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MUSICIAN[®] AND RECORDING WORLD

APRIL 1983
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**MICHAEL
SCHENKER**
Life after UFO

Simon Phillips
Britain's best drummer?
Exclusive: The guitars
of Jimmy Page

Steve Morse
Making it with
the dregs

ON TEST:
Linn Drum
Korg Rhythmmer
Alembic Spoiler
Roland Juno 60
Shure SM-85



Introducing Korg's KPR-77 Programmable Rhythmmer

With these features,
it really gives you rhythm,
without the blues.



Until the KPR-77, if you wanted a full-featured rhythmmer you had to spend over \$1,000. So Korg developed a programmable at a price guaranteed to cheer you up. And the advanced micro-computer technology from their market-leading keyboards gives it all the features of the expensive units. Features like:

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Plus the KPR-77 allows you to interface with synthesizers and other effects, offers programmable time signature, battery-protected memory, resolution up to 12 divisions per beat with a combined function for extended length patterns, selectable tom flam, mono and stereo outputs, programmable trigger outputs, sync in/out, seven channel mixer, accent and a whole lot more. It adds up to sound, features and price that really beat the blues.

For the name of your nearest Korg dealer, call (800) 645-3188 today. In N.Y., (516) 333-9100.

KORG ... we put it all together

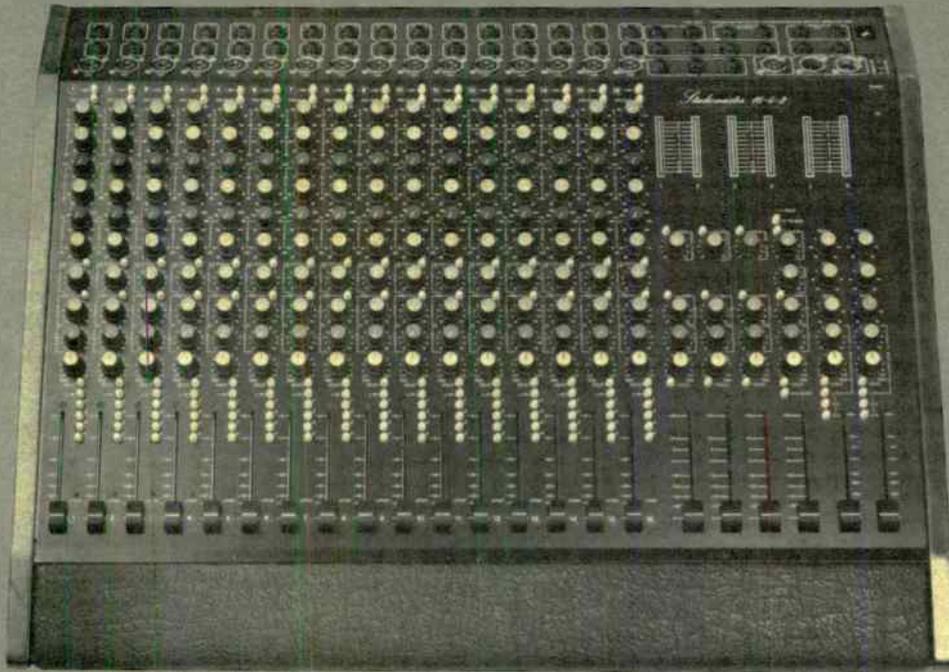
Exclusively distributed by Unicord, Westbury, N.Y. 11590

For KPR-77 literature call or write: Unicord, 89 Frost St., Westbury, N.Y. 11590. For demo record and full Korg catalog write, enclosing \$3.00.

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Editorial

MICHAEL SCHENKER's unique guitar style has electrified audiences since his debut as a teenage phenomenon with U.F.O. in 1974. Since that time, he's survived alcohol and drug problems which eventually hospitalized him, and a reputation as a prima donna which has followed him for years. British journalist Chris Watts talks to the man about his career and his current **MICHAEL SCHENKER GROUP**.

We have a North American exclusive feature in this issue that we're pretty excited about—a behind-the-scenes look at **JIMMY PAGE's** guitar collection, photographed at Page's home in England. As one would expect, it's not a bad batch of axes at all. . .

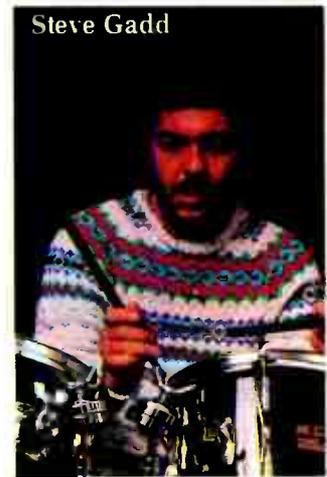
Our Focus Feature this month covers electronic percussion instruments, and to make the whole thing even more interesting, we're giving away **FOUR** sets of double **SYNDRUMS**. Just fill out the Percussion Survey that appears in this issue (in full—no cheating) and cross your fingers. Four lucky winners will be banging away to their hearts' content.

As usual, a barrage of technical tests are offered—the **MEMORYMOOG**, **ROLAND JUNO 60**, **KORG's** new **KPR-77 RHYTHMER**, the **LINNDRUM**, **STUDIOMASTER's** new **MOS FET 1000 POWER AMP**, just to name a few. SD

***CORRECTION:** In the March 1983 issue, we stated in our review of the Chromatina Tuner on page 110 that it was the only chromatic tuner on the market that features a Headphone Out jack—this is not true. KORG's WT-12 has this feature, as well as some other units on the market. Our apologies.*



Steve Gadd's reasons for playing Yamaha System Drums.



Because I've always been very concerned with the quality of sound in a drum. I use the Recording Custom Series drums, with these beautiful all-birch shells and a black piano finish. They give me a very controlled resonance with a lot of tone. They let me relax with the music, so I can adjust my touch to any volume requirements. Yamaha drums are very sensitive, and there's always a reserve of sound.

I've always tended to go for simple equipment like the Tour Series snare drum with eight lugs, because it's easier for me to get the sound. Same thing goes for my hardware, which is why I like the 7 Series hardware. I don't require really heavy leg bracing so the lightweight stands are just fine; very quiet, too. For more information, write: Yamaha Musical Products, A Division of Yamaha International Corp. Box 7271, Grand Rapids, MI 49510.



- 6-voice polyphonic synthesizer (two oscillators per voice) using the same stable oscillators and accurate computer tuning as the Prophet-5, the industry standard
- 100 programs which can be modified or replaced by your own sounds
- New filter circuit which delivers exceptionally full tone colors while maintaining the classic Prophet sound
- Real-time, non-volatile polyphonic sequencer
- Dual-mode arpeggiator: up/down or assignable
- Chord tracking
- Cassette interface
- Computer interface — MIDI (Musical Instrument Digital Interface)

We think you'll agree that this is the new instrument. Compare it to the rest of the market. Based on Sequential's innovation, the PROPHET-6C is the new standard that offers the professional features of the Prophet-5 for \$1995. Experience counts.



the new

For a complete SCI product catalog, including decals, send \$2.

ew Prophet is one hell of an polyphonic synthesizer on Circuits' years of successful the only instrument available s and bold sound of a Prophet

Sequential Circuits, in conjunction with several other manufacturers, has pioneered the development of an easy-to-use system for interfacing synthesizers with one another and with home computers. The MIDI-equipped PROPHET-600 can be connected with one cable to any other MIDI-equipped instrument. For example, when two PROPHET-600's are interfaced, either keyboard can control both synthesizers, allowing four oscillators per voice and two different programs sounding simultaneously! The MIDI is also compatible with home computers for program storage, patch print-out, music notation, sequencing, and multi-keyboard orchestration.



\$1995

prophet

Sequential Circuits, 3051 N. First St., San Jose, CA 95134.



The STIX Programma from Sound Master is a completely new rhythm machine. The STIX offers such realism of sound and versatility of programming that you can actually use it to accompany other musicians—including a drummer—on stage or on demo.

You can build up almost any drum pattern using the STIX' bass drum, high and low tom tom, snare drum, high hat (open and closed), cymbal, and accent.

Sixteen different rhythms, twelve in 4/4 and four in 3/4 or 6/8 time, can be memorized, using all or as many of the eight sounds as you require. Additionally, you can write "fill-in" variations to play after every other bar or after four, eight, or sixteen bars.

The tempo control gives precise adjustment regardless of the speed at which you programmed the pattern, and an LED indicator shows the beginning of each bar.

Versatility, however, sums up the STIX Programma best. The seven individual outputs (open/closed high hat share an output) can be connected to a mixer or any other external device. Alternatively, when operating through the master output the volume of each instrument can be adjusted by its own slide control. The trigger input allows synchronized operation from another unit, while an "S.Q." output gives the pulse written into the accent sound.

Drums courtesy of The Drum Shop, Nashville, TN

All this, plus instant clear button for unwanted rhythms, stop/start switches with optional remote footswitch and fully variable tone rotary control, all operating on four flashlight batteries or an external 6-volt AC power adaptor. The Sound Master factory even pre-programmed five sample rhythms to get you started!

For a complete demonstration of the sensibly priced STIX Programma, see your closest STIX/Sound Master dealer. For more information, write JTG of NASHVILLE.

While you're checking out the new STIX Programma, ask your dealer about our economy rhythmmer, the SR-88. The SR-88 features 8-position 2-track rhythm selector (12 for 16 step, 4 for 12 step); totally programmable bass drum, snare, high hat, and cymbal; fill-in variations; tempo, tone and volume controls plus trigger outputs.



JTG OF NASHVILLE 
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Take me to your leader.



Your leader needs me to perform with him.

I know.

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I am the product of an advanced technological society.

The beings who designed me thought of everything.

I can be hung, cradled, placed on a stand or stacked with others of my kind.

I can imitate the sounds of your musical instruments precisely.

I can sound like a piano, or a guitar, or even like the cylinders you call drums.

I can sound more like your voices than any of my primitive relatives.

Place me with a few of my clones, and we can be heard by multitudes.

I am virtually indestructible, but also extremely light and compact.

The beings who fabricated me are continuously making clones of me, so we may one day populate the galaxy, accom-

panying stars and the rising comets destined to become stars.

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Oh, You Would, Would You?

Dear Editor,

In your November 1982 issue, an article by John Stix entitled "A Good Hard Listen" suggested that Glen Tilbrook and Chris Difford are considered by many as the finest song-writing team around.

As I am an amateur songwriter who would like to break into the professional world, I

(Ed Reply: I'm sure that Messrs Difford and Tilbrook are far too busy with their own projects to take the time to look at yours, Victor. However, my brother-in-law informs me he would be happy to listen to your songs and try to

wonder if Messrs Tilbrook and Difford could perhaps view some of my material and/or refer me to the proper channels who can assist me in having my songs placed on the market.

Looking forward to your reply and thanks for the assistance.

**Victor D. Carroll
Freeport, Bahamas**

assist you in getting them published or recorded. He's a carpenter up in Framingham, MA, and though he's pretty short on contacts in the music publishing business, he's got a real good ear.)

High Times

Dear Editor,

I notice that almost none of the musicians and recording artists you interview ever discuss their feelings about drugs, or performing while high on one substance or another. Is this intentional? I mean, is it a policy of your magazine not to raise this topic with the musicians you interview? I really can't believe that all these guys are straight and don't use any drugs when they perform. I'm a keyboard

player and I find that my hands move with a lot more dexterity when I'm cruising on a good jolt of coke. Similarly, when I play Jazz or Blues, I enjoy smoking a lot of opium beforehand and then playing the way I'm feeling — cool and loose and dreamy. I can't believe I'm alone in these feelings. Doesn't anybody get blown away anymore?

**Name and Address
Withheld by Request**

(Ed. Reply: Actually, we get stoned at the magazine all the time. In fact, I'm really messed up right now and fgyth ghy theerum

*thhhhhhhhhhh... yuehrthnmmn kyouju ploliu. You know what I mean?)
(Speak for yourself boss!)*

What The Hell Was That?

Dear Editor,

Thanks very much for your Stanley Clarke article — I was wondering what Stanley had been up to lately, and was very, very pleased to hear that Return To Forever, that quintessential Jazz/Rock ensemble is reforming and planning to tour. They were sorely missed, at least by myself.

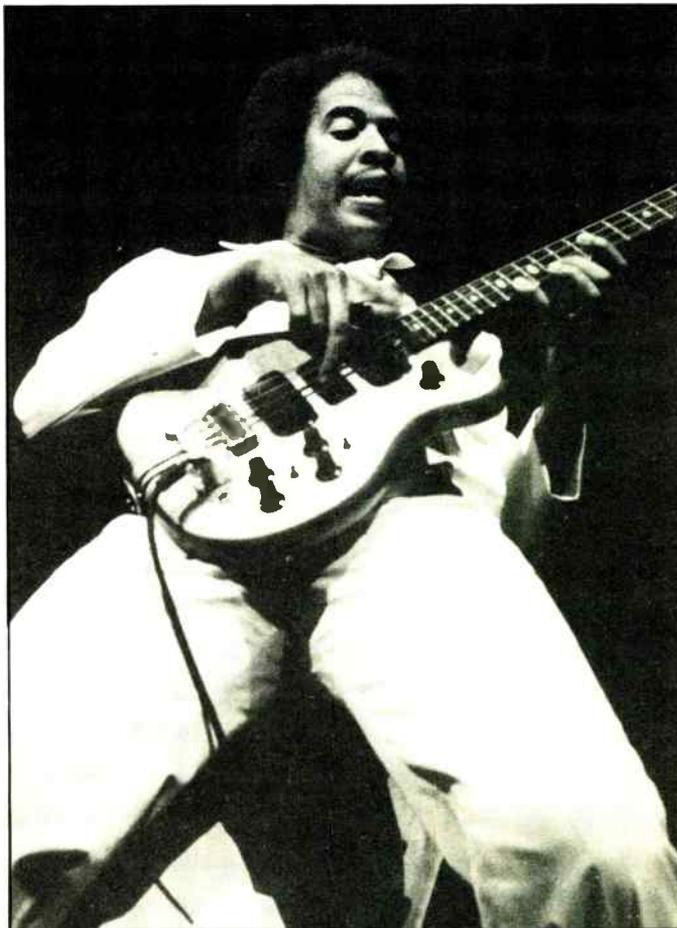
One thing — when you asked Stanley about his instruments, he mentioned that he uses Alembic basses only, aside from his uprights, of course. Now, when I saw the New Barbarians in concert, Stanley came out at the

end of the show with a very strange looking bass — a Flying V-shaped number — that resembled no Alembic I've ever seen. What the hell was it? None of my friends recognized the bass either, and we were all guessing about it on the way home. Can you help settle a bet? I say it was strictly a custom-made job, probably concocted by one of those off-the-wall California luthiers out in Big Sur or someplace, and my friend says that it was an Alembic that had been customized. Which is it?

**Rich Siegel
Chicago, IL**

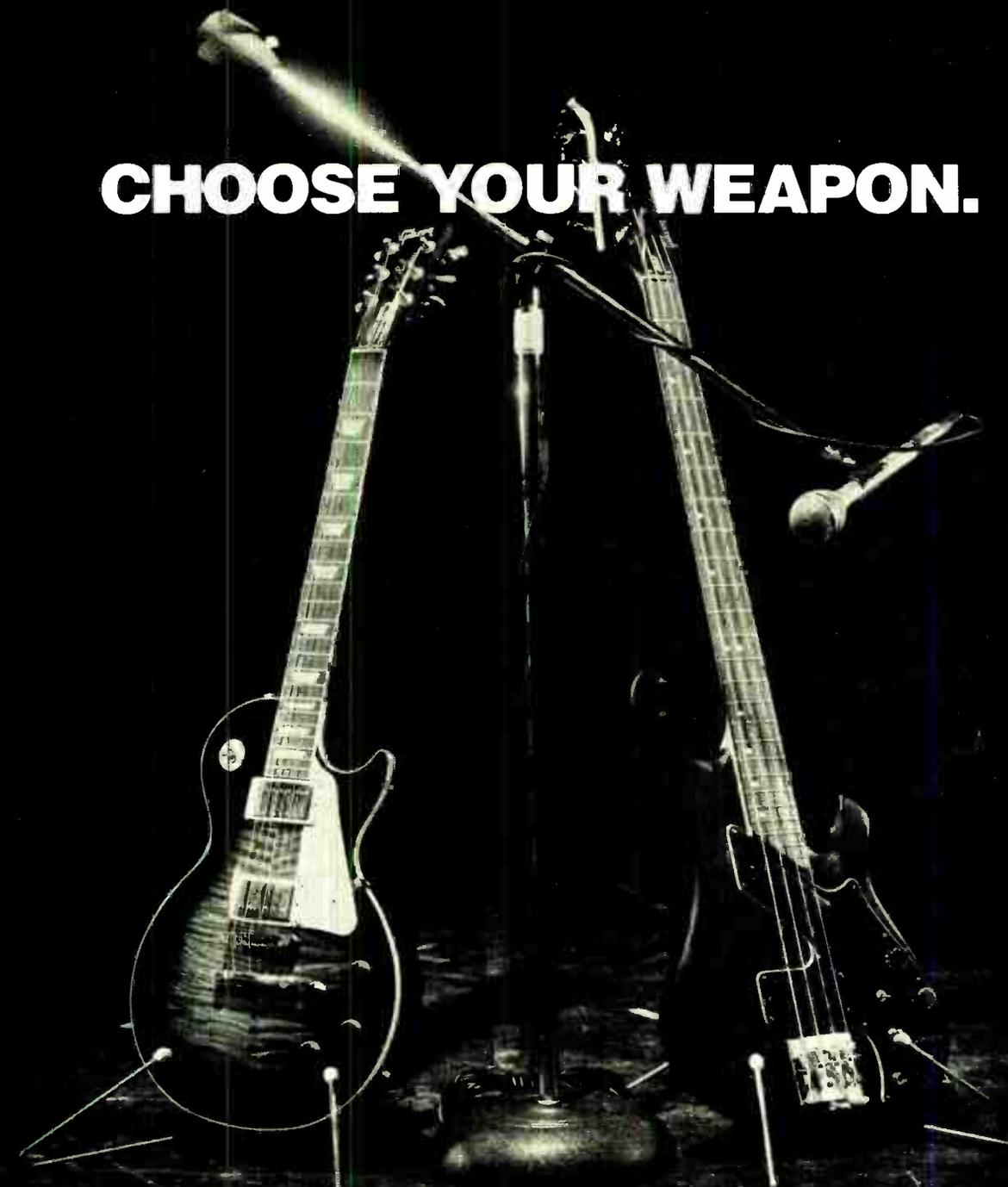
(Ed. Reply: You're both wrong. But, if it makes you feel any better, you're a bit more correct than your buddy, Rich. The bass was a custom-made instrument put together for Stanley by Ken Smith of New York City. The model is not in

the standard Ken Smith Basses, Inc. catalogue, but was built as per Stanley's specifications instead. Because of its rather unwieldy weight and size, Stanley uses it usually only as a showpiece during encores.)



Continued on page 88...

CHOOSE YOUR WEAPON.



No matter what you choose to carve out your place in today's musical arena, Altec Lansing Loudspeakers can help you sound better doing it.

When we developed our new generation of Musical Instrument and Sound Reinforcement Loudspeakers, we did it with the performing musician very much in mind.

During the early stages of prototype design of these rugged, high performance drivers, we used the same instruments, power levels and program sources you'll be using. Our design engineers formulated the most demanding performance criteria they could come up with, then built loudspeakers to meet or exceed those standards of high power handling, optimum sound quality and near-indestructible mechanical construction.

If your weapon-of-choice is guitar, bass, keyboards or full-range PA, Altec Lansing has some professional-caliber hardware you'll want to listen to. From brilliant high-end, high efficiency guitar drivers to the low-frequency punch of our 18-inch behemoths, we can arm you with the kind of acoustic firepower that blows any other speaker away.



For complete information on Altec Lansing's arsenal of products for the professional performer, see your Authorized Altec Lansing Musical Sound Dealer, or contact Altec Lansing, 1515 South Manchester Avenue, Anaheim, CA, 92803; 714-774-2900.

