player for **Elton John** and others, is finishing up a solo LP project. Other bands working at the Hit Factory include the **Savannah Band** and **Sam The Band**, a new group on the Casabalance label . . . Columbia Recorders, home studio for many top CBS acts, is playing host to a rather unlikely assortment of talent that includes jazz trumpet player **Freddie Hubbard, Blue Oyster Cult, Meatloaf & Co. Ronnie Dyson** and **Irakere**, a new Cuban band featured at the recent Cuba/US music festival. Columbia's unique new "discocomputer" master-



Glen Campbell

Ramones

ing system is currently being used by **Candi Staton, GQ, John Farrar, Gato Barbieri** and **Emigre** for their new disco singles. . . Electric Lady Studios, original brainchild of **Jimi Hendrix** and pulse of the village recording scene in New York, has recently been put to good use by the venerable singer **Brook Benton**, as well as jazz great **Idris Muhammad** and the rock group **Siren** . . .At Sound Ideas the legendary mastermind of funk **George Clinton**, is hard at work with **Bootsie** on some guitar and vocal overdubs for Parliament/Funkadelic. **Art Pepper** is working on an album with talented players like **Al Foster, Sonny Stitt, Hank Jones** and **Ron Carter** dropping by to lend a hand. **George Coleman** and Dutch pianist **Rein De Graff** have LP projects and **Richie Havens** — you remember . . . Woodstock, the Sixties! — is recording some vocals for a full-length feature film documentary . . . Mediasound hosting **The Shirts**, whose lead singer **Annie Golden** just scored a media coup with her role in the movie version of "Hair," for a new Capital LP produced by **Mike Thorne. Aerosmith** working on new tracks with producer **Gary Lyons** at the helm while, a few doors down, **James Taylor** is crooning his way through some vocal tracks for a new **Warner Bros.** LP. **Mick Ronson**, working primarily as a producer, has just finished **David Johansen's** latest album as well as collaborating with **Ian Hunter** on **Ellen Foley's** (she's supposed to be a *big star* on the horizon) LP for Cleveland International records.

Electric Lady heads for the Eighties

STUDIO OF THE MONTH

Through good times and bad, Electric Lady Studios has always enjoyed a high profile within the music industry due to its association with Jimi Hendrix. Though its history has included periods of severe mismanagement and neglect, the studio's new owners, financier Alan Selby and former Atlantic staff producer Raymond Silva, are intent on creating a renaissance of sorts at Electric Lady. "This place was one of the mainstay studios in the Sixties. We want to make it *the* place to record in the Eighties," said Selby.

A History Review

The studio's connection with Hendrix is universally known. The details, however, are not as well known. The studio was created in the mid-Sixties as the brainchild of Hendrix, manager Michael Jeffries, engineer Eddie Kramer and John Storyk. Before its construction, the site was a nite club owned by Rudy Valli. Hendrix' original idea was to keep it that way and use it as a place where he could casually perform for fans and jam with friends. Kramer, Hendrix' engineer at the time, noted the high ceiling and sprawling layout and realized the potential of the building as a studio. Hendrix eventually agreed to the conversion into a studio where he could work on his music. Studio A was to be his play room while Studio B was to be for hire on sessions. Kramer, who has since become established by producing such rock acts as Kiss and the Stones, worked closely on the studio with architect John Storyk (who has since become one of the leading designers of studios). Hendrix, of course, used the studio only briefly. As a result of his death the studio passed to Jeffries. Jeffries died soon after in a plane crash and the studio passed to his estate.

Until recently, the studio remained in the hands of the estate which ran it through a series of managers, many of whom were less than efficient. About 1½ years ago, Selby and Silva bought the studio and have moved quickly to upgrade the services offered and changed Electric Lady's image.

A Facelift in Progress

As Selby explained it, "We intend to expand all the resources here. The studio is undergoing a complete facelift. If this is to be the studio of the Eighties, many remaining vestiges of the Sixties will have to be removed. First, the studio's 'purple haze' carpeting and accompanying red walls will be replaced by more subdued hues." On a comforting note, however, the famed space mural will remain on the lobby wall. "Many musicians like it and, after all, it does remind one of the presence and influence of Hendrix," explained Selby.

Other layout changes include the addition of a two-bedroom cottage in the building's backyard, for use by clients. "Many musicians still like the feel of the Village and this will give them an opportunity to stay close to it and the studio while they work. The cottage has always been there, but it has never been used as a place for clients to stay. We will also be converting the roof into a garden patio so musicians can get a breath of fresh air in between licks."