**ALTEC
LANSING**

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Product News

GUITAR

Phantom Of The Hamer

Hamer has unveiled a new model, the Phantom A5, which features a radical new pickup system offering excellent versatility of tonal combinations. The guitar, which was developed with the input of Andy Summers, is the final result of a year-long testing involving five prototype models, which Summers evaluated in the studio and on stage with the Police. Among its many features, the Phantom A5 sports a mahogany body and neck; rosewood fingerboard, 'Hamerlock' tuning machines built by Schaller; a 'Lubitrak' nut, constructed of a new synthetic material permanently impregnated with a lubricant that eliminates nut friction; two single coil Hamer 'Slammer' pickups and a humbucking double-coil 'Slammer'; coil-tap and pickup-selector toggle switches; choice of a variety of hand-buffed, 12-coat lacquer finishes, and more.



Versatile tonal combinations from the Phantom

Look for an upcoming test as soon as we can get our hot little hands on it. For info, contact Hamer at 835 West University Dr., Arlington Heights, IL 60004, tel: (312) 255-6112.



A real classic from Guiterras del Brazos

Top-Of-The-Line Classic

The GBM-100 is the top model in the Guiterras del Brazos family of classic guitars. The back and sides are constructed of rosewood, and the top is available either in German spruce or solid cedar, depending on the tonal choice of the individual guitarist. The GMB-100 also features a mahogany neck, ebony fingerboard and bridge, and gold-plated tuning machines. Suggested retail is \$1195.00. Contact MCI, Inc., 7400 Imperial Dr., Box 8053, Waco, TX 76710, tel: (817) 772-4450.

Stretch Out With Fender

Fender proves that good things do come in small packages. One of the biggest drags about putting on a new set of strings is waiting for them to get fully stretched. When you put on a new string, or a whole set, the string will stretch gradually, of course, but this takes time, and you have to put up with de-tuning and poor clarity until the string has fully stretched. Fender's new String Stretcher clips onto the string, and is moved back and forth along the length of the string, eliminating the stretchiness. A great little helper for

a small but annoying problem. List price is \$3.98, from Fender, 1300 E. Valencia Dr., Fullerton, CA 92634, tel: (714) 879-8080.



String Stretching with Fender

PERCUSSION

Zildjian Thins The Crash

Zildjian has added a new cymbal to the line, the *Paper Thin Crash Cymbal*. It's designed to provide a thinner, quicker-responding cymbal, and utilizes a cup size similar to the existing Zildjian *Thin Crash*, but is slightly flatter with a more fluid taper. The *Paper Thin Crash* is available in 14, 15, 16, and 17" sizes. Contact Zildjian for information at Longwater Dr., Norwell, MA 02061.

KEYBOARD

Just Put Your Lips Together and Blow . . .

Here's something we guarantee you've never seen before — a wind driver synthesizer. The Starwind is actually an electronic synthesizer that is activated by breath control. A light breath activates the keyboard, and loudness and tonal color are controlled by the intensity of the breath. Each note in the keyboard responds to finger pressure as well as breath intensity. The Starwind encompasses a 5-octave range and features a VCO, VCA, VCF, as well as a breath controlled envelope generator and a suboctave oscillator. Starwind is manufactured by the same people who brought us the Synare electronic drums, Star Instruments, Stafford Springs, CT 06076, tel: (203) 4258. Suggested retail for the Starwind is \$195.

new from sunn

THE SUNN SL SERIES: PERFORMANCE TO TAKE THE IMITATORS BY SURPRISE



Features:

- High and Low Gain Inputs
- Footswitchable Channels
- Reverb with Level Control
- Headphone Jack
- Erite Switch
- External Speaker Jack
- Master Level Control
- Footswitch with LED Channel Indicators
- Accessory Patch Loop (pre-amp out, (power amp in)
- Ch A Level Control
- Ch B Drive and Level Controls
- C-mos Limiting
- Active Variable Q Equalization
- Cascaded C-mos Drive

Specifications:

	SL 160	SL 260
Power	60 Watts RMS 90 Watts Maximum Continuous (Square Wave)	60 Watts RMS 90 Watts Maximum Continuous (Square Wave)
Load	8Ω	8Ω
Channels	2	2
Equalization	Bass, Mid, Mid Freq, Treble	Bass, Mid, Mid Freq, Treble
Size & No. of Speakers	1-12"	2-12"
Speaker Models	160	260
Input Sensitivity	560 Microvolts at 1K hz	560 Microvolts at 1K hz
Input Impedance	High Gain: 330k ohms, Low Gain: 330k ohms, Power Amp: 12k ohms	High Gain: 330K ohms, Low Gain: 330K ohms, Power Amp: 12K ohms
Output Impedance	Line out: 150 ohms, Headphones: 330 ohms	Line Out: 150 ohms, Headphones: 330 ohms
Weight	38 lbs. 17.2 kg	53 lbs. 24 kg
Dimensions: Ht. x Depth x Width	18 x 9 1/2 x 19 1/2 in. 45.7 x 24.13 x 49.21 cm	18 x 9 1/2 x 26 1/8 in. 45.7 x 24.13 x 66.36 cm

Sunn has developed and is now producing a remarkable advancement in guitar amplification. After extensive experimentation, the professionals at Sunn have achieved a major breakthrough in solid state technology. The result is a series of products so refined they actually sound better than any tube, solid state or hybrid circuit amplifier currently available.

Sunn's new SL Series incorporates cascaded C-MOS overdrive interactions to create a flexibility in sound selections never before possible. This exclusive Sunn original will soon encourage competitors to begin promoting imitations. And while imitation is the sincerest form of flattery we urge you to try the best before you see the rest. Audition the new Sunn SL amplifiers at your local Sunn dealer today.

sunn

*The Name in
Quality Sound Products*

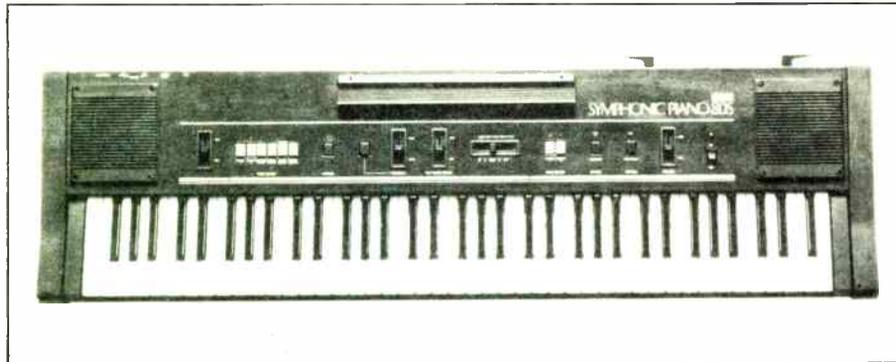
Sunn Musical Equipment Company
A Hartzell Corporation Company
19350 SW 89th Avenue
Tualatin, OR 97062

Product News

...Continued

Two New Ones from Korg

Korg has just announced the introduction of two brand new keyboards. The first, the Poly-61, is a 6-voice, two-oscillator per voice programmable polyphonic synth. It features a 64 program memory with full Edit and Program Move capabilities; polyphonic and chord memory/unison playing modes; high speed tape interface with interactive display; and an arpeggiator with a memory latch mode. More important, it boasts all this with a suggested retail price of just under \$1500.



80S Symphonic Piano



Poly — 61

Next, Korg has the SP-80. This is a 'symphonic piano', designed for both home and pro use. It features a 76 note touch-sensitive weighted keyboard, built-in stereo speakers, and true portability. The SP-80 also features six voices (acoustic pianos, electric piano, vibes, harpsichord, clavichords), and tremolo and chorus effects. There is a version of the SP-80 that also features a string section (the SP-80S) which can be played separately or in conjunction with the piano section for layering effects. This string section has two mixable voices, two-speed Attack, two-speed Sustain, and a separate volume control.

The SP-80 and the SP-80S each weigh just 37lbs. Contact Unicord for more information at 89 Frost Street, Westbury, NY 11590, tel: (516) 333-9100.

PRO SOUND

Furman — The Great Equalizer

Furman's new SG-10 is a sweep graphic equalizer with 10 bands and also a preamp with lo-cut filters for both left and right channels, dual input volume controls, and LED indicators for overloaded inputs. The front panel features 10 slider controls graded from -15 to +15dB. Below each fader, a 5-position knob controls parametric Eq functions. Thus the SG-10 offers the best of



Three new ones from Ibanez

Ibanez has now announced that there are three new instrument microphones they've introduced to the market:

The IM70 — super cardioid dynamic, lightweight cartridge diaphragm. For snare, mounted toms, and brass.

The IM-76 — also cardioid dynamic. Diaphragm is double-domed. For kick, floor toms, bass.

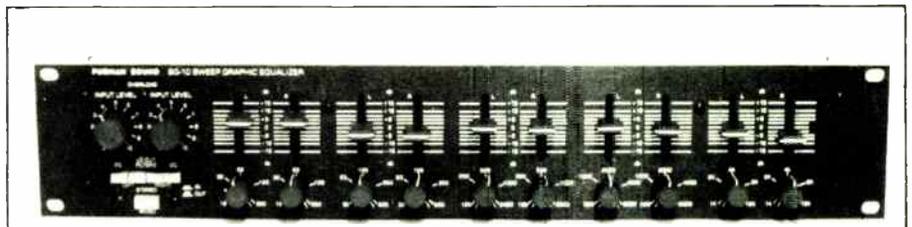
The IM-80 — cardioid condenser mic. Flat response, good high-end. For overhead cymbals, hi hat, acoustic guitar, piano, and woods.

Contact Ibanez at PO Box 886, 1716 Winchester Road, Bensalem, PA 19020, tel: (215) 638-8670.

In The Bag

Bag End, well known among top pros, has just announced their TA-12

Continued...



Sweep Graphic & Preamp for studio and PA

both worlds. Furman suggests that some of the best applications of their unit may lie in use as outboard Eq in a recording studio, or as the master Eq for a PA rig, although the SG-10 is, of course, at home in a wide variety of situations. Contact Furman Sound, 30 Rich St., Greenbrae, CA 94904, tel: (415) 927-1225.

Ibanez Goes One Better

As a follow-up to the vocal mics they surprised us with last year,



Bag End's TA-12

TASCAM.

DESIGNED BY POPULAR COMPLAINTS

Because we know that a complaint is often an expression of a real need, we listen and respond. By listening to the complaints voiced in the working environments of today, we can then convert them into the professional recording tools of tomorrow.

Creative attitudes and ambitions change rapidly. Consequently, so do the demands on equipment. By listening to what you're saying, product development at TASCAM will continue to give you what you need to get the job done. With TASCAM Production Products, you can buy only what you need and expand its use as your requirements change.

At TASCAM, we believe that listening to your complaints, then going to work, is the only system that makes sense for both of us.

TASCAM

TEAC Production Products

Product News

... Continued



A Pulsar rear view

Time-Align loudspeaker system. It's a 2-way system with a 300 watt capability that produces 103dB SPL, one meter, one watt. Bag End has dealt with time offset correction with a system of filter networks and exacting speaker placement that are meant to ensure that the sound from both drivers reaches the listeners' ear simultaneously. The TA-12 comes in both floor monitor or rectangular cabinet configurations, as well as a five year warranty.

Contact Modular Sound Systems, PO Box 488, Barrington, IL 60010.

New Board From Biamp

The 883B is a new addition to Biamp's 83B Series mixing consoles. The compact board features eight input channels and new system architecture and circuit topology which has resulted in considerable noise reduction. The 883B also features floating and balanced outputs, metering on all outputs, separate reverb control in the monitor, 3-band Eq, and a 10-segment LED output display. Contact Biamp at PO Box 728, Beaverton, OR 97075, tel: (503) 641-6767.

Smart Amps

Pulsar is billing their new amps as "the most intelligent amps ever built", and the list of features designed into them is indeed impressive. To begin with, the amps are designed for future interfacing with a digital communications link; in fact, they are the only amps that can be monitored and controlled from remote location, such as a mixing console. They're also modular and the circuit boards completely technician-replaceable without soldering. To make things easier in

the event of a repair job, one driver/output module will fit all amp models, both left and right channels. The amps come with a three year warranty, and heavy-duty analog computer protection circuitry. Contact Pulsar Labs, 3200 Gilchrist Rd., Mogadore, OH 44260, tel: (216) 784-8022.

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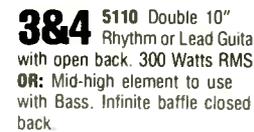
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Hearing the product and the price will make you a believer in our math. Hear Gauss at your nearest dealer — the price is right.



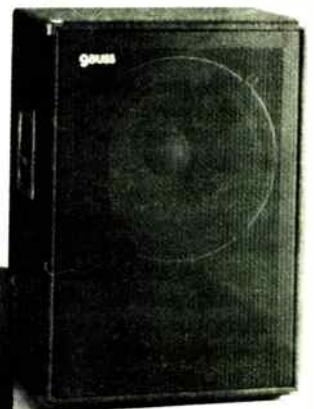
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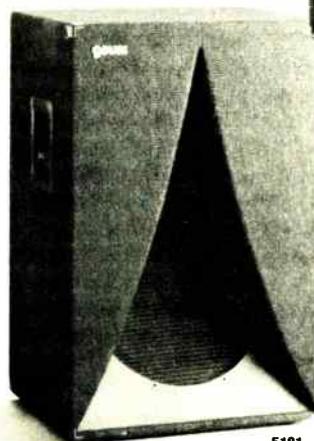
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7 5180 18" Bass reflex Bass Guitar Bottom. 200 Watts RMS.



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5 5181 18" Slot-loaded horn Bass Guitar Bottom. 400 Watts RMS.



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Best of all, the M268 includes several design features that will be especially appreciated by drummers. The mixer has four microphone/instrument channels. Each features an XLR-type connector and a 1/4" phone jack to handle either low or high impedance microphones and instruments. All of the connectors can be used simultaneously, providing a total of eight inputs. Phantom (simplex) power is

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The Drummer's Mixer from Shure—all the inputs your playing ever needs.

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THE SOUND OF THE PROFESSIONALS... WORLDWIDE

“It’s You Or No One”

Solo by Pat Martino

This month, I’ve transcribed Pat Martino’s solo on “It’s You Or No One”, from Don Patterson’s album, *Funk You*, on the Prestige label. Normally, I wouldn’t transcribe a solo like this. My experience with studying other people’s solos is that it’s only the harmonically interesting ones that really give you something you can use in your own playing. Melodic or rhythmic inventiveness isn’t something you can learn from a transcription, but a new harmonic idea can be incorporated into your own style. That’s why, in the past, I

have transcribed solos by John Coltrane, McCoy Tyner, and Herbie Hancock.

This is a very good solo, but harmonically it is quite standard. However, I think it will be useful to musicians who are just getting into Jazz to help them get a handle on some of the basic approaches to playing chord changes.

Dan Petrow

The image shows a handwritten musical transcription of Pat Martino's solo on "It's You Or No One". The transcription is written in treble clef with a key signature of one flat (Bb) and a 4/4 time signature. It consists of seven staves of music. Above the notes, various chords are written in a handwritten style, including G-7, C7, FΔ7, F#°, G-7, C7, FΔ7, Bb-7, Eb7, AbΔ7, AbΔ7, (b) D-7, G7, G-7, C7, G-7, FΔ7, F#°, G-7, C7, A-7b5, D7b9, G-7, Bb-7, A-7, D7, G-7, C7, FΔ7, and FΔ7. The notation includes eighth and sixteenth notes, rests, and dynamic markings like accents and slurs.

New MXR Omni: six of the most-used effects in a versatile rack mount unit

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Every five years or so, a new guitar hero is launched into the demanding public eye, whether it be a Page, a Hendrix, or a Beck. Sometimes the process is faster than other times — it has taken Michael Schenker all of eight years to reach that stage, and, even so, he's not quite there yet, despite the fact that his guitar accomplishments have been immortalized in die-hard fanatics' archives the world over since Schenker burst on the scene at the age of 18 with the UFO album.

Phenomenon

In many ways, it was Schenker's melodic, biting compositions that heralded UFO's rise to critical acclaim, and although he was given the nod of approval as far as his precise and fluid soloing, he was still a long way off from being worshipped. Perhaps part of the delay came from Schenker's reluctance to ape the stage antics of his more flamboyant competition, tending to appear somewhat static and uncomfortable in front of audiences who demanded more acrobatic flash. Still, his straightforward and seductive solos transformed otherwise mundane tracks such as "Rock Bottom", "Lights Out", and "Born To Lose"

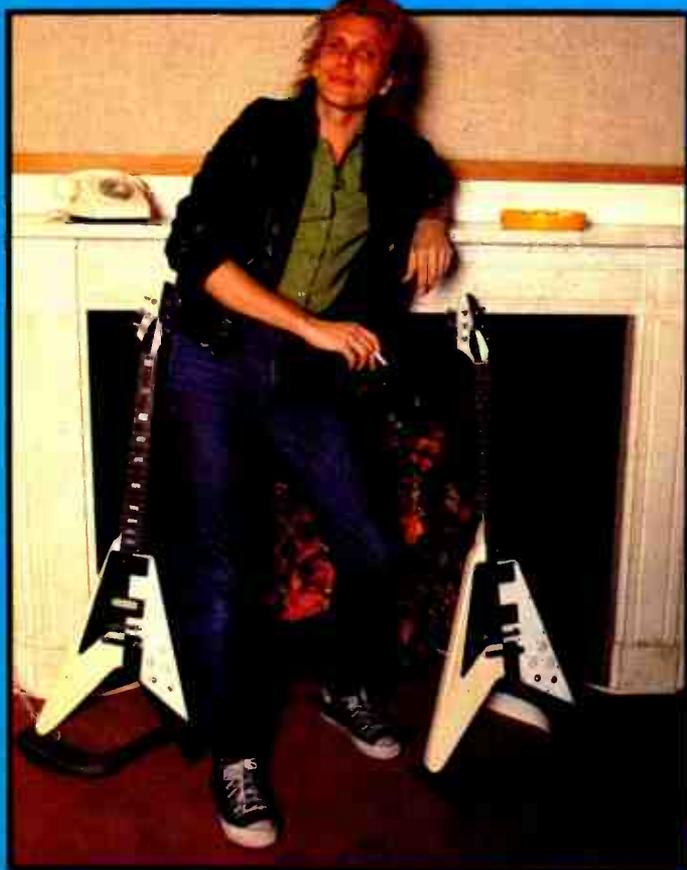
into masterpieces that, though they have been copied by almost every hard Rock band in clubdom, still belong to the one man who can play them as they were intended to be played.

The obligatory double live album, *Strangers In the Night*, marked the untimely end of Schenker's career with UFO in 1979, and with the coming of his replacement, Paul Chapman, many considered it to be the demise of UFO itself. It was considered a distinct possibility, though, that he might return — Schenker had earned himself a reputation over the years as someone with the tendency to wander off in the middle of projects and then to reappear and continue, with stubborn silence. His reputation for nomadicism proved to be for real this time, though.

"As far as the UFO thing goes," he says, "It was getting to the stage where I just couldn't work with Phil (Hogg) anymore. I just couldn't go on, and it was affecting the whole band."

With a helping hand from older brother Rudolph (guitarist and founder of Scorpions), Michael managed to pull through various drug and drink problems. He even made a few stage appearances with his brother, for he was still unable to

Sold
Sold
goooo



find his direction.

"People say all sorts of things without any knowledge, but to tell you the truth, I was totally screwed up. Totally. I was in and out of the hospital like it was nothing. I was really stupid."

Something was obviously needed to put the boy in shape. Then, literally out of the blue, *MSG I* materialized with an album that not only received overwhelming critical acclaim but was also the most accurate portrayal, up until that time, of Schenker's particular talents. With vocalist Gary Barden's lyrical sense coupled to Michael's colossal guitar work, from the rumbling chords of "Victim of Illusion", to the menacing glee of "Lost Horizons", it was a yardstick album.

"I just wanted to get something out after UFO to prove I was still around. I had a collection of musical ideas that I had accumulated, and I just had to play what was in my hands. I originally wanted Martin Birch, but I fucked it up when I came out of the hospital. Still, I was really happy with the recording of that album because it only took something like six weeks to record, and Roger (Glover's) recording was pleasing. All the material was fresh, and I think it really came over."

In fact, what *MSG* achieved was to

showcase Michael's talents for all to see, and implore people to take his playing in its own right. It was an album that earned him a new and even more devoted cult following. But, the question remained. Could Schenker maintain the standards that he had optimistically set for himself? Well, yes and no. Holding vocalist Barden to the mic, he gathered up fellow UFO man Paul Raymond on keyboards and rhythm guitar, Chris Glen from the Alex Harvey band, and Cozy Powell, to record *MSG II*. A string of successful tours was set up to promote the new band. All went well until American producer Ron Nevison turned up to lend a hand.

"It was a disaster! Whereas *MSG I* took six weeks to make, *MSG II* took six months! I think the trouble, if you could call it that, was that *MSG II* contained the better material, but also the awful production, which resulted in everyone being made much poorer. I personally preferred the songs on *MSG II* to those of *MSG I*, but everyone was just very, very annoyed at Ron Nevison for basically just fucking the whole thing up. He was so bad I just can't even talk about it without becoming angry."

Schenker and Nevison had met before, though in not nearly so hostile an atmosphere. The first time

came during the making of the most successful UFO studio album, *Lights Out*. On that disc, the title track and the song *Love to Love* were featured alongside Michael's personal solo favorite of that era, "Try Me", although it's not likely that the two will ever work together in a studio again.

In spite of all the hassles, *MSG II* was a fine album in its own right, and material such as the grandiose "Attack of the Mad Axeman" and "But I Want More" gave vent to Michael's melodic playing and this, coupled with the undeniable talents of the band made the record a powerhouse of ideas.

"You may disagree, but I think that what I came out with after UFO was not really all that different than what I was doing before. I was doing a lot of roller-skating, swimming, jogging, and things like that, so I was really fresh and straight, and I think it was a very fresh album in a way. *MSG I* and *II* were very different, I think *MSG I* was more clinical, but it was more spontaneous somehow — more free."

Schenker is one of the few guitarists whose style is immediately recognizable — a catchy, squeezed and wrenched collection of almost Classical runs and thundering power chords, with subtle undertones that defy classification. Try the deceptively simple outburst in "Looking For Love" or the

mesmerizing "On And On", and you'll come to appreciate Schenker's aptitude for putting melody and emotion within the often staid and



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heartless boundaries of hard Rock. When asked how his style developed, Schenker had this to say:

"I've worked hard to get my style, and I'm happy with it at the moment because, as you say, it's immediately recognizable. You gather a lot of influence over the years, and mine are nothing special. I started listening to the Shadows' albums and playing along with them when I was about nine years old. At that time, I knew nothing about guitars. I learned the songs, like, note for note on a little record player — starting, stopping, playing back, and so on to see if I was playing the right notes. Maybe I was lucky, or just patient, but I managed to play the whole of an album without too much trouble, note for note."

We asked about formal training.

"No, never. I was influenced by the Beatles and all music around that era, as well as my brother Rudi, because it was he that introduced me to the guitar. Without him I would not be here today. I suppose my two greatest idols in those days were Jeff Beck and Jimmy Page — sort of a mixture of those two. But Rudi was the one who actually physically started me off."

The black and white Flying Vee has now become Schenker's trademark. What made him so attached to the guitar?

"When I started playing, I always used my brother's guitar. There was this one gig we did in Germany with the Scorpions, where I played a Les Paul — a Custom, I think. I broke a string, and my brother was playing the Flying Vee that I'm now using."

He points to the familiar instrument standing in the corner of

the room. It's one-fourth of his entire collection, the remaining three being another, almost-identical "V", a Les Paul Standard, and a strange custom-built affair by Martin Woods of Denmark Street in London, England. For acoustic work, he has to beg, borrow and steal.

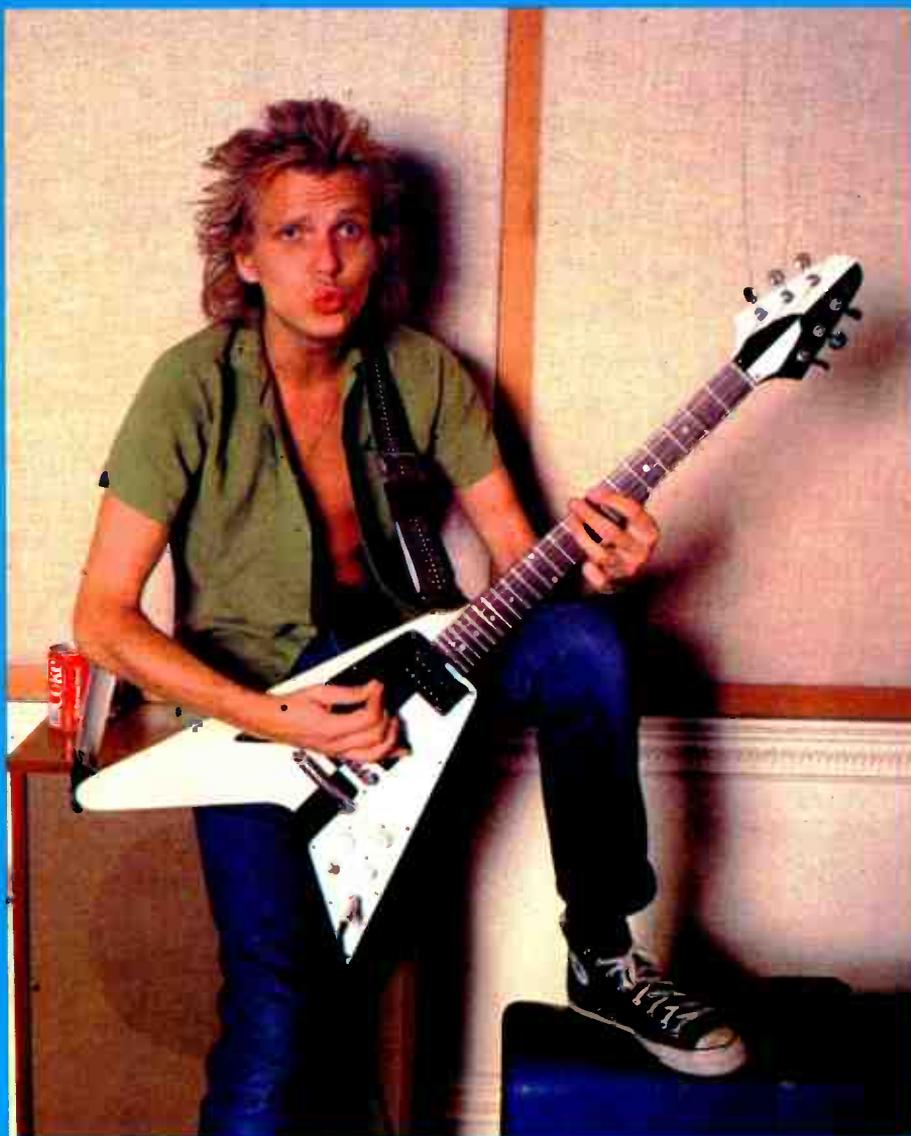
"Anyway", he continues, "Because we were both playing lead, we had to swap back and forth very quickly, so I was playing through Rudi's Marshall with his guitar all night long. At the end of the gig, I said to him 'Sorry, Rudi, but I can't give it back to you' — it was that good. He accepted that, and sold me the guitar, and I still use it to this day. It's strange — I've tried it with a 100 watt Marshall instead of my usual 50 watt, and it just didn't work half as well."

Schenker pauses, considering. "I've never been one to walk into music shops and try thousands of different guitars and different amplifiers. Still, I can say that judging from my own experience, which isn't much, that a Les Paul sounds better with a 100 watt rather than a 50 watt Marshall, but the Flying Vee sounds 20 times better with a 50 watt. I have no idea why — I just find it to be true. The 100 watt goes on for ages — the projection, if you like — whereas the 50 watt goes a few feet, and then drops off. But it sings much better, and that's what I'm after." As far as the actual tone of Schenker's guitar, it is a very piercing and clean sound, though it is also obviously distorted. The overriding quality is its fluidity. We asked him how he achieves the various trademark tones.

"I put it down to how you come across with a wah-wah pedal. I use one as actually more of a tone control than as a wah-wah effect. If you hit a string with a floppy action (he demonstrates this on the side of the table with an old and weatherbeaten Herco pick), the sound will be floppy. But, if you hit it tightly, then the notes will almost scream. I've always been a very clean player, though. If I made up my mind to write a song, I was always very precise. For some reason, I always knew what I wanted to do, even when I was 16 or 17 years old."

Is he happy with the way things are going for him, technically speaking?

"Yes. What I'm doing now I like to do very much, and it's what I've been working at for a long time. I'm pleased with what's coming out at



the moment."

Any effects pedals incorporated into "the sound", other than the unorthodox use of the wah pedal which was touched on earlier?

"Well, as I explained before, once you find a sound that you like, namely my brother's guitar through a Marshall, that was it for me. I didn't feel that I needed to look for anything else, and, as I said, I use the wah-wah strictly for tonal variation in the solos, and never as a straight-ahead effect. What we sometimes do — and it's something that we did on *MSC II*, is to use the Les Paul for different rhythm sounds, with a kind of treble booster on it, and the 'Washboard' (the affectionate name given to Martin Woods' custom axe) was also used in places. I think on parts of "Let Sleeping Dogs Lie" and "Mad Axeman", this was noticeable. The Les Paul has got a fuller sound, but it's not very good for lead guitar. So, it's always the Flying Vee for lead, and the Les Paul for rhythm. Always."



We wanted to know if the guitars have had any internal tampering.

"No, they are all exactly as they were when I first got them, all of them. I'm happy with them, and don't see why I should change anything. My main Flying Vee has been busted so many times, and every time it gets broken, it seems to come back even better than it was before. It's just one of those things."

Okay. We know there's something being held back here, so we ask for some elaboration on Schenker's use of the wah pedal as a tone control. I mean, some of us have tried it, and the result isn't quite the same, if you know what we mean.

"Well, when you press a wah-wah down, it's acting as a bass control, and when it's up, then it's a treble control. Once you know what you want, it's a matter of leaving it in the same position, but you do have to think to change it when it comes to a solo or something. You need to know what sort of tone you're after in a song, and where the changes are coming. I do sometimes use it as a straight wah effect for a riff. "Let Sleeping Dogs Lie" is the perfect example. I also make use of an echo unit — that's just for myself on stage. It's got nothing to do with the guy who's mixing — it's all down to me. I can't stand a dry sound and

whenever I get one, I tend to play a little bit over the top and with less feeling. So, if I have a bit of echo, I seem to leave more space, and I don't play quite so frantically."

With the long-awaited release of Michael's third studio album, *Assault Attack*, the big question was whether Schenker could continue to come up with the kind of material everyone was expecting — and whether he could come up with enough of it to make an album work. Neither he nor Graham Bonnet were renowned for their writing skills, yet the album turned out to be another triumph. In the past, Michael has left the lyrical chores up to Phil Moog, and more recently to Gary Barden, who provided the lyrics for "Cry For the Nations" and "Lost Horizons". We were curious about the actual musical composition process.

"It's always the same. I put all the ideas that I get down on cassette, and after a couple of takes are done, I play them back and put the best parts down on one tape, just bits and pieces, and then I try to connect them and maybe even add things here and there. Then, Chris (Glen) gets involved with some parts that he's thought up, and we rearrange things until we get the end result that everyone will hear. It's a long and drawn-out process, but one that I think works well for my purposes. It also involves everyone in the song so that no one will feel left out. It's a very democratic system that we have in that I never tell them what to do. If they're not too sure about something, then we'll change it, and see if it works another way."

So it's splice here, chop there, etc. We wondered whether songs were ever written with a particular melody or lyric in mind?

"It all depends. I usually just write the music, and if Gary's not too sure about a melody, he'll ask me and we'll try to improve it. I help as much as I'm able to. As far as the instruments, well, that's different altogether. My favorite is "Lipstick Traces" (from *Phenomenon*). You just connect notes, and it depends on your taste. You instinctively know if something sounds good, and you just carry on building it up until you're satisfied with the whole thing. It usually builds up in parts. A lot of things, especially instrumentals, are spontaneous. "Lipstick Traces", I actually worked out, but they will develop in different ways, usually by mistakes. It just happens."

Many of Schenker's solos sound as if they could stand alone as separate

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melodic entities, hummable songs within songs, almost. Are songs ever written around such pre-planned solos?

"I used to do that much more with UFO, because I never did any vocals. I would be sitting there with a Revox and songs, such as the solo from "Born To Lose" and "Try Me". All the slow songs seem to stem from the solo, particularly on "Try Me", where Phil ended up getting his part from the guitar part. That's almost like two separate songs — the vocal part and the solo part — but they both have the same melody. Most of the ballads actually started off as instruments and the vocals were added at a later date."

The live album that was released earlier this year, recorded in Japan and aptly titled *One Night At Budokan*, was a storming success with both Schenker fans and hard Rock enthusiasts, alike. The solos on the album, notably the Schenker showcase, "Attack Of The Mad Axeman" and the instrumental with Paul Raymond, "Courvoisier Concerto", were dazzling. That was live. Is Schenker one of those types who must get down every note on the studio album in his live shows as well?

"Yes, but only in the key parts. The hook lines, such as on "Looking For Love", which you mentioned, or "Into The Arena", I think I play note for note what is on the album."

Was Schenker happy with the way *One Night At Budokan* turned out?

"I'm very happy with it, but there were also quite a few overdubs to smooth it out and touch up the rough bits. Cozy didn't do any overdubs, so we all had to follow Cozy. There were some keyboard overdubs we had to do, 'cause Paul was playing both keyboards and guitar which is very difficult to do on stage. You could really hear the holes in the sound when he was changing instruments, especially if he missed something. To be honest, it isn't a true "live" album as such, but I don't believe that such things truly exist, unless people talk bullshit. People who are first-class musicians will never be satisfied with second-best, because people like that can't help it. No concert will ever be note-perfect, so there are always things that have to be done after the event. They go for perfection, and that means improving on what you have done. All the good musicians will always be out for the best that they are capable of, and most of the time a live concert will not be as good as



they might've hoped it to be. That's why there are no "live" albums, as such, except from shit bands.

"It's the same thing that applies to my material. If you give me a TASCAM, my guitar, and a few bits and pieces, I could write you ten songs and guarantee you that five would be hits. I can actually promise that to you. That's not what I'm after, and I wouldn't be pleased with the end result, and because I'm a perfectionist, I would feel bad. Like our last single, "Dancer" — people just couldn't understand the middle section where we change the tempo. We did it to break it up because we thought it would become monotonous if it was all the same, but people just couldn't see it. I hate the structures that make commercial singles — they're so tedious. They're so easy to write, but I just don't want to write them, because I wouldn't be satisfied in a musical sense, and that's not what my music is about. I don't even know why "Dancer" was released at all to tell you the truth — I don't know why I wrote the stupid thing in the first place! I guess it's commercial, but I'm really not that interested in the singles market. I think it's all very corny."

Which brings us around to Michael's distinctly non-commercial stage image. While other guitar heroes launch themselves at the monitors, burn their guitars, and play overextended solos with one leg tied to their chin, Michael seems more content to let Gary Barden provide the antics and let himself concentrate more on the guitar, thus appearing somewhat morose and shy on stage. Why is he reluctant to play up to the crowd's expectations?

"Well, for one thing, I'm always tied to the wah-wah pedal, which I do use a great deal, and that obviously limits my movement on stage. We also don't use wireless mics where you can run all over the

arena. But the most important factor is that I don't WANT to run all over the place. I like to get in with the audience and the feel of the gig, but as soon as I begin playing lead guitar, I go to the wah-wah pedal, switch in the echo, and then back to the wah to play the solo... Once I'm playing the solo, I don't know where I am, I don't want to see anybody. Then, all of a sudden I wake up, go back to the wah-wah, switch it off and the echo, and go back to playing rhythm. It depends on how I feel. I might go more over the top on some nights than others, but basically I don't feel the need to make an exhibition of myself. It's not my personality, because I'm very quiet and soft-spoken as you can see."

It's true. He is a strangely soft-spoken character, armed with a glass of coke, and rapidly filling up an ash-tray with cigarette butts, he's wearing the familiar black bomber jacket and jeans, his spiked blonde hair framing angular and very Germanic features. With all this talk about retaining anonymity on stage, how does he feel being written up on the cover of *IM&RW* as a guitar hero?

"It doesn't bother me. I mean it's nice and a very great compliment, but as far as all the flashy stuff goes, it's not me, as you can see."

For a German lad with the sum total of nil English in his vocabulary, Schenker has established himself firmly in the forefront of hard Rock guitarists, since his major debut with UFO in 1974. After 26 years on earth, 17 of them spent playing guitar, where does he see it all leading?

"It's quite possible that at some time I might become tired of playing "Doctor, Doctor" and "Rock Bottom", but at the moment I still enjoy it. I enjoy everything I do. If people want to hear those songs I'll be more than happy to do them, but if not, I'll stop. There are some songs that are expected of you, but as soon as I get tired of them I'll stop as well. I just like to grow up very slowly, and never leap ahead of myself. I feel I've got a long way to grow yet."

One gets the feeling that if it weren't for his personal dilemmas of the past and present, Schenker would be more widely respected for his universal influence and pure musicianship that thrives with each new venture. He's more than definitely something of a phenomenon.

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Steve Morse



Steve Morse is an original. His physical appearance suggests a cross between commune-dweller and Hell's Angel while his modest and soft-spoken demeanor lends him an "aw, shucks" air that belies the ferocity and intensity of his playing. Ask him to put a label on the music he writes, plays and produces with the Dregs, and you get the helpful reply, "It's just the type of music we ourselves would like to hear at a concert." Doesn't really tell you much, does it? However, if you've heard Morse play, you know that what he does *is* pretty hard to describe. His style is a melange of Jazz, Heavy Metal, Funky chickenpickin' Country licks, Classical and Baroque runs, English and Irish Folk music, and the list could go on and on...

We talked a lot about one of Morse's favorite pet peeves — the difficulty involved in bringing an experimental musical form to the attention of the American listening public, in the face of adversity from what Morse terms the 'corporate structure' of radio programming and record company promotion. He feels

the Dregs have been short-changed by the American broadcasting system primarily, and that there is a lot of music — not just that being produced by the Dregs — that goes by unnoticed and unappreciated simply because it failed to press the right button when it passed through the executive suite.

This isn't to say that all Morse and his cohorts are seeking from music is fame and wealth. Were that the case, they would have abandoned the quest years ago, as it's been some time now and they have acquired neither in great abundance. He plays because it's what he does best and because he feels the music has something to offer. Besides, it's fun. When asked if he wants to, in the future, see the Dregs become a household word, he looks up quizzically and inquires, "You mean, like Raid?"

Yeah.

IM&RW: *Where did things begin for the Dregs?*

Morse: Well, Andy West and I played first together in Augusta,

Georgia. Then, when I was going to school at the University of Miami, I got Andy to move down there to join this little ensemble we had that eventually became the Dregs. I met Rod there, and Tee was from the University, so basically all of us were going to school at the University of Miami at one time or another.

IM&RW: *That's one hell of a campus band.*

Morse: Yeah, I guess it's fair to say it all started there, even though the roots of the band were back in Georgia.

IM&RW: *How did the Dixie Dregs become the Dregs?*

Morse: Oh, that was just the closest thing we ever did to making an effort to make the band more marketable.

IM&RW: *Did it help?*

Morse: Well, not really. There was a time when radio programmers would take a chance, and put on a *real* variety of programs. Why can't there be a variety of bands, a variety of radio stations, a variety of *anything*? Why does everything have to be the same old thing over and over and over? The only thing you can know for sure that people really want is

sex. Other than that, there's no telling what they'll go for. You put a tap-dancer in front of a bunch of construction workers, and if that tap-dancer's damn good, hell — they'll like him.

People can appreciate much more than these conservative corporations who run the media give 'em credit for. All they're doing is being ultra-conservative, playing it safe. That's the American way — everyone can run their business the way they want. But I can also tell 'em what I think about the way they run it, you know? My statement is through the music, though.

IM&RW: *Well, do you see a time in the future where the Dreys might compromise that musical statement, so that larger numbers of people could be reached by it? You know, are you ever going to 'play ball' with the corporate structure — even half-way?*

Morse: No. No. The closest we ever came to compromising was trying the vocals we did. But, even that was not geared toward any kind of absolute AM success. It was just songs that we liked, with people we liked, and that's the only reason it got on the album. In a sense, it was an experiment. It was something everyone was anxious to try just to see what'd happen. It gave us a chance to say to a lot of people afterwards: 'See? The people like us for our playing. Vocals or no vocals, it won't make a difference.'

IM&RW: *How did you come to play the guitar? Did you have any lessons?*

Morse: I took group lessons when I was a kid, and then graduated to private lessons — you know, strumming on an acoustic.

IM&RW: *How old were you when you first picked up a guitar?*

Morse: I believe I was about 10 or 11. I'm 28 now.