In addition to expanding outward and upward, the studio is expanding inward: an additional studio is being added on the third floor of the building. It will serve as a mixing room with a small room for overdubs. The room is presently being designed by John Storyk and Westlake Sound in a unique collaboration between the renowned architect and one of the top speaker designers.

The Studios

Walking through the main corridor of Electric Lady, one notices a number of tape recording machines lined up. As Selby explained, "We are updating all the studio equipment. Studio A, which is the largest of the three, has a Neve 807A console which is soon to be computerized. The 24-track MCI machine will be replaced by a 3M 24-track model. " All control rooms use Westlake monitor systems and 2 and 4-track Studer tapes. Studio A's 25 foot ceiling and half-carpet/half-wood floor give it what some consider "the best electric guitar sound around."

Studio B is smaller. Selby described it as a "tight little room" and noted that most jazz and disco groups working at Electric Lady prefer Studio B. Recent users include Joni Mitchell, who completed her tribute to Charlie Mingus there. The floor is all wood and the walls are carpeted for dampening. The console is a Neve 806A board which is slated to become automated shortly.

Studios A and B have an extensive array of outboard equipment including DBX 160's, two LM limiters per room, MEQ and PEQ equalizers, Clark-Technic Equalizers, Phaser, Flangers, two Digital Delays per room and four ▶

Kepexes. The studio's seemingly vast supply of mikes include 18 Neumann U-87s and an old reliable Neumann U-47 tube mike. Instruments which are always on hand include two Pearl drum kits, a Steinway grand, Yamaha upright, two Fender Rhodes electric pianos, a Polymoog, two Hammond organs (B-3 and C-3), two Fender Twins (B-16 and B-18), a Fender Super-Six and various Marshall tops and bottoms.

Selby and Silva seem an unlikely alliance at first. Selby owned a loan company and had limited knowledge of music. Silva, with 13 years of experience in the music business, however, supplies the vast musical background in the partnership. After working as a DJ in Puerto Rico, Silva expanded into management and promotion. It was then that he became friends with guitarist John McLaughlin lin. McLaughlin convinced Silva to come to New York. After landing a job with Atlantic Records there, Silva developed a reputation as a top producer working with such musicians as Roy Buchanan and Charlie Mingus. "Working at Atlantic was the equivalent of going to the best 'college' possible for this business. With teachers like Arif Mardin and Jerry Wexler, I learned fast," said Silva. Under his guidance, the studio is now establishing a production company, Electric Lady Productions, which will produce and develop new talent. Between the production company, interior facelift, expansion of facilities and equipment overhaul, Electric Lady, famed studio of the Sixties, is quickly developing its stature as the studio of the Eighties.

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TONY VISCONTI

THE PRODUCERS

Tony Visconti is noted for the wide variety of his work from Marc Bolan, David Bowie, Ralph McTell and Osibisa to the Steve Gibbons Band and Thin Lizzy. His most recent work has included the highly acclaimed Bowie albums *Low*, *Heroes* and *Lodger* and the remarkable double live album, *Stage*, recorded on Bowie's recent world tour.

Tony was born in Brooklyn, New York, of Italian extraction and first became interested in music when his father bought him a ukulele for his fifth birtday. He later took up classical guitar and string bass and from the age of 13 was playing in local New York bands.

It was only when he started making demos that it was suggested he might have a future in the production side of things. Tony was taken over to England in 1967 by Denny Cordell who at that time was producing Procol Harum, Joe Cocker, Georgie Fame, Denny Laine and The Move.

His initial six-month stay became indefinitely extended, and the Anglicizing process was complete when Tony married singer Mary Hopkin. He now has his own studio in Dean Street, London, where he finished Bowie's live album.

He had studied arranging back in New York, and this led him to making his first mark on the British recording scene.

"My first year there was spent sitting by Denny's (Cordell) side learning how to produce from him. The very first arrangement I ever wrote was *Flowers In The Rain* and that helped to secure my job.

"Denny said it was too sluggish, and the backing too plodding but I loved it and I asked him to let me have a go. It cost just $80 for four session musicians in those days, so I had four woodwind players and wrote out the parts for them.

"Because of my background I never stuck to one thing. I had training in all kinds of music and was willing to try anything out. In that year I met Marc Bolan and David Bowie, and no-one would touch them; they just couldn't get contracts, no one would give them a listen because they were so radical. I did all their early recordings and Marc proved to be the more immediate success.

"David wasn't so easy to get off the ground, he was even more radical than Marc and we tried so many different types of records. Finally we got to do the first album for Mercury which had *Space Oddity* on, which Gus Dudgeon produced. I didn't like the song – I still don't. Gus was always keen to work with David, so I told David and they had a hit together. To my surprise David came back and said, 'OK, now let's get on with the album.'

"Anyway, David and I made another album, *The Man Who Sold The World*, which again was pretty revolutionary. It just went down, even Mick Ronson was getting discouraged, we were all getting discouraged and I had to think about my bank account which was down to almost nothing, and the T. Rex money wasn't bringing in anything. Half of my income in those days was from playing on other people's records and writing arrangements, playing bass and guitar; I also play recorders and all the strings. I said I would concentrate on Marc, and David was more or less ready to pack it in anyway which he did and lived on the royalties of *Space Oddity* for about a year and a half. Then he came up with *Hunky Dory*, by which time David and I were no longer friends."

Marc Bolan was one of the most important figures on the rock scene during the early Seventies, because almost single-handedly he re-introduced the idea of a glamorous "pop star." He went from an acoustic cult band to an electric pop superstar who burst out of the somber Progressive/Heavy Metal scene and paved the way for good quality hit singles and "glam rock."

Tony worked with Marc from the beginning, and produced every record for him up to *Truck On Tyke* . To many people, Bolan had virtually changed overnight to his pop star image, and he was accused of selling out to commercialism. Tony offers an interesting insight into this fascinating period.

"He used to monopolize on his good looks and his voice and he obviously had a flair for poetry. His musical abilities were limited but he had all those other things going for him, and he very cunningly saw that Flower Power was dying, that wasn't the way to do it, and he just saw the right moment. Everyone was walking around with long hair, jeans and all that and he said, 'I'm going to put on a glitter suit and get an electric guitar,' which he had been playing for years, incidentally."

Still the jump from producing records for a cult "underground" audience to top 20 hits would seem a big one. The early T.Rex hits certainly h had a distinctive sound, which Tony

a great share of the credit for.

Tony explained that he and T. Rex were always trying to make hit records, for instance like Biddu. "Incidentally, I produced Biddu's first record in 1967 when he was trying to make it as a singer. There is that way of doing it, by getting a guy to write out the arrangement, make it as obvious as possible and slam away the disco beat. In the time I was producing Marc there were formulae like that flying around, we could have done it that way.

"But it is my policy to work with unusual people. I think eventually the unique people will go right to being cult figures. I stuck to my guns and the few people I have invested my time in have made it.

"So we were trying in our way with all those weird singles like *King of The Rumbling Spires* – they were attempts at number one records. The only difference on *Ride a White Swan* which made it, was that for years I was asking Marc to use some strings. He heard some of the strings I was writing for The Move and he said 'OK, do your stuff on this one – but keep it simple.'

"I asked my boss, David Platz, how many strings we could afford and he said four, so we had these four violinists putting that little glistening thing on the top and that seemed to do it. On the radio it sounds good to have a very high sound, a very middle sound and a very low sound, whereas the T. Rex sound was all middley, there wasn't even bass on. I think *Ride A White Swan* was the first record that we had bass on.

"Marc always had it in him to make hit records, he just needed the right elements and finally we invented the T. Rex formula. *Hot Love* had more strings on it and backing vocals with Flo and Eddie, in fact I have got an hilarious tape of them doing it."

The formula proved incredibly successful with a whole string of top ten hits, but just before *Truck On Tyke*, Tony realized that things weren't going to change and Marc's popularity began to wane. Despite this, he remains convinced that this trend could have been reversed if Bolan had gone back to an early demo he had made called *The Children of Rahn*, which Tony says could have been a rock epic in the "Tommy" mold.

Tony is probably best known today for his current work with David Bowie. Bowie has been through many changes in his career, almost always managing to set new trends, not only visually but musically. *Low* and *Heroes* saw Bowie at his creative and imaginative best, experimenting with new sounds and ideas, the latter being widely acclaimed as the album of the year.

Tony resumed working with David on the *Diamond Dogs* album. "One day he phoned me up and said, 'I never had more fun than making *The Man Who Sold The World*, that was the best album I ever made, please come back and work with me.'

"I was very flattered and honored, and we have been together ever since. The only album we didn't do was *Station to Station* and that was because it was a rush job. He had to do it while he was in California making the film *The Man Who Fell To Earth*, so the album took about a week and a half to make.

"Doing his live album was an incredible job. I recorded four nights, two in Philadelphia, one in Boston and one in Providence, Rhode Island. David trusts me so much that he said, 'take the tapes back to London and mix it.' I said, 'don't you want to be there?' and he said, 'Tony, I trust you'.