IM&RW: *Did you idolize any guitar 'heroes' while you were learning?*

Morse: Oh, all of them. I could name you 10 without even thinking about it.

IM&RW: *Ok, shoot.*

Morse: Oh, this could probably go on all day... Man, I can't keep it down to 10. Umm, George Harrison, Chuck Berry, Keith Richards, Jeff Beck, Eric Clapton, Jimi Hendrix, Jimmy Page... Oh man, I can't stop now... Johnny Winter, John MacLaughlin, Rick Derringer. I was and still am influenced by so many people. A lot of my influences, though, were people at the

University — teachers and students. Pat Metheny is somebody whose career I watch closely — he was a student with me at the U of M.

IM&RW: *Let's go off on a tangent, and talk about Industry Standard. Not only the music, but the recording itself, had a very unique quality. Can you describe how the sessions were done?*

Morse: I can tell you almost everything about that record — every note. First, I'll say right off the bat that everyone thought their particular instrument should have been louder in the mix. But that's normal, 'cause if you turn up everyone, you still have the same mix — it's just louder. (laughs) We recorded in an open atmosphere — no control room. We had the board set down in the bottom of the pit area of a stage in the theatre. We put the drums up on a stage, and used ambient mics...

IM&RW: *Crown PZMs?*

Morse: *Then, we didn't. We have experimented with those lately, though, and we will be using them on the next album. For Industry Standard, we just used a Neumann about 150 feet away. Next time, we'll have stereo ambients. OK, then we close miced everything — real typical set-up. We put the toms down to two tracks later, with the overheads and hi hat separate. Next time, that'll be a little different, too.*

OK. So, everyone stands up on stage with their own little individual mix console — a little box of knobs which has sub-mixes for each of the other instruments. Then, of course, we wear headphones, so everyone can individually adjust the mix they hear as we do takes. This way, nobody says, 'Oh, I want more drums', while the other person says, 'Wait, I want less drums.'

IM&RW: *That's pretty hip. Whose idea were the individual sub-mix consoles?*

Morse: That was Chuck Allen, the assistant at the studio. He designed the system and built it himself. It's just part of the rig there.

IM&RW: *How long did the entire album take?*

Morse: Something like 400 hours.

IM&RW: *How did Arista feel about that? In fact, what's your relationship like with your record company these days?*

Morse: They like the band. They are glad to have us... with some conditions.

IM&RW: *Such as?*

Morse: They wish that we didn't

Continued...



... *Continued*

spend so much money on the albums. In other words, they know that we're gonna consistently sell 'X' amount of records. And there's a small chance of us selling a little bit more than 'X'.

IM&RW: *Would that chance be increased with, say, some heavier support of the Dregs on their part?*

Morse: (laughs). Yeah. But at the moment, I feel very certain that they're not gonna push anymore. They're gonna throw it out, and if something happens, it happens. I'm not totally against what they're saying. My point is that this is what can happen to a band that consistently bucks the system. We had a dedicated cult following, but if we ever put out trashy albums, we could lose that following.

IM&RW: *So you just have to maintain that 'industry standard'.*

Morse: (laughs) Yeah.

IM&RW: *What's your favorite Dregs album?*

Morse: Oh, that's hard to say. I have fond memories of all of them. I kinda like the last one the best, 'cause I got to meet and work with people who were really outside of the band. There was more talent on the last album than I've ever seen or worked with. We had, you know... everybody! Mark O'Connor and Steve sat in on one thing and we had Alex, a total professional, and Pat Simmons, who just surprised the hell out of us with his voice and his determination to get it right. I mean, everything about those guys was real impressive.

IM&RW: *That might have been a mutual feeling there, though. I'm sure these guys were spurred on by your own perfectionism and desire to get things right, as well. Now listen to that, I'm sounding like a fan. Have to watch that.*

Morse: Yeah, thanks. Well, I think it was just a great situation. I'm hoping on this next record to do a similar sort of thing — maybe get some instrumental guest artists that people know pretty well.

IM&RW: *That sounds like a cue for Pat Metheny.*

Morse: (laughs). Well, actually, I have hinted around about that.

IM&RW: *So it's a possibility?*

Morse: Let's just say that I would hope that some, or at least one of the guitarists I mentioned previously as being real heroes or influences, would be able to do it.

IM&RW: *All right. New subject time. What's your guitar line-up like these days? Anything new and*

different?

Morse: Up until recently I'd only played my special 4-pickup guitar, but now I've expanded quite a bit.

For special purpose things, I have this Fender Lead I with a rosewood neck. It feels real good to me, being a Fender player. And now, DiMarzio has made a guitar that's almost a copy of mine — the 4-pickup guitar I have. The difference is that this new one has all new DiMarzio pickups on it, with a specially-made lead pickup I really like the sound of. I think DiMarzio may be coming out with that one as part of a Signature Series. In fact, three days before this interview, I just got the finished guitar from DiMarzio, and I don't know what to do. I could play all night on that guitar, but on the other hand, I've spent so many years on my main guitar that its feelings might get hurt if I did, (laughs). I also just bought this Gibson Chet Atkins guitar, which I definitely want to incorporate into the live show. It's a solid-body classical, which is great, 'cause people have been requesting some of the acoustic pieces for a long time, and I didn't like to do them because it's such a hard thing to mic

a classical guitar live in a Rock'n'Roll club.

IM&RW: *You don't experience any feedback problems with the Chet Atkins?*

Morse: Well, I mean — there is a limit to everything. But I went to Manny's to find mine, and they pulled out four guitars to let me choose from, and I was able to find the heaviest one, which I'm sure will help eliminate any feedback problem. It's gonna be great.

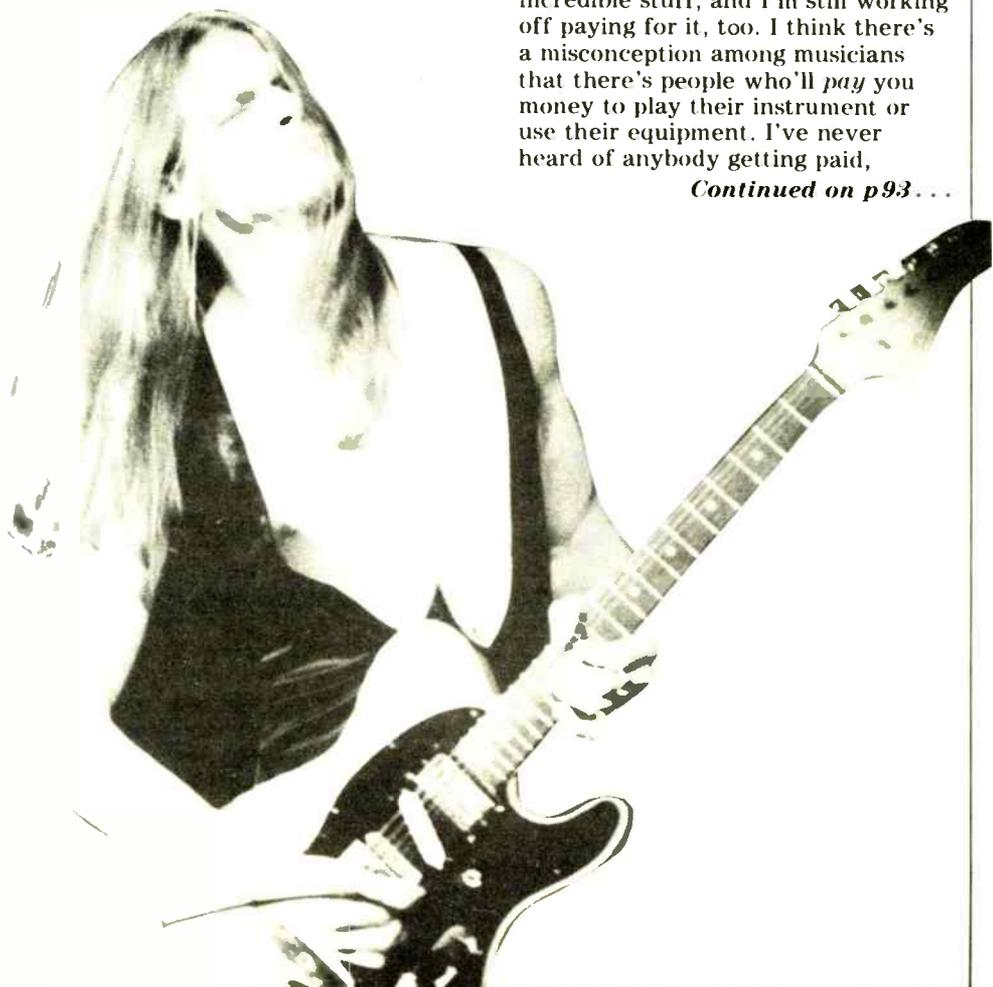
IM&RW: *Have you experimented with other guitar pickups besides DiMarzio? Duncan, Bartolini, any of those?*

Morse: I've tried them. They both make fine pickups, but I just happen to be using DiMarzios these days. I've met Seymour Duncan and Bill Bartolini and they're both very, very nice people. They let me try their products, too. It's just like well — you go to a car lot, and there's 10 fine automobiles. One of 'em's gonna appeal to you more than another. You don't know why, it just does.

IM&RW: *You seem to be pretty heavily into Lexicon outboard gear.*

Morse: Oh, yeah. I'm using a PCM-41 and a Lexicon reverb. They make incredible stuff, and I'm still working off paying for it, too. I think there's a misconception among musicians that there's people who'll pay you money to play their instrument or use their equipment. I've never heard of anybody getting paid,

Continued on p93...



"Lexicon's PCM 41 digital delay

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Steve Morse
songwriter, producer, artist
"The Dregs"



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Rhythm Machines and Electronic Drums

I have always felt bad for both drummers and keyboardists. I mean, I show up at a gig or a session carrying only a briefcase full of mics and maybe one effects device. These guys are always dragging around anything from all their equipment to maybe *only* a couple of keyboards, or a drum or two and all their hardware and cymbals. The first things any roadie will ask about a prospective client is "What kind of keyboards and how big a drum kit?"

Over the years keyboardists have come to have the advantage. It's now rare to see someone dragging around a Hammond B-3 with Leslie, and newer compact electric pianos (Yamaha and Kawai) give players that acoustic sound in a much easier to deal with package. Meanwhile, our poor drummer has (even with a compact Simmons set) had to continue to lug around several hundred pounds of metal hardware. Moreover, these guys are expected to have a semi-full complement of percussion gear as well (chimes, bells, gongs, and even congas).

There's no comparison set-up wise. The CP 70 has only two pieces plus a couple of legs, while the Kawai only has to be tilted into position (it even has built in wheels). The drum kit, on the other hand, is attacked with hammers, nails, and wrenches and takes a hell of a lot longer to assemble. I know how long it takes just to position Alphonse Musont's mega cymbals. A thorough piano tuning may take up to an hour to complete, yet I've seen this much time spent on a single drum in the studio, not to mention dampening and micing which altogether can consume a full day.

However, the tide has changed. Today with the proliferation of small, light weight, and smart rhythm machines every drummer has the option of occasionally eliminating some and even all of his kit. It's not unusual at all to see a drummer show up at a recording session carrying nothing but one of these small devices, plug it in, hook up the outputs, hit a single button, and have his pre-programmed

performance completed in minutes. This may be the extreme end of things but rhythm machines *are* also being used more and more to supplement live performance, too.

Add to this the fact that drum machines require no tuning and make no mistakes, and the reason for their acceptance is obvious. This was not always the case. At first, many drummers were very opposed to these devices feeling they didn't sound real and couldn't take the place of a drummer as far as feel goes. I suspect that there was actually a fear of being replaced or at least losing some work, as non-percussionists could now play the parts. But, early drum boxes didn't sound real and their machine-like percussion wasn't really and truly musical.

However, newer models sound *just* like the original and can be set to play your patterns like a beginner or a pro, timing-wise. Furthermore, many drummers have actually gotten *more* work, because of their expertise with the devices, as other musicians have found that the intricacies of "keeping time" are not as mindless as they once thought. I can recall more than a few times that someone has rented a digital drum machine to record with and ended up calling in a drummer to program it after they found that they themselves just didn't have the chops. Programming has been a lot of fun for drummers, too. Now anything they can imagine can be heard, even if not actually played.

As far as the devices themselves go the variety is almost endless. The number of available sounds ranges from one up to two dozen instruments per unit. The actual sound of the devices can be synthesized or digitally recorded and the number of outputs can be one (mono), two (stereo), multiple (one for each sound) or all three. The drum's sound is tunable on some, even up to a full octave. You can also program-in accents to further simulate that "real" sound. The programming procedure is also different from machine to machine.

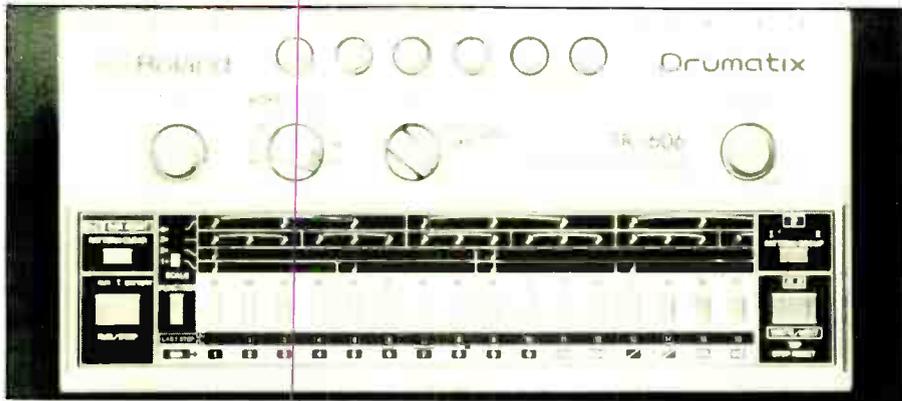
Some are programmed in steps, real time, or both. The amount of memory can run from just a couple of patterns to a number of full length songs. The ability to dump the contents of the memory onto tape allows for the storage capability to be infinite. You can get units that can be externally triggered as well as ones that sync up with the rest of the world. The list of features goes on and on, and the cost increases with each addition. A simple single output unit with synthesized sounds and limited memory will run only a couple of hundred dollars while a top-of-the-line digital device can surpass the \$3,000.00 mark. The choice of what is needed as well as can be afforded, as always, remains up to you, the purchaser.

A Look At The Market

Here's a brief look at some of the equipment currently available to the musician who's looking to get involved with rhythm machines and electronic percussion. Details have, in all cases, been kept to a bare minimum, but if further information on any of the units listed in this section is desired, we've provided an index of addresses and phone numbers where the various manufacturers may be reached. Two units have been profiled in considerable depth in this issue, the KORG KPR-77 RHYTHMER and the LINN DRUM COMPUTER (See Table of Contents).

ROLAND The TR606 is not brand new to the market, but Roland's commitment to modular, expandable products which interface with each other has kept this unit from obsolescence (and will continue to do so, presumably, in the future). The TR-606 is fully-programmable, and will create up to as many as 32 separate rhythm patterns, each containing seven different drum sounds, as well as accents. These 32 patterns may be broken up into two groups of 16 patterns each. Programming is either in real time or step-programming via a tap switch.

The TR-606 makes use of a 'Track Write' function which allows the



The dramatic drumatix from Roland

user to write and store rhythmic scores in their entirety in the unit's memory, up to a total of 256 bars. This is broken down into eight tracks — seven of 64 bars each, and one of 256 bars. These separate tracks can then be combined to create extended compositions. The TR-606 or DRUMATIX, as it's also called, is completely portable, operating on a 9V battery which powers its self-contained headphone amplifier. Suggested retail price is \$395.00.

JTG of Nashville have been getting into rhythm machines lately with some good (and inexpensive) results. The SR-88, released some time ago, has undergone some updates and improvements recently. It features an 8-position rhythm selector switch (six for 16-step, two for 12-step), and completely programmable kick drum, snare, hi hat, and cymbal sounds. Other features include tempo, tone, and volume controls, and the ability to alternate fills after every bar or after 4, 8, or 16 bars, as you choose. Some of the new features include a pulse trigger which allows you to sync notes to a specified program beat, and a trigger output which can

Boss Doctor



link an external source such as a synthesizer to the pulse of the cymbal memory.

Conveniences such as the footswitch jack for hands-free running and the downbeat LED indicator make the SR-88 a good deal at the suggested retail price of \$179.95.

JTG's slightly higher-priced STIX PROGRAMMA offers the player a few more perks. There are more drum sounds, for one thing — kick, snare, open or closed hi hat, cymbal, high and low toms, and accent — as well as seven individual outputs which allow any of these sounds to be directly connected to a mixer or signal processor. To facilitate individual hook-ups, each drum sound also has a mini-fader volume control. Other features include a Clear button to erase unwanted drum sounds, and a trigger unit to allow synchronized hookup to external units. Suggested retail price is \$299.95.

KORG's biggest news is the KPR-77, which, as we mentioned, is examined in depth later in this issue. Like the others in this category, it is an analog programmable drum 'synthesizer'. Its memory is good — three groups of 16 patterns each may be programmed into it, each containing up to 32 steps. Like the Roland TR-606, these groups may then be chained together to form longer, more extensive pieces, though the Korg can store more of these in its memory. A major plus for the KPR-77 is its illuminated LCD screen, which acts as the 'voice' of the computer, telling you where you are in your programming, aiding you in real time programming, letting you work out rhythmic patterns without programming them into the memory, and a host of other functions. List price for the Korg KPR-77 is about

\$695.00. Another device from Korg is the KR55B, a rhythm machine with 96 rhythm patterns which include things such as Jazz, Latin, Reggae, Disco, Rock, etc. The KR55B has 12 highly realistic drum sounds, 32 intro and 32 fill-in patterns, a 6-channel mixer, and a synthesizer trigger interface. The suggested retail is \$650.00.

BOSS a division of Roland, manufactures two inexpensively-priced rhythm units for the player whose budget demands a practical solution to finding a rhythm machine for use in home recording or club-date situations. The DR-55 DR. RHYTHM is a computer controlled unit providing eight user-programmable basic rhythms, with A or B variation. The DR-55 also features programmable trigger outputs, allowing it to be synced to various external sources. Suggested retail for the DR-55 is \$195.00.



Sound rhythm from JTG

The DR-33 DR. BEAT is even lower-priced. It is also less sophisticated, featuring a metronome capable of superimposing rhythms on top of one another, with separate volume faders determining the level for each note value or sound to be added to the overall rhythmic pattern. Helpful features include LED indicators showing "One" and downbeats, a tempo control with a very wide range, and real portability — a carrying strap, battery power, and headphone jack. Suggested retail is a mere \$125.00.

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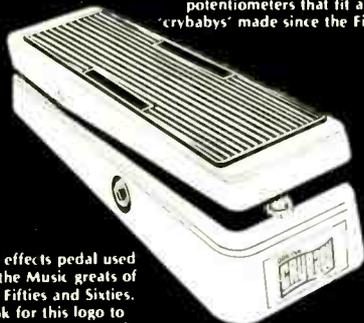


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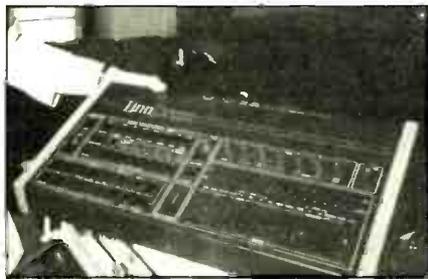
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... Continued

unit is equipped with a stereo mixing section with faders and panpots. If desired, the Linn Drum may also be fed directly into the studio console via separate outputs. The unit will retain its memory even while power is down, and additional memory capability may be obtained through the use of offboard cassette storage. See the review of the Linn Drum Computer later in this issue for greater detail. Suggested list price is \$2995.00.