"So I set the mixes up. He would often be late to the studio and he would come in and would hear how the mix had progressed and say, 'that's marvellous, just a little bit of this and a little bit of that' and he'd sit down and finish off the mixes with me."

On the albums, Tony is credited as a co-producer with David which would suggest a particular working relationship between the two. "It's hard to define what a producer does alone, but a co-producer in this sense is that David feels very strongly about, say, the musicians he wants to use – and he is paying the bills. He therefore has every right in the world to call himself a producer because technically that's what a producer is. He gets me in more on the creative side, whereas I don't have to worry about the studio costs, booking the guys and all that. It is his side that flies all the musicians in. In that sense he is producing.

"Of course an artist of his stature who has produced hits for Lou Reed and all that, I don't mind sharing producing credits with. It's very valid. In the case of young bands who don't know anything about studio technique, I am the total producer. I'm technically a co-producer with Thin Lizzy as well because before I joined them they had already made four or five albums and they're pretty keen on their studio technique. What they need is me in the control room while they are out there, and again they are paying all the bills, flying me all over the world to produce their records so I'm not put off by co-producing."

Recording with an artist of Bowie's stature and vision would obviously tax any producer to the limits, the *Low* and *Heroes* albums, for example, have a pervading stark, almost funeral-like, feeling. This poses the question of just how that was achieved, was it carefully planned, was it Bowie's idea and if so how did he manage to translate it to his producer?

"This is where David excels as a producer, he actually stages an album, the whole thing was calculated. We started *Low* at The Chateau studios in France, and he purposely stuck us out there. Let me describe the little village to you.

"You are in the middle of a hostile little village, they hate British people there, they refuse to speak English even though they all can, the staff were pretty unkind to us, and it was 13 or 14 miles from Paris. There is no motorway either, it's a good two hours to do those 13 or 14 miles so we were stuck out there.

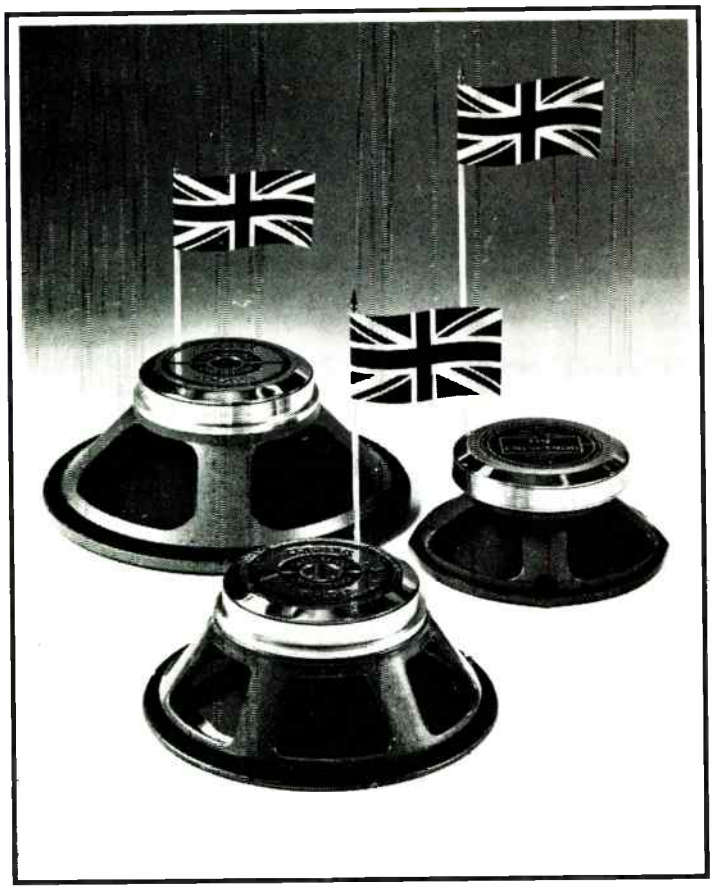
"David knew all this. He knew the place had fallen into a shambles and there was a sort of decadence about that studio. The studio was very poorly maintained, sometimes I'd be recording at a level and then start noticing things on the playback and I'd say, 'when was the last time this machine was lined up?'. Then I'd say, to the only person who would speak English to me, 'get a maintenance engineer, quickly, I want that machine lined up.' He'd say, 'this is impossible, he left on his holidays two days ago.' It was a good job I knew how to line up the machine.

"The decadence was there, the walls were literally crumbling and the studio was crumbling. Our one meal of the day would be something like rabbit or eels. We were getting drunk quite a bit just to compensate. Finally, it came to a peak when David and I got food poisoning and were bedridden for three days.

"We got out of there after three weeks, and went to Berlin to finish it; a lot of Side Two, the instrumental side, was done there. I'm surprised Eno doesn't get a producer's credit, because a lot of that time we'd just leave him alone. He said, 'look, I work best with my synthesizers all around me, just show me how to work the remote control unit and I'll work when I'm inspired.' He writes his music out on graph paper, he's got all sorts of diagrams, he is a real genuine modern composer. Quite often we would just leave him for a whole day and he would come up with a backing track, like *Warszawa* for instance."

Tony said the *Low* album was terrific to work on, but it very nearly didn't get made because it was far too radical for many people's tastes.

"At the beginning of it all, David said, 'I'm going to do something so



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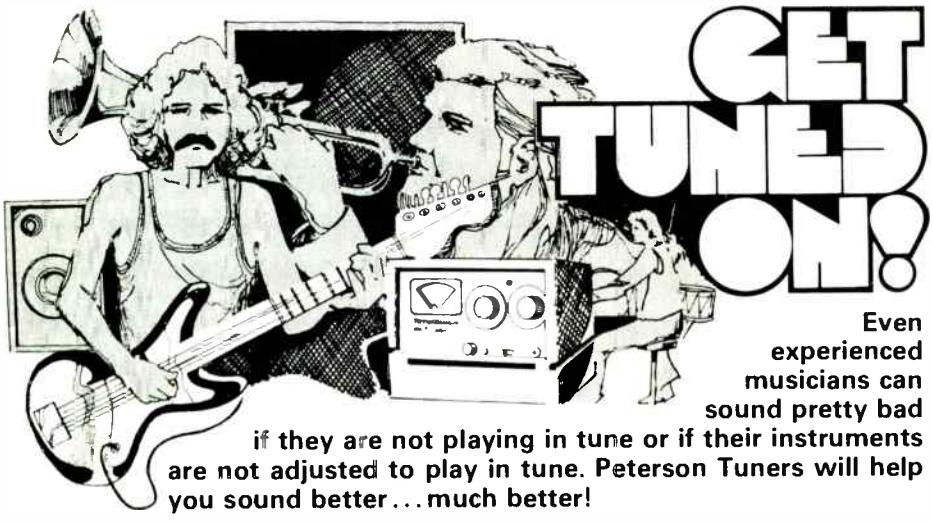

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radical that it's probably not going to be released, are you willing to waste a month's time? It might prove to be the best album I ever made or the worst, because I have never done this before but I am sick and tired of being a rock star and I have this desire to compose music a bit deeper.' The guy was writing terrific songs anyway, and here he wants to really go off it. I said, 'Of course I don't mind,' he really said, 'You might waste a month of your life.'

"Anyway, we did it, and RCA hated the album, but David and I loved it, we knew we had done something good, and he didn't care how many fans he would lose – he knew he'd lose some.

"He really ran into opposition, but I'm glad David stuck to it. Then after *Heroes* made it, they called him Musician Of The Year and that stuff goes down so well now on stage, the kids really love it, they are really quiet, those numbers sound even better on stage."

The success of the *Low* and *Heroes* albums has put the Hansa studios in Berlin on the international recording map. Bowie was living in Berlin at the time and had looked around several of the local studios before deciding on Hansa. Tony had never worked in Germany before, and had rather a stereotyped image of the people, but he had nothing but praise for the staff at Hansa.

He said, "The people there were fantastic, engineer Eduard Meyer showed me the desk the first couple of days we were there, because David had insisted that I was engineer. In Germany all the engineers have to go to university for four years and I felt a bit embarrassed about pushing him out of his chair, but he was great.

"The room at Hansa, where we recorded *Heroes* is like EMI's number one studio, you can shove 150 musicians in there and that accounts for the big sound. I had two boom mikes about 100 feet from the stage soaking up the ambience, and we used those mikes on every track on *Heroes*, the band tracks not the synthesizer tracks."

Inevitably, Tony has come up against musicians who have been difficult to work with. "I've had one or two guitarists – it's usually guitarists and bass players who are really not aware of their sound. It's because they are partially deaf from playing at high levels on stage.

"I've got one guitarist who uses two Echoplexes, and on Echoplexes he uses WEM Copicats. He uses one as a pre-amp to drive the next Copicat, and there is more hiss coming out of his Marshall than there is music. The guy, quite honestly, cannot hear the hiss. He looks for a certain sound and he hears it. It took me a long time to discover that I had to hear the sound through his ears to know what he was going on about, because he cannot hear the hiss or the fuzz when he is hitting the low notes because his amplifier is clapped out."