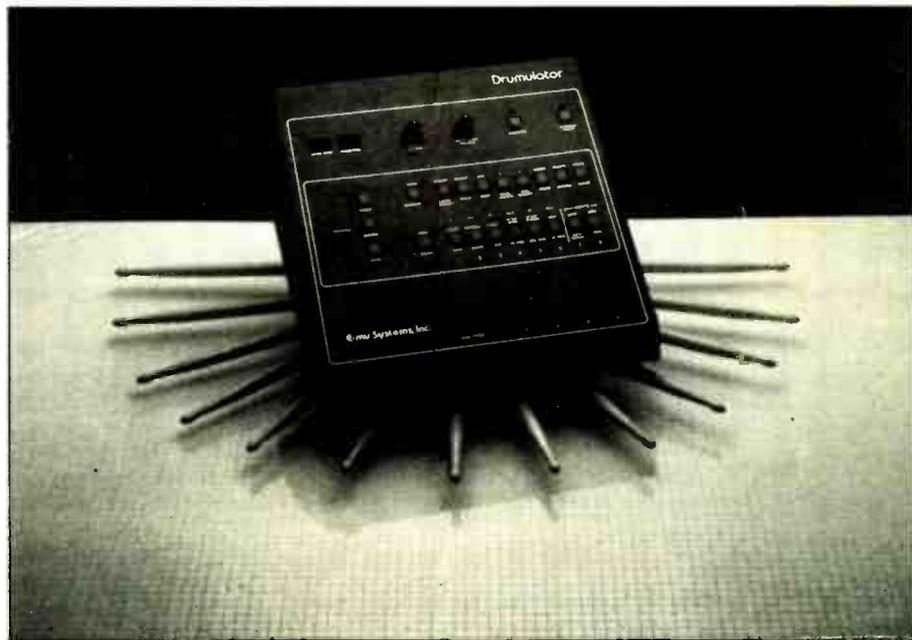
Linn — more details on page 69

The OBERHEIM DMX is another unit which utilizes real drum sounds stored in its digital memory. It has 24 different sound sources that may be user-programmed into 100 sequences. The DMX gives the user complete control of tempo, sequence length, and time signature, and like the Linn, it offers a "Song" mode which will store a number of full-length compositions. There are individual outputs for each drum sound, stereo and mono outputs, cassette interface, and battery back-up for memory retention during power down. When looking at units in the

quality/price range of the DMX and the Linn Drum, one of the most important distinctions to the user will be which drum sounds actually sound best to him or her, and this is, of course, a personal and subjective evaluation. Both units are used regularly on stages and studios by pros who can afford their fairly hefty price tags. Incidentally, the DMX carries a suggested list price of \$2895.00, and an in-depth review of its capabilities may be found in *IM&RW*, October 1982.

Best known for the exceptional Emulator synth, E-MU has now turned their hands to drumming. The result is the DRUMULATOR, an incredibly inexpensive digital drum machine, priced below \$1,000.00, suggested retail. This is not a synthesized drum machine — the Emulator makes use of digitally recorded real drum sounds to produce its effects. Among its features are a programmable mixer that allows you to store and instantly recall a different mix for each rhythm track created, a 'repeat' feature which allows you to define sections within each song that can be programmed to repeat during live performances so that solos may be lengthened or shortened as desired. The Drumulator can also sync to tape or other synths, has assignable play buttons, external triggering from drum synthesizer pads, and sports individual channel outputs. Again, the suggested retail price is \$999.00.

The Drummulator Simulator



Let Your Fingers Do The Walking

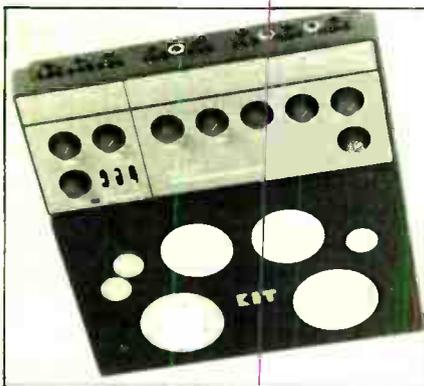
Though not *nearly* as sophisticated as the two devices just described, these two hand-operated rhythm machines are plenty of fun, and useful in recording or live work as well.

ROLAND's top-of-the-line is the TR-808 RHYTHM COMPOSER, a computer-controlled drum synthesizer/sequencer that features 32 user-programmable basic rhythms. The TR-808 may be programmed in any time signature, and will accept up to 12 complete songs (total memory of 756 bars). Each drum sound has individual outputs and level controls — other controls include tuning, decay, and tonal variation. The TR-808 may be synced to external sources and vice-versa, and it also features trigger outputs. Suggested retail is \$1,095.00.

The second in line is the CR-8000 COMPU-RHYTHM, which features some programmability as well as preset rhythm patterns and fills. There are 24 of these basic preset rhythms and eight preset fills, while there are eight user-programmable basic rhythms and four programmable fills. The CR-8000 carries a suggested retail of \$750.00.

MXR is marketing a device which most of you are probably familiar with called THE KIT. Manufactured in the United Kingdom, it's a portable 4-piece drum kit featuring pressure-sensitive pads which are struck by the user's fingers to produce the appropriate drum sounds. There are four large pads and three smaller ones which correspond to kick, snare, high and low toms, as well as open hi hat, closed hi hat, and a variable crash/ride. There are individual level controls and output jacks for each one of these sounds. In addition, a

Sensitivity with the Kit

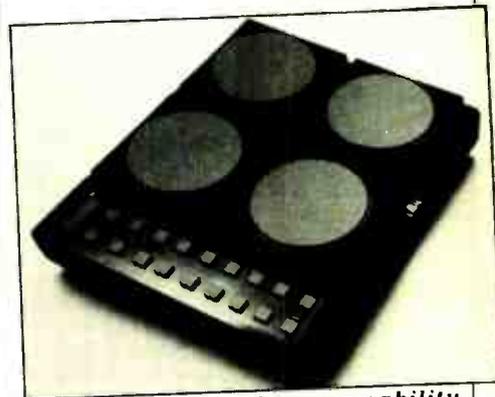


variable-tempo rhythm unit is included — this can also be set to trigger the hi hats automatically. Suggested list price is \$350.00.

MXR also has three modules designed to interface with The Kit, adding to its sonic capabilities. First, the Tymp, an electronic tympani, which has variable tuning for a wide range of tympani sounds, as well as controls for volume, pitch, mix and decay. The Tymp can be used by itself or in conjunction with the Kit via a rear-mounted trigger jack. Next is the Clap (no giggles, please) which provides a range of sounds from multiple handclaps to white noise effects like gunshots, explosions, and the like. The handclaps and white noise sounds may be mixed together, and there are four controls — clap spread, mix, decay and volume. The Clap also has the ability to be used by itself or to be triggered from the Kit. Finally, there is the Synkit, which provides a range of 'syndrum' sounds. The four controls include volume, decay, pitch, and sweep. List price for all the modules is \$175.00 each.

MATTEL's SYNSONICS DRUMS Have gotten a lot of media coverage, both paid and non-paid (the former being the multitude of commercials featuring the likes of Buddy Rich and Nigel Olsen drumming away on a real kit, followed by John Everyman playing the same licks on the Synsonics). Like The Kit, the Synsonics uses pressure sensitive pads — these may be played with drumsticks or hands, though sticks are easier. Unlike the kit, the Synsonics has programmable

Continued...



Sensitivity and programmability too — Synsonics

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...Continued

memories which enable you to compose, record, and play back over 4,000 different drum patterns. There are sounds for snare, kick, two toms, and a cymbal. One of the toms has a rotary tuning device which enables you to achieve 'syndrum-type' effects. The suggested list price is nice at \$129.95.

YAMAHA recently introduced the MR 10 drum machine which is intended to interface with the Producer Series as well as with other amplifiers. It is a hybrid machine, consisting of a pre-programmed section, which allows use of 12 rhythms and various combinations of those rhythms. In addition to this, like MXR's The Kit, the MR-10 also has a five finger pad-operated drum sounds including kick, snare, high and low toms, and cymbal. These pads may be used separately to produce drum sounds, or in conjunction with the autorhythm section — which itself may be used separately as well.

The MR 10 features user-controllable variable tempo, kick drum volume, and tunable toms for Syndrum like effects. It also boasts a rhythm variation feature, allowing a rhythm fill to be placed in every 4, 8 and 16 bars. For those who prefer a foot operated kick drum feeling, there is an optional foot pedal which will activate this drum.

At press time, Yamaha had yet to set a suggested retail price for the MR 10, but word has it that it will be affordable to most musicians.

Miracles of Modern Science

These are not rhythm machines, they're machines upon which you make rhythms. To be more precise electronic drums and drum accessories are what we're talking about in this section.

SYNDRUM DURALINE: The SYNDRUM is an electronic drum synthesizer which utilizes analog synthesizer technology to produce a wide range of exotic sounds. The drum comes in four configurations: the basic Syndrum CM with power supply; the Single model 178, which consists of one Syndrum, a control console, drum cord, and power supply; the Twin Model 278, which is two Syndrums, a control console, two drum cords, and power supply; the deluxe Quad Model 478, which consists of four Syndrums, the control console, a drum snake, and

internal power supply. List prices range from \$79.00 to \$699.00.

ST LOUIS MUSIC offers the PR SERIES APOLLO SPACE DRUM MODEL 888, a clamp-on drum synthesizer about the size of an effects pedal. Basically a glorified rim-mounted drum pickup, the Model 888 is capable of producing a number of synthesized effects via its seven controls, and footswitch. List price is \$89.95.

SIMMONS — the king of electronic drums. The Simmons SDSV KIT is a system of synthesized drum modules. A full kit consists of five pieces, though because of its modular construction, kits of up to seven pieces may conceivably be put together and controlled via the control modules. The modules are mounted in a rack, and each drum is individually controllable through output and sensitivity controls. The suggested list price for a five piece kit with modules and rack is about \$3800.00. Check the review of the SDSV in *IM&RW*, January 1983 for full details and an explanation of the workings of the Simmons system.

Steven Dupler & Mike Shea

King Simmons I

Index to Manufacturers

ROLAND/BOSS: Roland Corp US, 2401 Saybrook Ave., Los Angeles, CA 90040, tel: (213) 685-5141.

JTG OF NASHVILLE: 1024C 18th Ave. South, Nashville, TN 37215, tel: (615) 329-3036.

KORG: Unicord, 89 Frost St., Westbury, NY 11590, tel: (516) 333-9100.

LINN: Linn electronics, 18720 Orvard St., Tarzana, CA 91356, tel: (213) 708-8131.

MATTEL: Mattel Electronics, 5150 Rosecrans Ave., Hawthorne, CA 90250, tel: (213) 978-5759

MXR: MXR Innovations, 740 Driving Park Ave., Rochester, NY 14613, tel: (716) 254-2910.

OBERHEIM: Oberheim Electronics, 2250 S. Barrington Ave., Los Angeles, CA 90064 tel: (213) 473-6574.

SIMMONS: Group-Centre, Inc., PO Box 1444, Reseda, CA 91335, tel: (213) 884-2653.

SYNDRUM: Syndrum Duraline, 11300 Rush St. So., El Monte, CA 91733, tel: (213) 443-7803.

ST. LOUIS MUSIC: St. Louis Music Supply, 1400 Ferguson Ave., St. Louis, MO 63133, tel: (314) 727-4512.

YAMAHA, Yamaha Combo Products Division, 6600 Orangethorpe, Buena Park, CA 90622

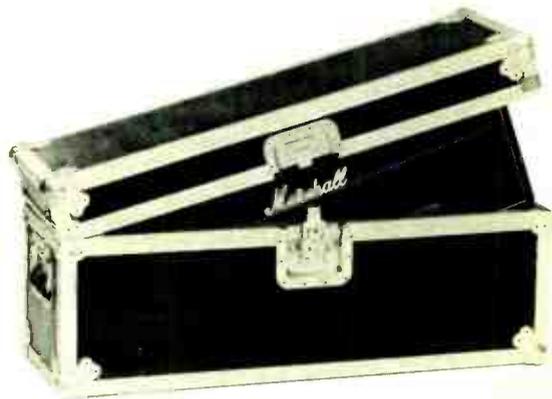


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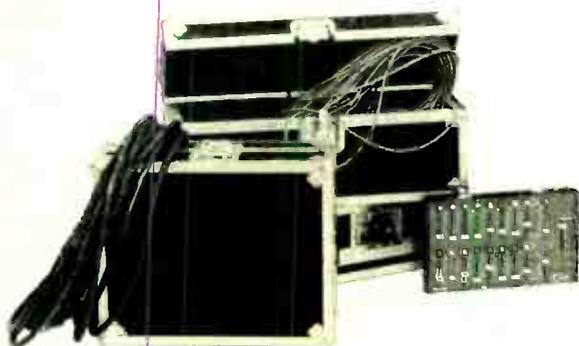
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Simon Phillips

Simply years ahead

Simon Phillips is one of those drummers that makes other drummers look knowingly at each other and smile. He's the sort of player who'll make a grown drummer go running for his practise pad or start looking for a day job. His playing makes some people believe that it's all just a trick of the studio, but for those who haven't already seen him play live, believe me... it's for real!

Now, before you rush out to sell your kit, bear in mind that Mr Phillips has, in fact, been playing since he was three. Born the son of band leader Sid Phillips, he was exposed to the sight of his father's Dixieland band from a very early age. It was obvious that a professional musical career was in store for young Simon, and it wasn't long before he was hitting anything he could lay his hands on. When the saucepans could take the strain no longer, a snare drum was thrust into his hands. Sid guided the boy through this period of discovery, and decided to send him off to a teacher, Mat Abrams, at the age of eight.

"He really wanted me to learn", Simon told me. "He wanted me to read music and do things in a very traditional way".

Learning things the 'traditional' way meant getting down to some serious snare drum technique — none of that Rock'n'Roll stuff in the Phillips household.

"Even Glen Miller was out", he remembered with a smile.

With the lessons came his first drum kit; a Boosey and Hawkes Edgware with 20" bass drum sporting a real calf skin and two single headed rack mounted toms which clamped onto the bass drum hoop.

"But as far as I was concerned, it was a pro kit".

At least it lasted him until 1969 when Dad decided Simon was good enough to hit the road with the band so bought him a second hand Premier kit. And how old was Simon in 1969? Twelve years old.

"That was the start of four years of gigging, doing two or three gigs a week."

This, combined with lessons, obviously contributed greatly to the standard Simon has reached today, but would he recommend such a strict probationary period for a drummer today?

"I think so, yeah, because if you can read music... some people think that if you read music you don't play with feel. I disagree because I think you've either got feel or you haven't... you learn to play other people's music at sight. So when you get into the position that I'm in a lot, when you're in a recording studio and the guy plays a song, he can play it once and then you can just go and feel your way through it. You have this capability of being able to map



through a song very quickly. I think it's a quicker process of learning a song."

At the age of 16 Simon reached the turning point of his career when his father died, leaving him alone in a band where the youngest member was 30. He wasn't really all that keen on the music anyway, so he decided to move on.

"I began finding out the music business for real; I played in a couple of bands, went to work in a shop for a bit, and you know how it is: Somebody remembers you playing, in this case it was a keyboard player, Dave Cullem, and he phoned up and said he needed a drummer to do Jesus Christ Superstar, come down for an audition. I went down for the audition, got it, and that's how it all started".

Through Jesus Christ Superstar Simon began to meet just about "everybody", and at 16 years old he was hot new property on the session scene. He was soon being booked by all and sundry for albums, jingles... anything. Around this time, about 1973, he was listening to the Don Ellis Band, who featured a number of great drummers, and Blood Sweat & Tears, Chicago, Bill Bruford, Alan White and then somebody lent him a certain album.

"It was the Mahavishnu Orchestra, and I couldn't really grab it at first, but there was some really interesting drumming on there, and that was Billy Cobham. I think, like a lot of people in that era, he made a great

Tony Horkins talks to England's brightest young drumming talent

impression on me, and it opened up a whole new way of playing for me. Suddenly drumming seemed to change then..."

A lot of people have drawn comparisons between Cobham's and Simon's playing. Did he actually try and copy what he was playing?

"Yeah, I suppose I'd hear this new stuff and I'd want to try and copy. I thought 'What's he doing there?' and I'd sit down and try and work it out. I used to play to whole albums, and I wouldn't be satisfied until I'd really got the groove, or even the sound that the guy had got."

Does he still amaze you with what he does?

"Oh yeah. Every drummer does. I love anybody when they're playing well. Everybody has little fortés. It's so lovely seeing any musician who really has control over his instrument. I went down the Embassy Club the other night and there was a band, I can't remember their name, and the drummer was really doing some interesting stuff. He had a TR808 drum machine and he was playing in between the drum machine. He was really tight."

I wondered if a guy like Simon, who has his feet pressed very firmly in the technical side of drumming, appreciates the skills of any non-technical drummers.

"To be honest I don't really take much notice of technique, I'm much more concerned with the way the drummer's playing a song"

"Oh yeah, to be honest I don't really take much notice of technique, I'm much more concerned with the way the drummer's playing a song. Like the guy the other night was very good. He didn't have bounds of technique, but what he had he really used well. I'm much more interested with the groove and the time, because after all that's it. You're supplying the sort of background to a song.

"I think the guy in ABC's good, he's got a great groove".

It's funny that he should mention David Palmer (for it is he), because he's actually got a very traditional background himself, with a rooting



in Jazz, plenty of training, and he was on the cabaret scene by the time he was 16.

"From listening to him he must be very experienced because to play certain grooves you've got to have background, and I can tell that he's adapted very well".

A few years ago the drummer everyone was talking about was the Police's Stuart Copeland. What do you think of his playing?

"Oh I love it, I'd even say that Stuart influenced me a lot. Anything a drummer does that's good will influence me, like the guy the other night playing to drum machines. I felt I wanted to give that a try myself".

Have you tried any electric drums, like the Simmons kit?

"Yes I have, and they're terrific. But I think I prefer traditional drums, I like the feel when you hit them, and I like the challenge of hitting a drum and thinking 'Why isn't that sounding so good today?' When you've got seven tom toms, there's bound to be one that doesn't happen."

And talking of tom toms, as we talk the awe inspiring sight of his seven Tama toms, two Tama bass drums, Tama snare and stands and array of Zildjian cymbals sits menacingly silent behind us. He first came across Tama when touring Japan with Stanley Clarke and Jeff Beck in 1978, where the Tama reps convinced him that they made better drums than Ludwig. By '79 he was using a custom built fibreglass kit, which is his main 'on-the-road' kit, but for rehearsals he uses a 'scaled down' 10 piece wood shell kit.

Continued...



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But whatever the outfit, he's always been able to get a good sound out of it, which is partly down to the way he tunes the drums — a laborious task if you've got that many drums. He uses clear Remo Ambassador heads top and bottom, and I wonder where he started when faced with the bear shell and a couple of heads.

"I put the heads on the shell!"

Yes, very funny, but in what order, how, what sequence?

"First of all I get my roadie to put them on really loose, then I usually put it on the floor or on a stool and tighten the top head all round".

Do you tune it by turning the lugs one by one around the shell, or going across to the opposite one?

"I find it better to tune round. I think the head prefers being screwed down rather than pushed parallel. You see, not a lot of heads are quite right, sometimes it protrudes a little bit more on one side above the glue ring than the other. When you put a head on it's not a very precise thing anyway, it's very much a feel thing".

Once the top head is on and tuned (never to another instrument's note, by the way) the bottom head is put onto the shell and tuned to exactly the same note, not to a slightly lower one as some might think.

"That way when you hit the drum you're going to get sustain at the same note. But I'm talking about tuning a lot of toms, which is a lot harder, and you really don't want the drums to go into each other or else you end up hitting seven toms and sounding like you've hit three".

As for any dodgy rings, Simon will tune them out before putting any gaffa on them, though he does have a strip of gaffa over the far side of his snare drum.

"All the time I find a regular snare drum tiring"

"I have a tiny bit on the snare to take the top head ring off because otherwise it's really a high pitched note. Sometimes it's really nice and you can use that note to your advantage, but all the time I find it a bit tiresome. All the time I find a regular snare drum tiring, so that's why I sometimes use two, one slightly damped and the other ringing like a timbali with snares on, a very live sort of sound."

The two snare drums sit as near as side-by-side as possible, so when he's playing the nearest snare the left

hand's on the hi hat, and when he's playing the other one the right hand is.

Simon used to get through his fair share of heads when touring with the likes of Clarke & Beck — the rack toms every four gigs, the floor toms every eight — but at the end of last year, when he first started playing with Toyah, he changed them for clear CS heads and they're still on the drums after two tours.

"I started doing Toyah's stuff with my regular kit but I thought it was just a little too much, it was all tuned up to the kind of music that Jeff and I play and I found it a bit obnoxious playing with the sound I had on the tom toms with the sort of music that Toyah was playing.

"That's when I put the heavier clear CS heads, which is like a totally clear head with a clear spot on. The black spots tend to absorb the light and make them go a bit dead so I don't use black spots anymore.