His work has taken Tony all over the world, and into many different studios but he does insist on certain basic requirements. "I usually phone up beforehand and ask them what they've got. I also usually work in Westlake/Eastlake designed studios because I know they are the most reliable. I am not 100 per cent in love with them but they are built to a world standard.

"I prefer to work in my own studio because I made it myself to my own tastes. We are getting a new desk in soon, but this desk has been marvellous, it has been modified to hell and it is not your typical Trident B range, it's a real souped up hot rod, it does a lot of tricks.

"I usually end up mixing my stuff there, so it doesn't matter too much where I record, I can get my sound or what sound I'm looking for. Microphones are microphones, every studio has the same ones, I'll work anywhere except The Chateau in France. My reputation is such that when I go into a studio now, it's all set up, I've got two or three attendants and that's the way it should be."

Although one of the most versatile and popular producers in the business, Tony denies that there is a distinctive "Visconti sound"; nevertheless he remains largely responsible for the specific sounds of individual artists e.g. Marc Bolan.

Tony explained that this lack of a "Visconti sound" has helped him survive in the business because those producers with a distinctive sound, like Phil Spector or Gus Dudgeon, don't make many records these days. "My philosophy is to get the best out of the group and I want to make their sound. I have played a major role in creating everyone's sound, like the T. Rex sound is of my manufacture, explaining to Marc where the drums and bass should be in the mix, and those numbers were successfully very danceable.

"The T. Rex sound was partially my sound, but I also made sure that it was Marc's sound as well. It's like I'm a tailor, everyone I work with, I want to make a sound for them. I've already discovered with The Radiators what they do best and where their strength lies and I'm just emphasizing that. I will now help them create their own sound."

He realized quite early in his career the advantages of being an engineer in addition to his role as producer. "Before I became an engineer I'd get an indifferent engineer working with me. He is on a wage and you are on a percentage, and I'm afraid that makes all the difference in the world. This guy is not going to work his ass off to please you.

"So, about seven years ago I decided I was going to have to do my own engineering. I was already doing the T. Rex mixes, but I never engineered the microphone part. It's hard enough to sit there and produce, listen and make sure everything is all right, but to balance the mikes and do it is pretty difficult. In time that came together and now it's great because the right side of my brain and the left side of my brain are all working together. They are two people who are working hand in hand now and I don't have to work with engineers anymore."

In many ways, Tony has the best of both worlds because he gets the chance to play on records as well as produce them but has no desire to go out on the road with a band and suffer the rigors of touring. Tony is also a songwriter and actually produced his own solo album in 1977, which sold the initial 5,000 copies despite difficulties with the record company.

He is essentially a freelance producer, able to pick and choose who he works with, but this has not always been the case: "For the last five years, up until December 1978, I had my own production and record company. I was in partnership with a guy who convinced me that to make a lot of money you had to have your own company, and I must say it was the saddest five years of my life.

"It limited my freelance work because it was written into my contract that I was only allowed to do one freelance artist a year whereas, prior to that, I was often working with three very big acts in one given year. So, during that five-year period, a lot of sad little groups used to come to my company just because of my name and my partner would give them the lowest rates possible. The people we were attracting were so underdeveloped, there was no way they were going to turn into stars even within a year or two.

"Eventually, my partner and I split up and, since December, I've worked with Thin Lizzy, Steve Gibbons and David Bowie in a five-month period and the year isn't over yet. It's fantastic being freelance again."

THE S.D. CURLEE STORY

Left to right: *Paul Reig, Hawkeye, Vicki Maker, Larry Carlson, Randy Curlee, Sonny Storbeck, Dennis Raven and Mike Zyer.*

Out in Matteson, Illinois, across the flatland south of Chicago, the small industrial park houses the S.D. Curlee factory. It seems tucked away in a bit of America that's often forgotten – that link of small towns that stretch out like a chain between the big cities. It's quiet, relaxed, asleep But when you enter the factory and push open the office door to meet Vicki Maker – who proves in short order to be the "cook and chief bottle washer" of a thriving business – the prespective changes.

S.D. Curlee embodies most of the best aspects of American entrepreneuring: it's run by a young man, Randy Curlee, with a belief in his ideas and the confidence that old is still best, with a little touch of progress, of course.

Progress, to the S.D. Curlee factory, comes in the form of 15 specific machines that can perform their particular functions better than they can be done by hand. In other phases of the operation, where hand-worked craftsmanship counts, the machines are redundant. The sanders, routers, saws and spray painters are used only for the basic steps, and by using them the craftsmen are allowed more time for the detailed hand work that goes into each Curlee guitar.