"So I put these clear spots on at the end of last year with Diplomat heads on the bottom of the drums, which are really thin, and they livened the sound a bit".

As for cymbals, Simon is 100% a Zildjian man, who was recently seen alongside Pete York at London's Venue performing at a Zildjian clinic.

"I used to use really heavy cymbals, all the rock crashes and things, and they lasted pretty good. They survived all of Stanley's tours and all of Jeff's tours, and I think that's about enough. I did crack a couple of crashes, but when I got this kit together a lot lighter cymbals and I haven't cracked one yet. I've really got to like them, they're much more subtle, much easier to hit softly and also to hit loud. The heavier ones now seem like I'm hitting a bit of metal rather than a musical instrument".

So what sizes are they?

"Well from the left I've got a big 24" swish knocker without rivets, and it's a very heavy one. It doesn't really sound like a Chinese, it sounds more like a gong to me. The next one is a 20" ping ride, then a 19" medium thin crash, an 18" medium thin crash and a 16" medium thin crash, and in between the 18" and 16", a 22" swish knocker. The hi hats are 14" Quick Beat".

At this point Simon took me on a guided tour around the kit (not a quick journey — two buses and you have to change three times on the tube) where I noticed his hi hat set at a very precarious angle. It follows a similar angle to that of the toms

and from the stool the whole thing looks extremely comfortably set up, with everything in easy reach and tightly compact.

I wondered if, once comfortably sat behind his comfortable kit, Simon thought in terms of paradiddles and flams when faced with a song or solo, or just played.

"It's so slapdash and un-technical really, which would probably surprise people from the front. A lot of things like that you've learnt and are inbuilt. My thing is, like 'Well, here's a song, it's got this sort of groove, and I'm just extending on the theme of the song', it's improvisation. So you've got to try and make it very interesting for the audience and try not to go too above their heads with technical stuff and try and keep it... just fun".

How do you manage to adapt so much from one style of music to such a different kind, like going from Jeff Beck to Toyah?

"Maybe it's just because I had to. When I was young I had to play a lot of different types of music, especially when I first started doing sessions. Back in the early Seventies one day it might have been Lindsey de Paul, then the Walker Brothers, or it might have been a film... I really had to adapt".

One thing I've noticed about Simon Phillips that differs from his contemporaries... Cobham and the like... is that he seems quite content to sit down and play a straight 4/4. Do you find it boring doing a 4/4?

"No. Again, it goes back to the song. If a song only needs that then why do anything else? What I like to do is try and make the song sound a bit different to the obvious, but sometimes the obvious is right.

"One case I remember is on the new Pete Townshend album with a

Continued...



STEVE GADD. HOT ON ZILDJIAN.

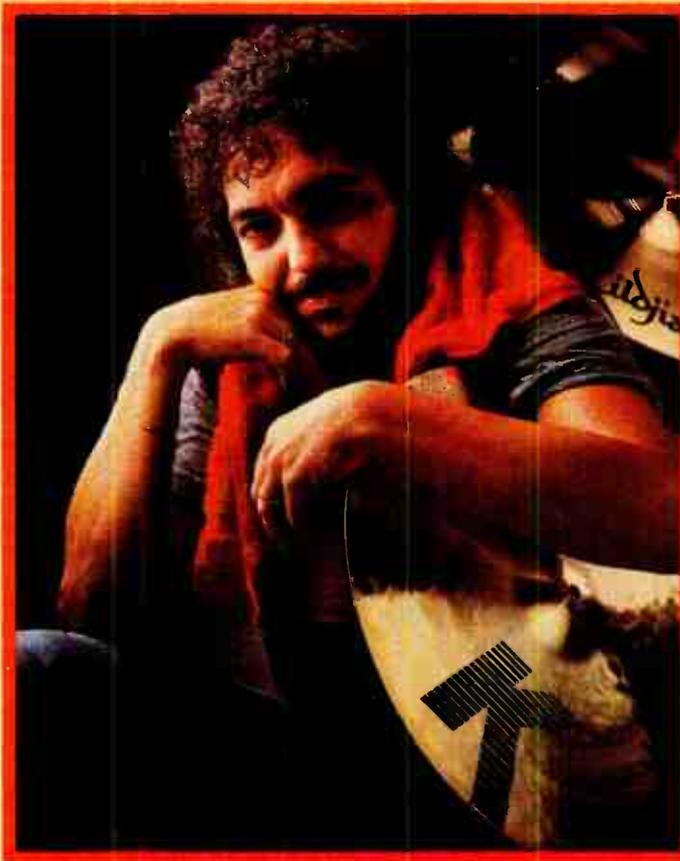
The man is hot! And he should be. No less than Chick Corea put it this way: "Every drummer wants to play like Steve Gadd because he plays great. He plays everything well. He could very well go on to become one of the greatest drummers the world has ever seen."

As you can imagine, between his touring and recording, Steve's not the easiest guy in the world to pin down. But he did stop for a breather the other day and we got a chance to talk with him.

On Practice. "I've been playing since I was a kid. As long as I keep my muscles loose, I don't have to practice a lot every day. When I do practice, I just sort of let things happen naturally and then later on try to work it into my playing. Like on '50 Ways to Leave Your Lover... I used my left hand on the high hat for the whole section - it was a little thing I'd been practicing and it just worked out!"

On Control. "Sometimes I use light, medium and heavy sticks to do the same drills because the sticks affect my muscles in different ways. You have to use your hand and arm muscles differently to control your playing. It's a subtle thing but it helps me tremendously."

On Effects. "After I graduated from Eastman, I played in a rock 'n roll band. It was keyboard, bass, drums and a lot of homemade stuff. I bought 6 big artillery shells, sawed them into different lengths and hung them on



Steve Gadd, one of the world's most innovative musicians, has paved the way toward new playing techniques for today's drummers.

a rack that I built. I'd use them for the free sections in the music."

On K's. "Art Blakey gave me my first set of K. Zildjian's a long time ago. I love the feel of them. There's something about the way the stick reacts to the surface... it almost becomes part of the cymbal. They're not cold or edgy. They have a very warm and deep feeling. They've got real character. I use a 20" Ride and an 18" Crash Ride with 14" Hi Hats for recording and live sessions."

On A's. "I love to use A. Zildjian's when I play rock 'n roll. When I want to play louder, I add a 16" Thin Crash and an 18" Crash Ride for a full crash sound. The bells on the A's really project the sound in a clear natural tone."

On Zildjian. "Zildjian to me is the foundation. I play Zildjians because that's what's in my heart. I love the sound, the feel, the history... I love the quality and the status of a Zildjian."

If you're a serious drummer, chances are that you, like Steve, are already playing Zildjians. For 360 years, they have been the overwhelming favorite of drummers worldwide.

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... Continued

song called *Slit Skirts*. There was a certain bit that goes into a different time signature — a three across the four. I played it in a certain way which felt natural to me, which was to go out of the four and into the three, and Chris Thomas, the producer, wasn't too happy with that. He felt that it broke it up and suggested that I play straight through it. I felt at the time that it was a bit of a shame but I did it, and listening back to it it really worked. I actually made it more interesting to play straight through it — that was the sign of a good producer.

"I feel that I can never play in the

studio technical type of music as well as I can play on the road. Also, when you're recording you have to play simpler, it just comes over better on a pair of loudspeakers. If you're going to play complicated it's got to be really good. Even sometimes when you've got a straight Rock'n'Roll tune with a lot of accents, the trend is to catch every accent. But if you do that there's so much going on sometimes if you just play straight and let the rest of the band do it it feels better."

And talking about the 'rest of the band', Simon was rehearsing at the time of the interview with a new line

up totalling three and including old cohort Jeff Beck.

"I wanted to carry on playing with Jeff because a lot of people have noticed that we 'have something' when we play together. We spent all of last year trying to put a band together. We tried quite a few people who were very good musicians, but it just wasn't right. Then we gave up for a bit, I went off and did Toyah's stuff then I went to America for a tour with Al DiMeola and met a guy called Philippe Saisse, a keyboard player, and we had a lot in common and got on really well. So he came over to my house earlier this year to do some writing together. So we got together with Jeff, and Philippe is playing all the bass stuff with his left hand and the chords with his right, and we've got no bass player.

"It's funny music, very progressive, melodic space Rock — it's all very exciting. It's basically instrumental, but I actually think it's very commercial. The way Jeff plays melodies it's like somebody singing anyway, so if we can get that across on record..."

A lot of commercial music these days seems to be recorded with the exclusion of the drummer. What do you think of the Linn drum machine?

"Secretly I love the Linn drum machine, but it will never replace the real drummer. Why people use the Linn is because a lot of the drumming that's required these days is very simple and very time conscious, and there are not a lot of young drummers around who play with good time. It's very hard for any musician to play in good time."

How do you do it?

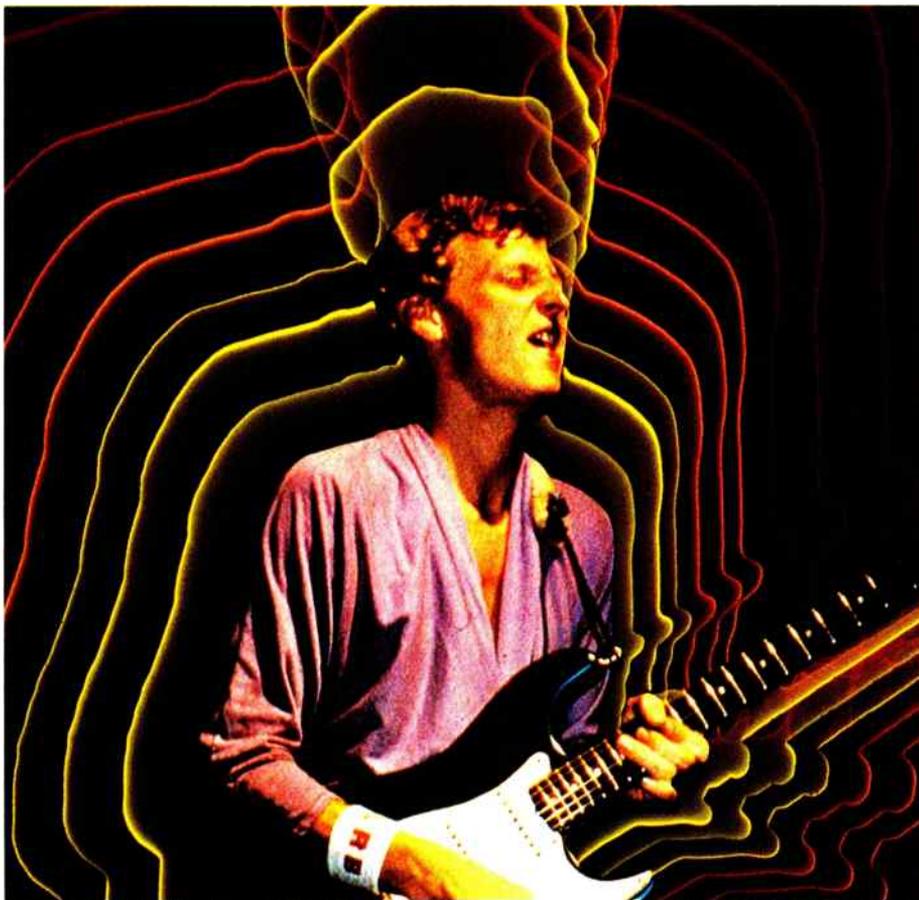
"I'm still learning."

Do you count, or keep a part of your anatomy going all the time?

"No, the worst thing to do is to establish the time with one of your limbs for the rest of your limbs to stick to, because *you're* creating that time. You have to be the rhythm, that's why when you can hold time you can play all these polyrhythms and still keep in time. If I'm playing in four, I can play loads of bars of seven across that and still come out because I know where the time is. But if it starts getting really complicated I'm going to have to try and work it out mathematically.

"It's especially hard when you've just got to play kick and snare drum and no hi hat, and you've just got to hold it in your head. That is really hard, but I think that's the whole point of it".

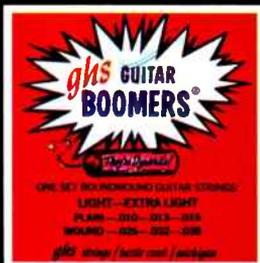
Tony Horkins



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Buzzes: Part I

There is a very common ailment that you and your guitar (or electric bass) will experience at some time, either now or in the future. It's a malady that afflicts even the best of the best, and is called BUZZ.

Buzz. More specifically, fret buzz. The sound of the strings just touching against the top of a fret or frets. If you are like me and countless others, it will drive you absolutely bananas. For the most part, the problem is a complete mystery to the average player.

Fret no more, kiddies (pun intended). Let's cover the subject in some depth with the intention of at least helping you understand what it is, if not how to cure it.

Fret buzz, or fret slap as it is sometimes called, is that awesome tinny, metallic, star-like sound caused usually by one or more frets touching the strings.

High Frets

For various reasons, a fret can become out of plane with the rest of the frets and cause this situation of buzzing. I state "for various reasons", because there are a number of different causes, really not related to each other. The most common cause is a high fret. This is a condition where one fret becomes loose and slips from the slot, therefore raising itself and is seated just a fraction higher than the others. When the string is struck it vibrates and just lightly skims the top of the high fret creating a buzzing sound which usually is picked up by the amplifier and sounds like hell. In rare occasions, the fret is so high, it causes the note to become dead and not sustain at all. In a lot of instances, you notice a lack of sustain when you bend a note. The note is struck, it sounds great, you bend that note and it dies a sudden death. The reason, of course, being the string touching the high fret.

On the Level

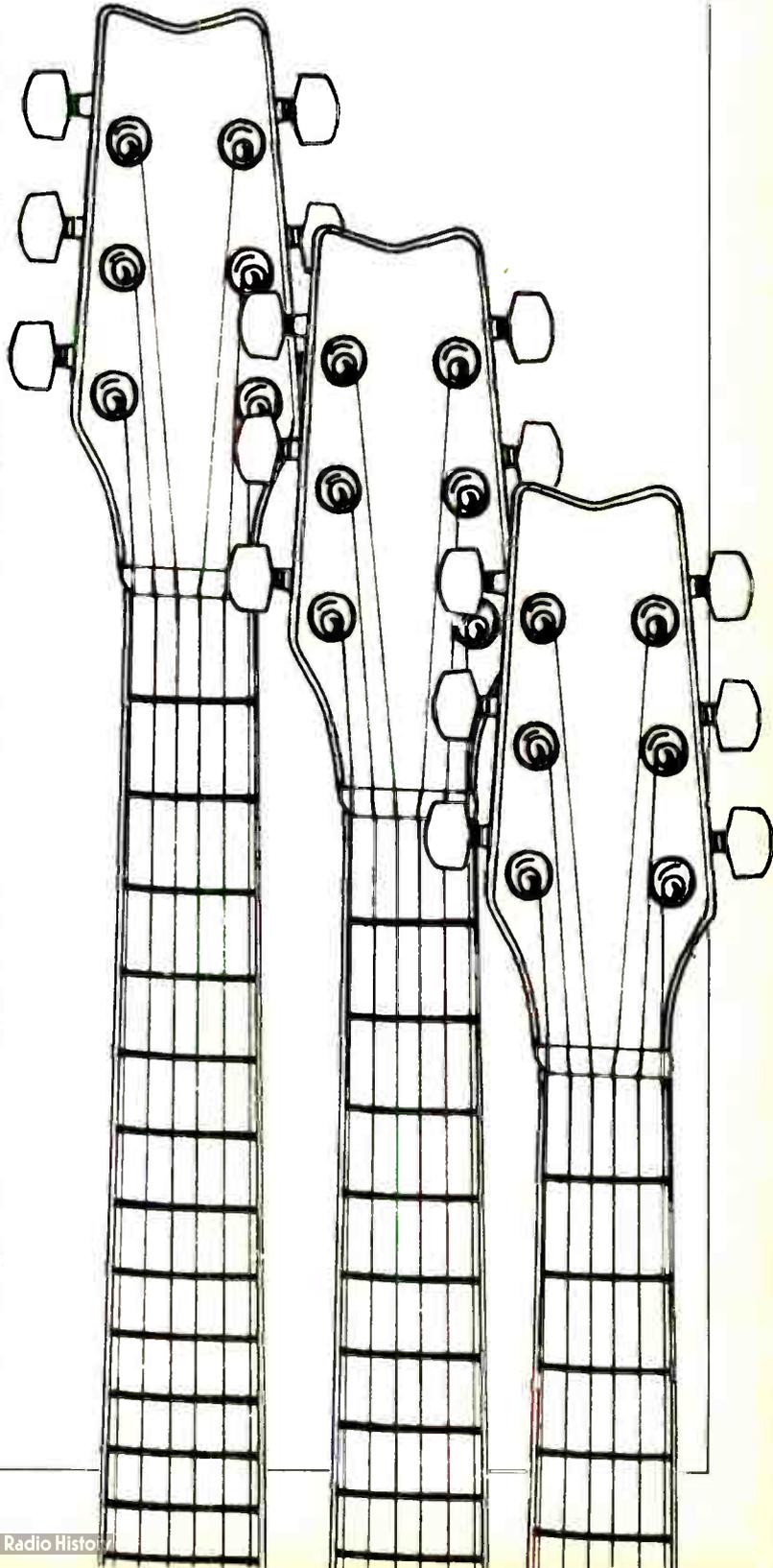
What is the cure for this ailment? The cure is to render all the frets the same height. This is done by what we call a fret or fingerboard levelling. It is also referred to as *dressing* the frets or fingerboard.

In order to undertake a job like this, one should have a little experience in the use of hand tools and should be very adept at tackling jobs that require concentration. Even the most experienced repair people have a rough time with frets. Be that as it may, it's a job that can be done by you, and one which you will get better at with time.

Low Down & Dirty

Just as a high fret can be a problem, so can a low one. A low fret is usually caused by excessive wear in an area of the fingerboard, causing one or more frets to be lower than the rest and therefore creating a situation where the string crossing the low fret is lower than the regular height of the frets after it. This string will buzz when struck because of this low fret or frets. This situation is a little harder to remedy depending on how worn the low fret(s) is(are). In order to render the plane of the frets level, you must file the frets to the point of your lowest fret, causing the problem.

Continued...



... Continued

This in itself is a problem, because you may have to remove a lot of meat off the frets and therefore change the feel of your axe. In extreme cases, a total fret job is necessary. In the case of extremely worn frets, your best bet is to consult a good repairman.

How do we determine the nature of the problem facing us? This is done by carefully examining your neck and fingerboard. As I said before, every adjustment performed on your axe must be done with finesse. If you have the tendency to plunder into things haphazardly, forget about it. Go outside and cord some firewood — you'll be better off. With this thought in mind we'll continue. You have to determine whether the buzzing is caused by a high or low fret. Loosen your strings and carefully examine the condition of the fingerboard, paying particular attention to the physical condition of the frets. You are going to be amazed at what you will see when the strings are out of the way. Usually there are flat spots on the frets in certain areas, or sometimes grooves where the strings have worn into the fret itself. These are typical conditions that will affect the playability of your axe.

Actually, it's important to first determine what area of the neck is giving you the problem. If your guitar is buzzing up around the fourteenth fret, it would be silly to look for any problems at the third fret. (Although if there is any wear at that area, it should be dealt with anyway.) Of course, you must know your guitar very well to know where it is playing badly.

I assume you have been playing this instrument for a considerable length of time and are totally familiar with its idiosyncracies. At any rate, we will now assume the problem lies in the upper register. After trying to bend a note at the tenth fret, we notice a real deadening of that note. It just cuts out every time we go to bend the first string. From this mere observation, we can determine that either the eleventh fret or above is high, or that the tenth fret is low. The problem can also be one in which the string just buzzes without bending. The same assumption would apply. Or perhaps the buzzing is on the second or third string. Again, the same deduction could be made. There is either a high fret at the eleventh or above, or the tenth fret is low.

If we check a little bit further... play the eleventh fret, then the twelfth, and so on until you reach the point at which there is no longer a buzz. It is at that point where the buzzing stops that we must look for the problem. In this case, we are assuming the problem is at the tenth fret. This means that all the frets from the tenth fret and above will have to be levelled.

OK, let's continue assuming. If the problem area is around the tenth fret, we must loosen the strings and examine this area carefully. When loosening the strings, I usually call on my favorite tool to assist me — the peg winder. No player should be without one. And masking tape. I tape the strings at the nut and at the end of the fingerboard spreading them apart, with three being pulled toward the treble side, and three strings being pulled to the bass side, and then taped there so they are out of the way. It's not necessary to remove the strings all the way.

With the strings out of the way, take a good long look at the area around the tenth fret. Again, you are looking for signs of excessive wear, which can include grooves in the frets or worn flat spots. If the person playing the instrument was a real Rock or Blues player, there would tend to be flat worn frets there because of constant bending of notes in those styles of playing. Whereas, if the player were a Jazz or Country picker, the frets would most likely have grooves in

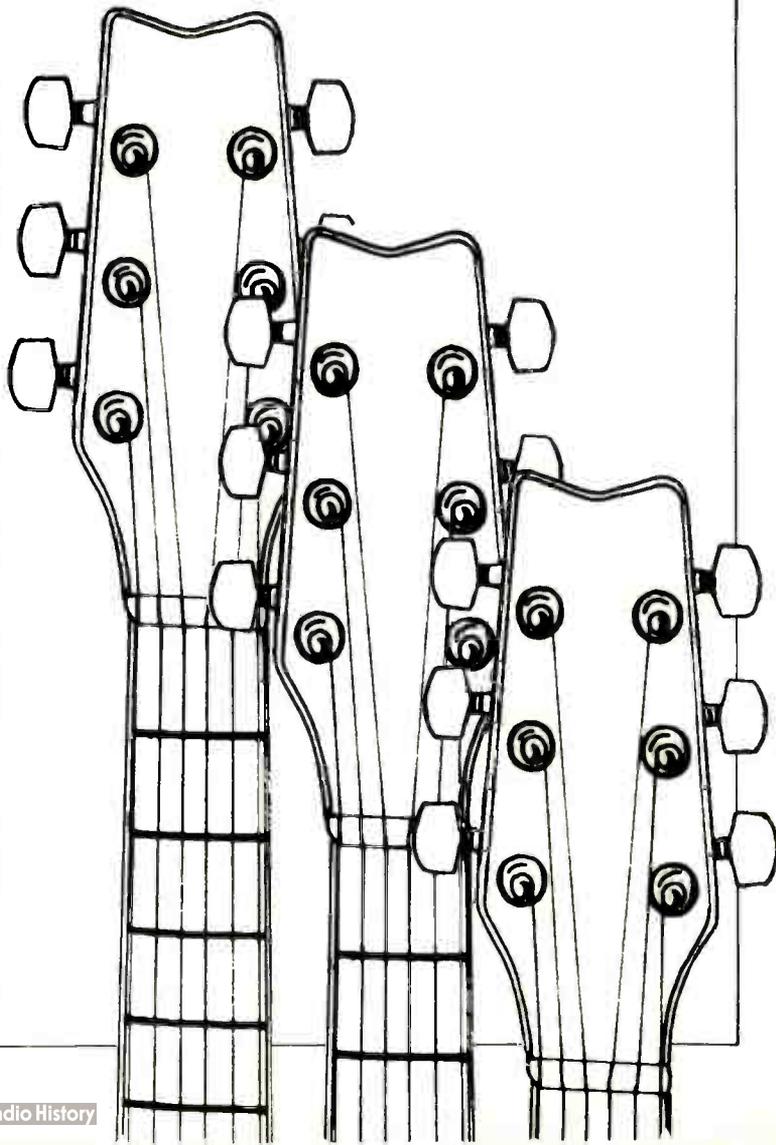
them due to the style of not bending the notes as much. In your examination, study the area and remember what you have noticed, as it will help you later on when trying to remedy the situation. When you have a problem it is not necessarily confined to just one specific area. There can be more than one trouble spot on any guitar. Let's hope you aren't one of the more unfortunate ones to share in that scene. By sighting down the neck, you will be able to ascertain which fret is up. Just study the tops of the frets as you are looking down the board and you will see which it is. We will take two separate courses of action to solve the problem and actually cover them in great length in our next issue. As we are progressing here, I realize I haven't yet covered the tools you will need to tackle this job.

Tools

You will need a good sharpening stone (an Arkansas Stone is what I usually use), a good flat file (double cut is preferable), a sheet of 400 wet/dry sand paper, a bit of 0000 steel wool, and some food for wood (lemon oil).

These items are easily obtained at your local hardware store and pose no problem. Once you've established what and where the problem lies, the rest will be in your application or should I say execution of the actual work. Tune in next month and see if our hero will forever rid his guitar of those annoying, persistent, mind destroying BUZZES.

Ron DeMarino



COMPUTER SYNTHESIS EXPLAINED

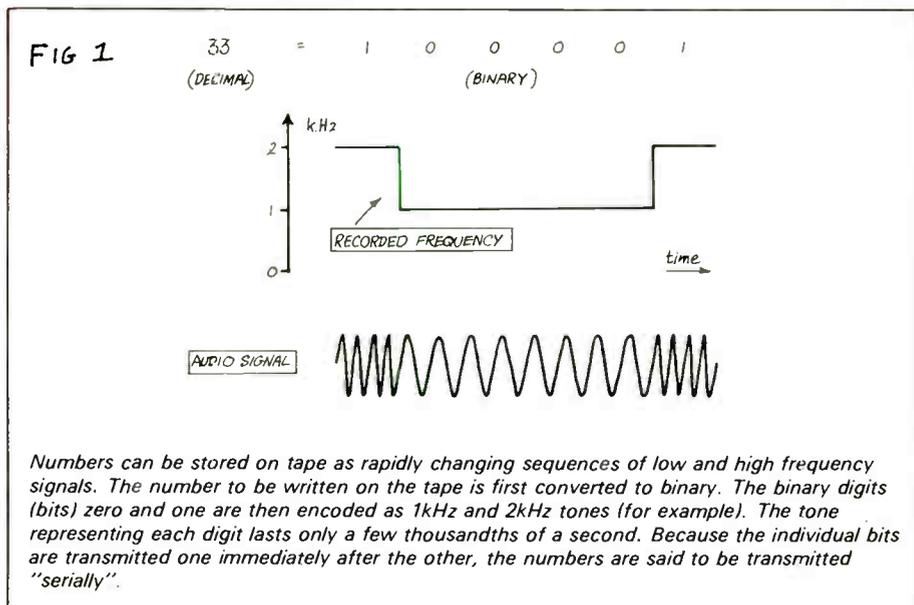
COMPUTERS AND MUSIC

THE IDEA THAT A PRINTED MUSICAL

score is a store of information (a set of instructions to the performer) has already been introduced several times in the earlier parts of this series. In a digital computer, all information is represented as numbers, and in order for a computer-controlled instrument to perform a composition, the score must be *translated* into numbers which the computer programme can interpret as pitches, note durations, changes in tempo and so on. This digital representation of the score is stored in the computer memory when the performance is actually taking place. However, the contents of the memory (with the exception of ROM: see Part 2) are lost when power is removed, and so all computer synthesizers require some kind of permanent storage if the *translation* is not to be repeated. This article outlines how musical information is transmitted to, stored on and recalled from magnetic tape and disc, which are the two most common types of storage media.

STORING NUMBERS ON TAPE

Everyone is familiar with the idea that analogue signals can be recorded on tape; the recording can be regarded as a file of information which describes in minute detail how a speaker cone should move in order to reproduce the original sound as closely as possible. The idea that numbers can be stored on tape



(including normal cassettes) is less familiar, but in fact it is not difficult to visualize how this can be done.

The first stage is to think of the number to be stored in binary form, as explained in Part 3. (Any number supplied by the computer will already be in this form.) For example, the number 33 is 100001 binary ($1 \times 2^5 + 1 \times 2^0$). So storing the decimal number 33 reduces to the problem of storing the sequence of binary digits 1, 0, 0, 0, 0, 1. The second stage is illustrated in Figure 1. The zeros and ones are coded on tape as two different audio frequencies, say 1kHz and 2kHz. Each binary digit (bit) lasts the same length of time (typically a few milliseconds), the bits making up the binary number being recorded

serially, one after the other. In other words, any number on the tape is represented by a rapidly changing sequence of high and low pitches. (There are other ways of encoding numbers; this particular technique is called *frequency shift keying*.)

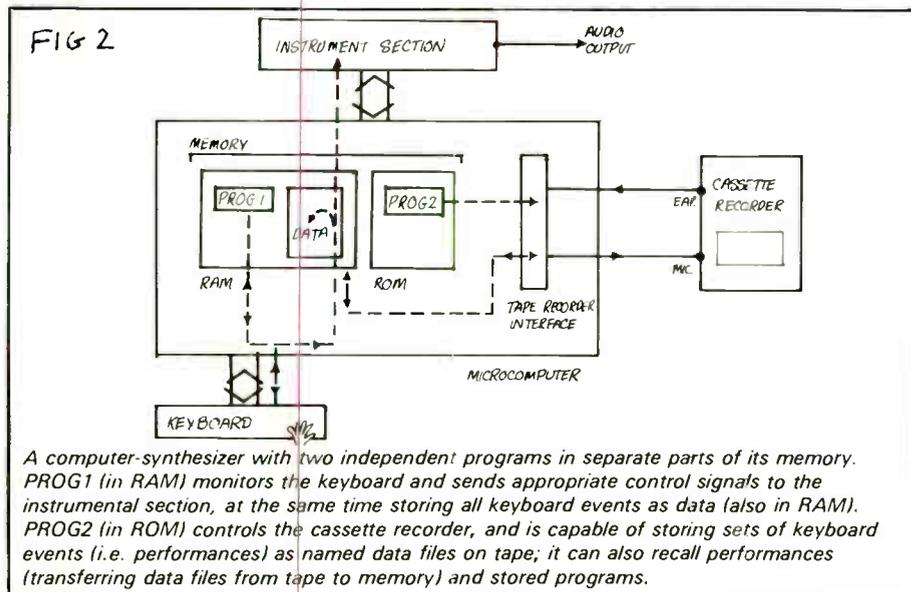
TAPE DATA FILES

The essential parts of a computer-synthesizer capable of memorizing keyboard performances are illustrated in Figure 2. Two programs are shown in memory at the same time, one in RAM and the other in ROM. The first (PROG1) monitors the keyboard, controls the sound-generating sections of the instrument, and stores in memory sets of numbers which represent the pitches of notes played on the keyboard and their durations, as described in Parts 2 and 3.

The second (PROG2) looks after the tape recorder, and when activated by the performer will start to "dump" those numbers on to tape. The set of numbers in RAM memory, which perhaps represents the melody line, will then be recorded as a stream of bits on tape as described above; the resulting recording is called a *data file*.

FILE NAMES

One tape is capable of holding a large number of data files, the number being partly determined by the file lengths. If a conventional audio cassette recorder is used for the



Continued...

COMPUTER SYNTHESIS EXPLAINED

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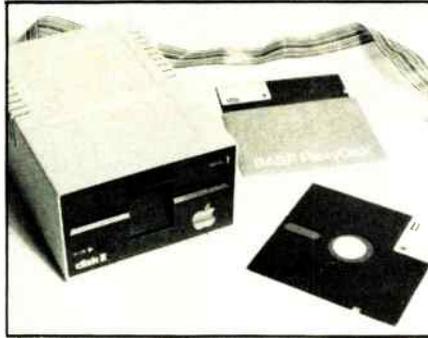
purpose, then of the order of 30 numbers (each in the range 0-255) can be recorded each second. For example a melody line with 240 notes, represented by 480 numbers (one for pitch, the other for duration) could be recorded on tape in 16 (480/30) seconds, *whatever the total duration of the performance*. Clearly a C60 cassette for example could hold a large number of data files and, in order to differentiate between them, the files are allocated names which are recorded just before the data. (The letters are coded as binary numbers.) The file name can be chosen by the performer but is most likely to be an abbreviated title of the piece. (The Atari Music Composer system described in Part 4 includes this facility.)

LOADING DATA FILES

The program which creates data files on tape is invariably capable of the opposite process (there wouldn't be much point in recording the data otherwise!). This opposite process is known as *loading a data file* in computer jargon. The operator rewinds the tape, specifies the required file by giving its name, then has to wait while the computer searches along the tape, looking for a match between the specified name and the name at the head of each data file encountered. When the required file is found, its contents are transferred into the area of memory reserved for the musical data.

PROGRAMME FILES

There is essentially no difference between numbers stored in memory which represent musical information and numbers which make up the computer program. Instructions in the program are coded as binary numbers in the same way that note pitches and durations are coded as binary numbers. The type of program described above which can create tape data files is equally capable of dumping on to tape the contents of the area of memory containing a program. To give a specific example, referring to figure 2, PROG2 could store PROG1 on tape with the name SYNTH. The transfer would occur in exactly the same way that a *data* transfer occurs. A file such as SYNTH is known as a *programme file* and could be loaded into memory in much the same way



An Apple II disc drive with floppy discs (diskettes). The magnetic disc itself is permanently housed in a protective sleeve (front). When not in the drive, diskettes should be kept in their dust covers (back) otherwise the disc surface may be damaged and files become irretrievable.

that a data file is loaded. (Notice that PROG2 has to be in memory *before* any other program can be loaded from tape. That is why it is stored in ROM; PROG2 is not lost when power is removed from the computer.)

DISC DRIVES

Although a cassette recorder provides by far the cheapest means of storing large volumes of data, storage of and access to the data is slow. Data files containing up to 16,000 numbers are not uncommon: although some systems do use substantially higher transfer rates than the example of 30 numbers/second already given, even at a rate of 100 numbers/second the dumping or loading a file of 16,000 numbers would take over two and a half minutes. The delay becomes even worse if several data files are stored on one tape and time is wasted searching through unwanted files.

A better but more expensive solution to the problem of bulk data storage is the disc drive, the main advantage being the speed with which data files can be stored, found, and retrieved (disc drives have a *fast access time*). Discs take several forms, but by far the most widely used is the *mini-floppy diskette*. These are magnetic oxide coated flexible discs 5¼ inches in diameter, permanently housed in a protective sleeve. Figure 3 shows two diskettes alongside an Apple II disc drive (costing around £300); the diskettes are inserted through a central horizontal aperture in the front of the drive. Once inside, the disc is rotated at high speed, a record/replay head making contact

with its surface through the radial slot in the protective sleeve.

Unlike a record, information is stored on a disc in many concentric tracks, rather than one spiral track. The method of recording varies between manufacturers and in general a disc *written* by one system cannot be *read* by another. Apple II drives normally record data on 35 tracks, each track being capable of holding 4096 numbers in the range 0-255 ie 4K 8-bit words, or 4 kilobytes. (Each track is subdivided into 16 sections called *sectors*, each sector containing 256 words.)

When numbers are to be stored or retrieved, the disc is rotated at 300 r.p.m., and the record/replay head moves along a fixed rod until the required track is reached, when the data transfer takes place. If the file is larger than 4K, the head will have to change tracks during the transfer. The head can move from track 0 on the outside to track 34 on the inside edge in less than a second.

DIRECTORIES AND CATALOGS

When data is stored on tape, there is really no problem keeping tabs on the various data files, provided the tapes are carefully labelled and notes of the file names are made. In practice, cassettes are so cheap that it is common practice to store just one file on each tape. Although this wastes tape, it saves a great deal of time searching through unwanted files. The same is not true of floppy discs. They cost two to three pounds each and, quite apart from the economics, if diskettes are continually being interchanged part of the speed advantage of the disc drive is lost.

Fortunately for the user, disc drives are supplied with a whole suite of programs called the *disc operating system* or "DOS". Without them the drive would be useless. The DOS allows named program and data files to be stored on disc with the minimum of effort, automatically allocating new files to free tracks, and in doing so maintains a list of file names currently on the disc. This list (which is actually itself a data file in a reserved track on the disc) is called a *directory* or *catalog* for obvious reasons.

Tony Horsman

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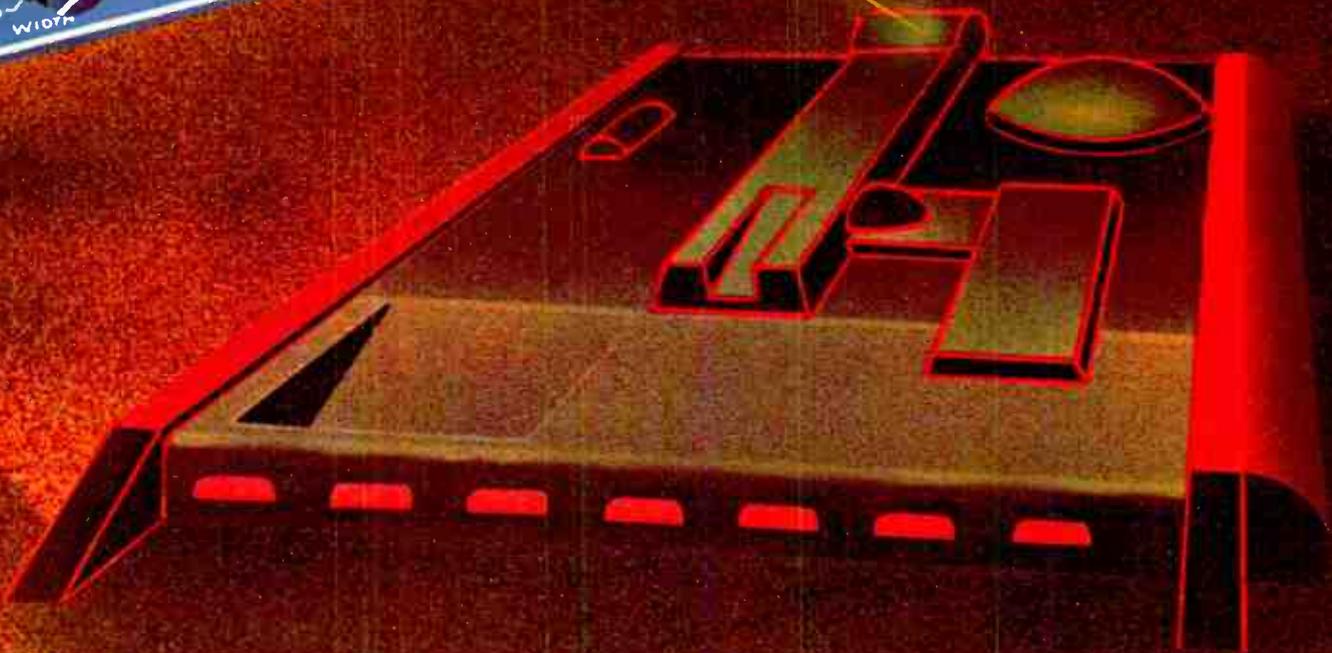
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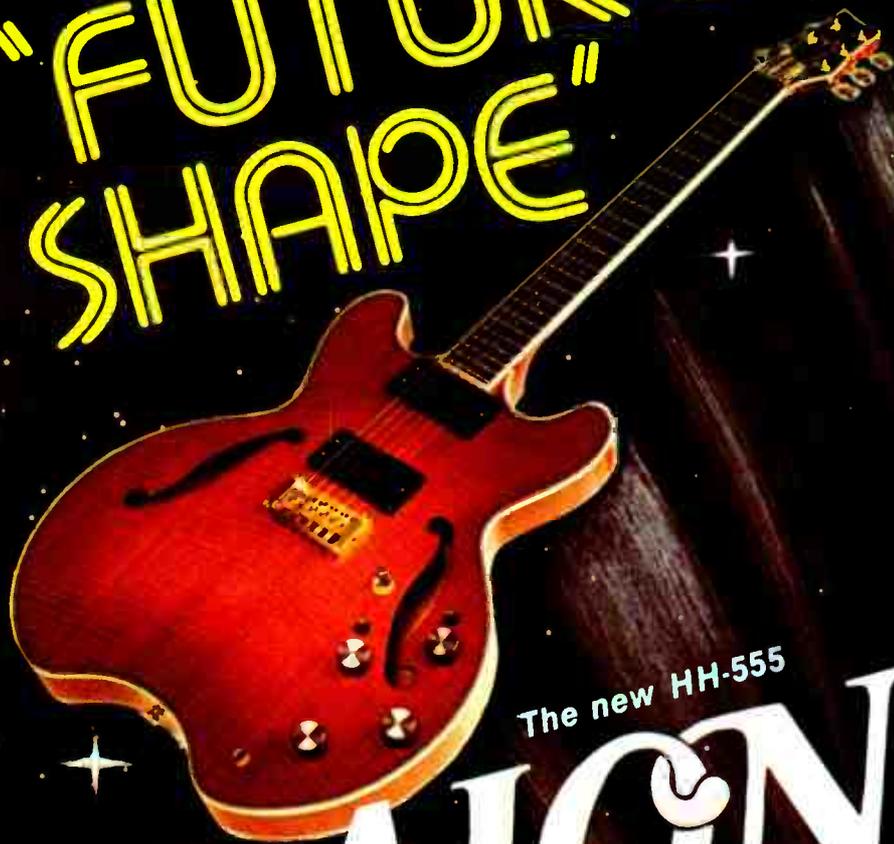


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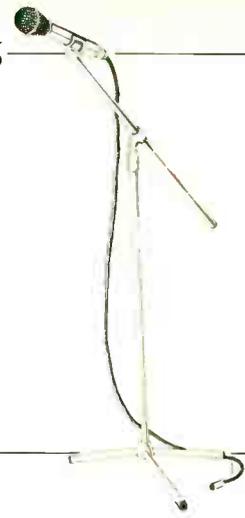


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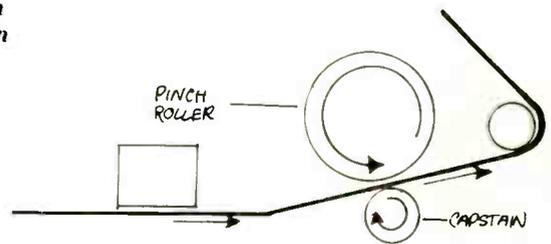
The 2-Track Deck



We now come to the 2-track or stereo reel to reel (also known as open reel) $\frac{1}{4}$ " tape deck. Although commonly thought of as only a means of recording your final mix, it is also a very versatile tool as we'll see. The alignment of the deck is very important. If the studio sets it up for +3 operation (250 nW/m) the VU meters will read 0 VU at +3dB. This means that if you cut your mix hot (plus 3 or 4dB), seen by the deck's meters you're actually cutting at +6 or 7! Here, print-through or even tape saturation is possible. Furthermore, VU meters are relatively slow acting and therefore will not show the actual peak levels of your program, so add on a couple more decibels to your already hot level. To avoid this problem you *must* know the alignment of the deck, *and* use peak reading meters, either on your console or on some piece of outboard gear, to obtain correct levels. If a piece of outboard gear is utilized, it obviously should not affect the signal in any way.