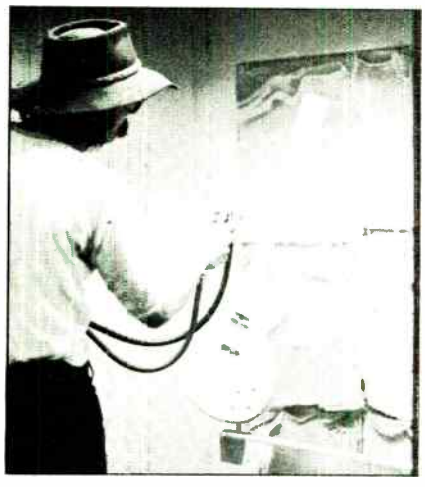
The factory staff, as just a quick walk around the building revealed, take pride in their work and go about it with that confidence that only experience and craftsmanship breed. The Curlee guitars are custom built and so their production is limited and the staff, although only six strong on the production floor, can keep up the high level of work without succumbing to the pressures of high production. In short, they work steadily and hard without having to sacrifice the quality of their product.

Their dedication is also something that is quickly obvious. This could possibly be due to Randy's belief in them and the role they play: "I can't stress enough the importance of the people working in the factory."

Randy may own the company, and he may run it, but the team effort that is displayed on the manufacturing side probably comes through strongest in his collaboration with Sonny Storbeck, whose ace pattern making is the crux of the Curlee design and the most important factor behind the successful manufacturing of their guitars.

"Sonny can build a Rolls Royce out of mahogany," says Randy. "He does with wood what writers do with words." Indeed, Sonny's precision patterns for example, are what's behind the custom fit of the neck into the body: the fit is so tight that the neck need only be bolted on without the use of glue.

craftsmanship, dedication and Yankee ingenuity



The neck is one of Curlee guitars' most important features. "You could unbolt the neck from the body and be able to play the neck as an instrument," says Randy. This is possible because the neck is one-piece all the way to the bridge and has the pickups set into it. The extra fat fretwire is also put directly into the neck – no fingerboard is used. It may be the ideal construction for interchangeable bodies. Just unbolt one and put on another.

Sonny picks up a rectangular piece of glued together black walnut, one of the three types of wood used (mahogany and maple are the others) and places it on the table to start the process of guitar making. He takes the metal pattern of the Curlee standard and traces it out carefully before taking it to the band saw and dextrously cutting it to shape. The now roughly shaped body gets bolted into a boxed pattern set up for the router which puts the rounded curves and shape into the attractive style.

This phase of woodworking is normally done by Dennis Raven, who at the time was busy on a sanding machine giving shape to the mahogany neck. Dennis handles every phase of the woodworking and shaping, although, as in any tightly knit company, other members of the staff help out or sit in on the operation. Mike Zyer is chief of the woodworking operation and it is after this stage that the all important attention to finished detail begins with hand sanding, checking and finishing.

Around the factory, as Led Zepplin's "Stairway to Heaven" blasts out of the old stereo and away from the heavy sawdust of the woodworking room, Paul Wieg works on the installation of the electronics and wiring, carefully fitting the specially created DiMarzio pickups and double checking everything else. John "Hawkeye" Daniel sits at the elevated desk next to Paul where he levels the frets and carries through the production to set-up stage.

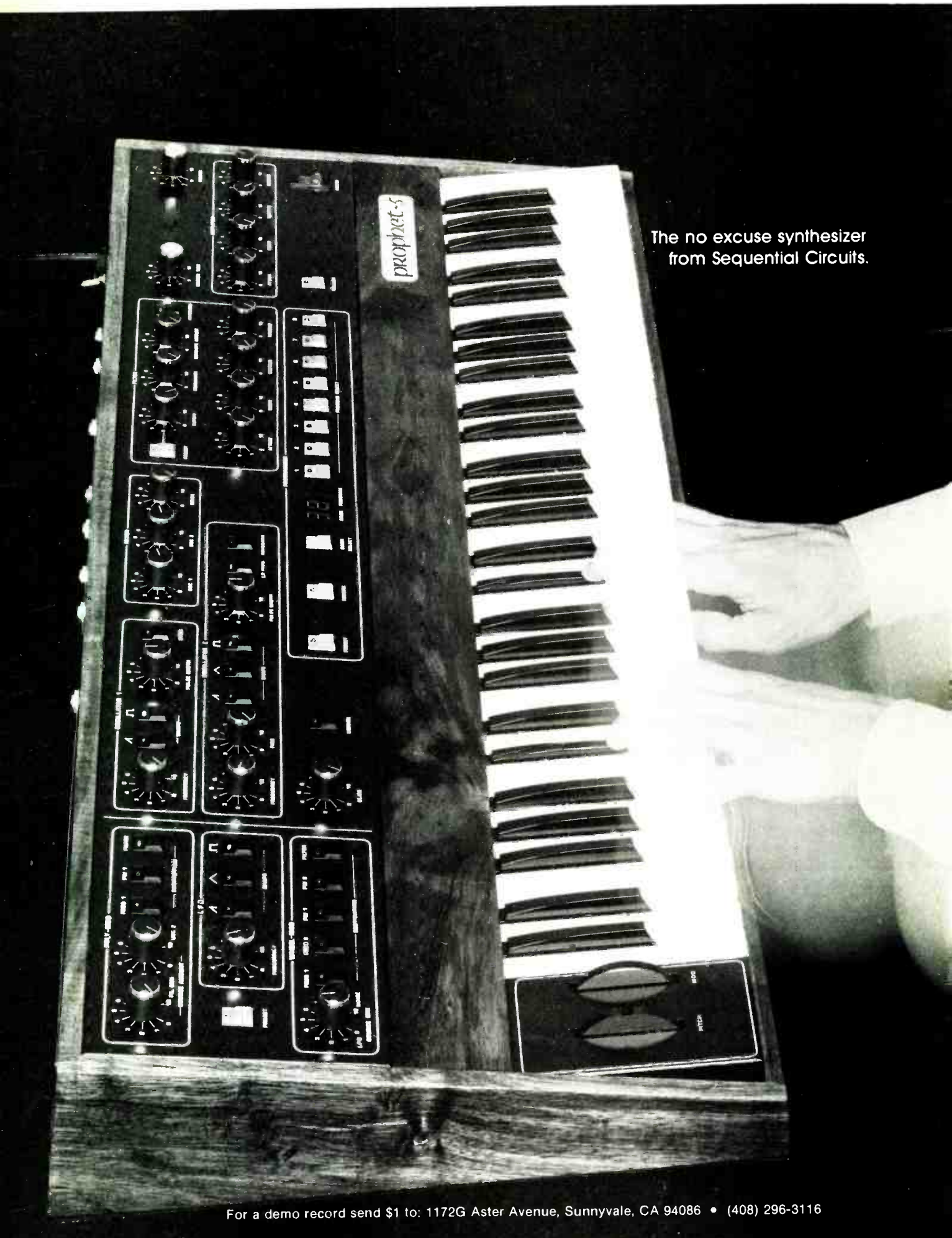
When each member of the production crew has checked out all the previous work, at every stage, the guitar is sprayed with the coats of clear laquer that give the body its gloss and finish. Hand rubbing the finish is still the way to the luster that marks the Curlee guitars and Larry Carlsen, along with being the painter, sees to this.

Randy Curlee spends little time in the factory these days – and that is a testament to the success of his guitars. He's out on the road, promoting, selling, checking up on service and ensuring product delivery. But there was a time when he spent a great deal of time in production. The first prototype he ever did was hand made by him and designed on his concepts: concepts which grew out of his knowledge of music and the needs of players from 16 years as a professional musician.

Randy originally had intended to submit the guitar to Dan Armstrong for production but was quickly convinced that manufacturing the guitar himself would be the best course. He half insured success by insisting on the best products for the instrument. Hence, DiMarzio pickups, Grover machine heads, brass plates and toggle switches which are made in-house. It may sound redundant, but attention to detail has strengthened the Curlee name as a key in custom guitar making.

In today's market almost every major brand of guitar has a Japanese counterpart. Now, so does S.D. Curlee, but with Randy's consent and assistance. The workmanship and concepts behind Curlee guitars intrigued the Japanese company MTI, who were interested in incorporating the ideas into a line of guitars. Randy immediately saw the potential of this and worked out a deal. Although the Hondo guitars are not S.D. Curlee guitars, they carry Randy's name (the S.D. Curlee Designer Series) and his basic concepts of design and construction. In essence, this allows the market to have a lower priced version of the custom Curlee guitar.

It's been said that the S.D. Curlee factory displays a certain Yankee ingenuity – and so Randy has designed a new guitar that is to be known as the Yankee. With its shapely body and expert Curlee workmanship it should be an extra incentive for anybody even remotely interested in the other 12 guitars that make up the Curlee guitar range.



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