If you're fortunate enough to work in a studio that has more than one 2-track tape deck, a whole world of tricks is opened up to you. In the series of articles on reverberation we explained that 3-head tape decks could be used for echo and reverberation effects. Here, a length of tape was spliced together to form

Fig 2: Tape loop between pinch roller and capstan



a loop, running through the deck (see figure 1). Notice that the tape completely bypassed the reels, but still passed through, and activated, the take up tension arm's switching. A mic stand or any other non-moving smooth-surfaced item can be used, to keep this tensioning. Press 'record' and feed any signal to which you can to add the effect, to the deck. Depending on the tape's speed and the levels set, you can get anything from slapback echo to reverberation.

For a discrete echo effect, shorten the loop, increase the speed and go to playback mode after the signal is recorded. Depending on the size of the loop and the deck's speed setting, you'll get a discrete single echo at some point after the original. By feeding some of the output of the deck back into its input and staying in record mode, you can get many

repeats. Setting this up and getting the timing right may take a little time, but the effort is well worth it.

Look at figures 2 and 3. Normal threading of the tape (figure 2) shows the path to be *between* the capstan and pinch roller, causing the tape to move from left to right. If you run the tape *around* the capstan and pinch roller as in figure 3, the tape travels from right to left (backwards). This may not seem like such a big deal but it can be very useful. Here are just two examples:

Tape decks *must* have accurate playback speed and this fact also applies to reverse direction. Say you have part of a mix done but someone's hit the wrong button and muted the snare. Find the exact point of the mistake by moving the tape across the heads (generally by rocking the reels back and forth). When this point is found on both the 2-track and multi-track decks, mark the tape's position with grease pencil. Now carefully feed the tape for reverse play on both decks and re-set your marks to their original positions. Hit play on both decks simultaneously. Both decks will now play backwards. At some point past the mistake stop both decks, again, simultaneously. Mark and re-route the tape for normal play. Unmute your snare, but touch nothing else on

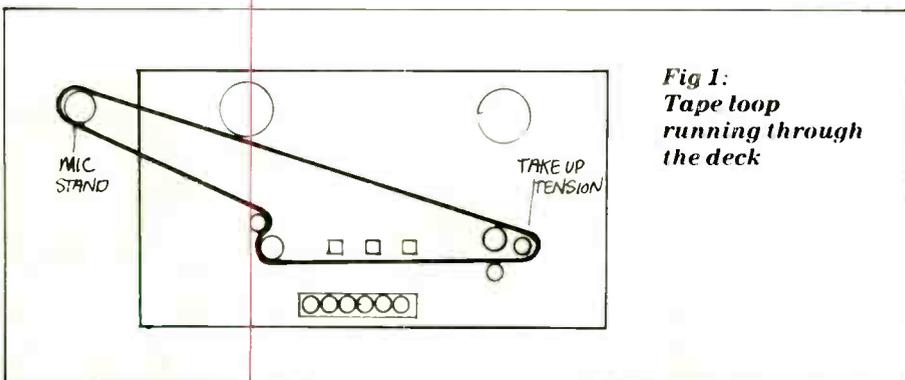


Fig 1: Tape loop running through the deck

Continued on page 54

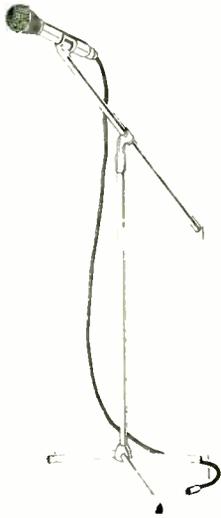
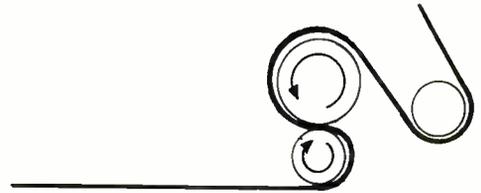


Fig 3. Tape loop around pinch roller and capstan



Continued from page 53

the board. Start both machines playing at the same time. Hit record on the two track just before the mistake and continue with your mix, the decks will sync up perfectly if this procedure is done correctly.

Another trick with reverse tape travel is the backwards guitar sound. Instead of fumbling around with

flipping the master tape over to get reverse and thereby causing all inputs and outputs to change positions as well, not to mention making it difficult for the guitarist because he has to play along with backwards music, have him lay down his solo in the normal fashion (left to right direction). Now transfer the solo to the 2-track. Go to the end of the solo on the two track and the beginning of the solo on the multi-track. Reverse the tape path of the multi-track only, hit play on both

decks simultaneously and get to some point before the solo. Reverse the tape path of the 2-track and go back to the normal tape path on the multi-track. Patch the two track return to the guitar track of the multi-track. Simultaneously hit play on both decks putting the multi-track into record just before the solo starts. The solo will be played back by the 2-track in reverse (backwards) and re-recorded that way by the multi-track in perfect sync; that is, beginning and ending at the exact spots wanted.

There are obviously many more uses for reverse feed especially when combining two tapes into a single tape on a third deck, where exact matchup is essential. The most important step in this procedure is accurately making the tape's placement before reversal and re-positioning the tape to this point after you've changed the tape's path, before you hit play on both decks.

Another function of the 2-track after mixdown is editing. The purpose of editing used to be only for correcting mistakes or putting together pick-ups. Pick-ups are when you restart to record a tune at some point before a mistake was made, yet not all the way back to the beginning. Lately, with the addition of LP singles to the market lasting up to around 15 minutes, it's often necessary to mix the tune many times and add on extra sections to achieve this length. In any case editing and therefore splicing is a *must-know* procedure for anyone interested in recording engineering. Next month we'll deal with this and some of the methods used to sharpen these surgical skills.

Mike Shea

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Memory Moog

Basic functions and facilities

Oscillators: Three oscillators, each can be switched between 16, 8, 4 and 2 octave divisions, all having a choice of square, Ramp and triangle waveforms, plus variable pulse-width controls, with phase synchronisation between oscillators 1 and 2. Osc. 3 can be used as an optional modulation source, by using the 'low' and an on/off keyboard track control. Osc. 2, and 3 have coarse and fine tuning. All three can be independently balanced for volume. The level settings of these are rather sensitive and can be used to overload the filter, thereby creating a clipping effect. If you want a clean sound you have to keep the levels down to about a third.

Noise generator — Yes, it's got one, and for a change it is pink noise as opposed to white. What can I say except that pink is very fetching and is all the rage at the Paris fashion shows.

Filter and Envelope Shapers. Well, once you've seen one you've seen 'em all, apart from the fact that Moog have added a few extras that seem to be rather worthwhile. There are three buttons of particular interest which affect both the ADSR of the filter and the VCA...

'Return to zero' resets the attack time to zero as soon as another key is pressed.

'Unconditional contour' — 'attack' and 'release' complete their cycle irrelevant of how long the key is held down.

'Keyboard follow' — ADSR lengthens or shortens, depending upon where you strike the keyboard, ie when simulating acoustic qualities in instruments that have a natural difference between the decay time of the low and high notes.

Voice Modulation — This is the equivalent of the 'Poly Mod' section of a Prophet. The two sources of modulations are Osc.3 and the filter envelope. There are two buttons, 'Contoured Osc Amount' which shapes the affect of Osc 3 by the ADSR. (This can be somewhat useful for creating delayed modulation effects.) 'Invert' which either inverts the envelope shape when the 'contoured' button is on, or inverts the waveform of Osc 3. The latter is only really noticeable when using the Ramp waveform. All effects are assignable to Freq. 1/2, Pulse Width 1/2, of the filter.

If you met a Memory Moog, let me tell you that it would have to have six voices, 100 memories, a 5-octave keyboard and would be of the analogue/digital breed of polyphonic keyboards. It's a rather nice looking chap who closely resembles a Prophet in more ways than one. The keyboard has an interesting feel to it as it doesn't use any key contacts but employs instead something called bubble switches.

The System Controller

This is the heart of the instrument as from this 16-button panel you have access to all the various functions of the Memory Moog (programmes, chains, keyboard modes, arpeggiator modes, etc). This is assisted by a two-figure programme display and a separate 8-character Alphanumeric display — (lively word that — just rolls off tongue). The buttons on the panel are numbered 1 to 9 for calling up the 100

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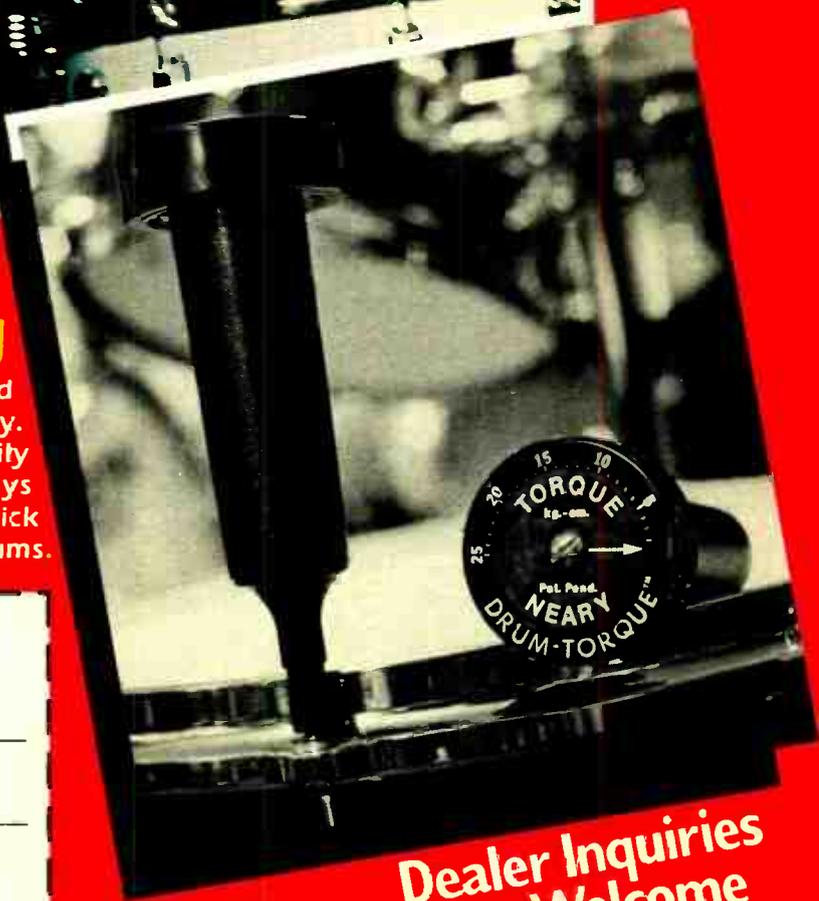
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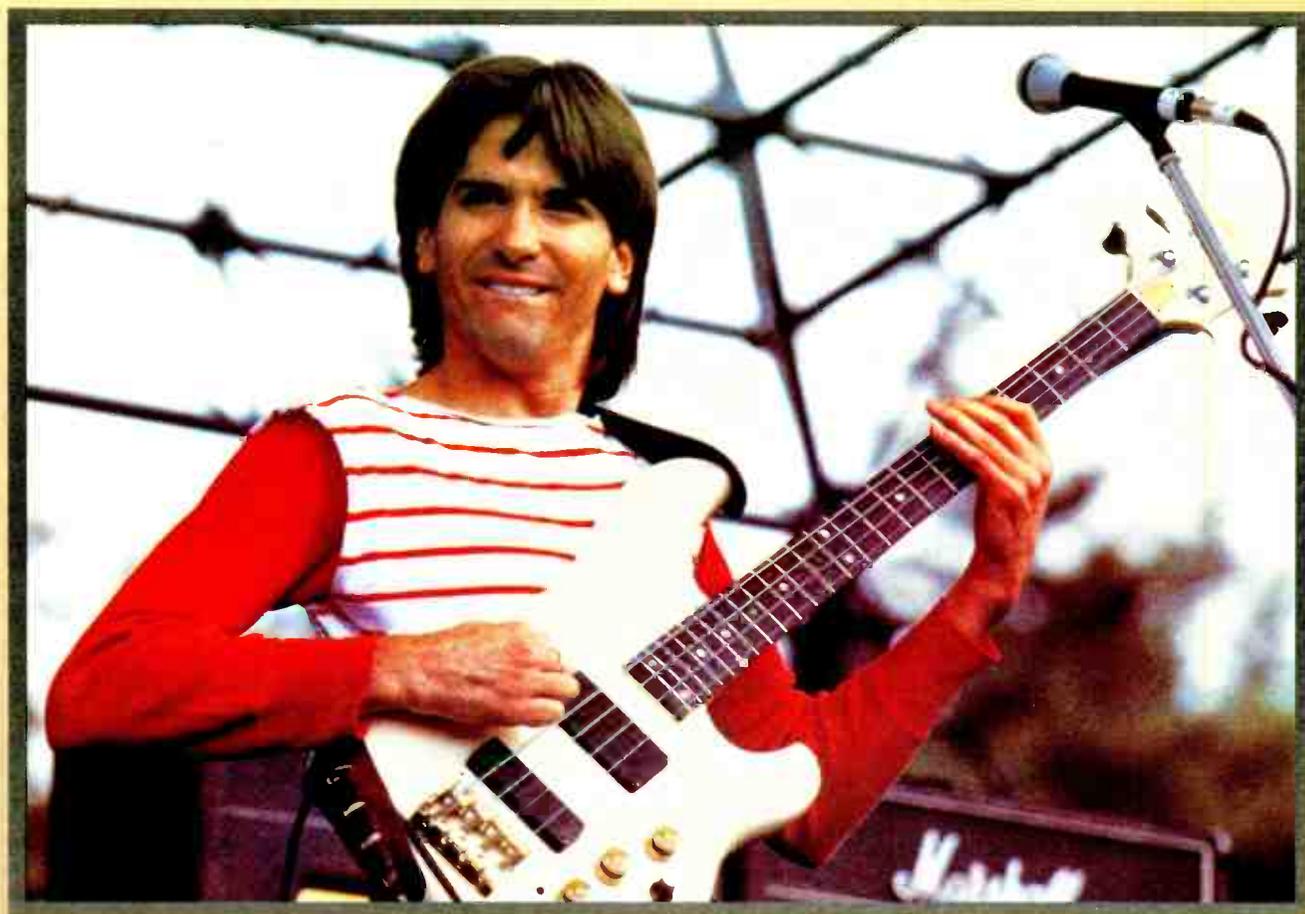
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The Korg KPR-77 Programmable Rhythmer

Programmable rhythm machines are being utilized more and more in all phases of music — writing, live performance, and certainly in recording. The fact that there's virtually no set-up time, mic re-positioning, tuning, broken skins, etc, can make this type of unit a more favorable approach to obtaining your percussion.

Right off the bat, I'll state that the KPR-77's sounds cannot compare with the near-perfect accuracy obtained by digital drum machines, as the Korg utilizes synthesized sounds instead. However, the sounds are quite good and the KPR-77 lists for only \$695.00 as opposed to thousands of dollars for units with digitally recorded drum sounds. So what *do* you get? Almost all the features (and even some extras) found on those high priced units.

The Korg Rhythmer is a fully programmable computerized rhythm machine. Its memory is quite extensive, three groups of 16 different patterns can be programmed, each containing up to 32 steps or two 4/4 measures of 16th notes. These "banks" can then be combined for longer patterns, that is, chained together to make up complete songs. The unit has six chain banks each holding up to 256 measures of 4/4,

which can also be combined to form up to three uninterrupted double length chains. The KPR-77 goes even further. It allows you to repeat patterns both Da Capo and Del Segno, as well as giving you the option of selecting the "next play" of either chains or basic patterns *during* the time the unit is actually playing. I'd call that flexible, to say the least. The KPR-77 can also be played in real time, making it a true instrument.

Programming is relatively easy, no need for a degree in computer operation here. Even though the manual I received with the unit was a copy of only about half the total manual and had blank graphics (the final owner's manual was still in the process of being printed), with very little effort I had it down in no time at all. Just in case you're not as fortunate, Korg also encourages you to call a toll free telephone number with any questions. Thank you very much. You can enter your patterns in either real time or overdub in individual beats a step at a time. Here, the illuminated liquid crystal display is

very helpful. At a glance it gives a wide range of useful information about all modes of operation, confirming group, chain, and basic selection as well as step number and more, both during programming and play back. There's an internal metronome which aids real time programming, a training mode for practicing patterns *without* entry into memory, and several types of editing functions which cover all kinds of correction. Once patterns are programmed, the tempo is readily adjusted by simply turning a knob.

All this is easily competitive with the best digital machines. Additionally, there are two buttons for every sound (meaning you can use two fingers), allowing ease of programming intricate rhythms and drum rolls. The Korg KPR-77 has a cassette interface for more storage and its operation is fast enough to re-program complete songs *during* a live performance. It can even be powered by battery! As stated, the actual sounds can't compare with digitally

Continued . . .



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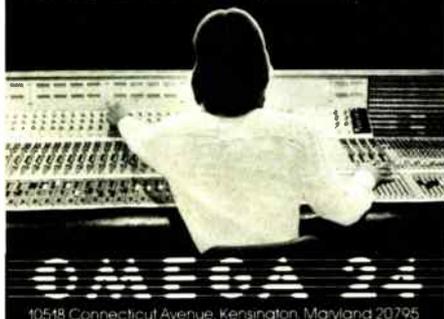
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...Continued

recorded drums, but they are for the most part acceptable. They include bass drum, snare, open and closed hi hat, low and high toms, cymbals, and hand claps. The toms can even be played in flams with a single touch of a button. None of the sounds are tunable; however, when run through a mixer's equalizer, these sounds can be easily adjusted for different styles of tone. The only instrument I really didn't like was the cymbal, it just wasn't real enough sounding to my ear. Speaking of realism, the unit also incorporates an accent button which lets you beef up the sound at certain points.

The instruments are internally panned across a pre-set stereo field (left and right outputs). A built-in, seven-fader mixer section lets you adjust each instrument's volume for the desired balance (there's only a separate snare/handclap output). Output is also via a stereo headphone jack. The KPR-77 can also be used to send a trigger signal for synchronized operation of a synthesizer (Mono/poly, MS-series, etc), Sequencer (SE-10, etc) or other Korg units. It even has a jack for external footswitch operation of the start/stop function.

Internal inspection of the KPR-77 showed the unit to be cleanly and firmly put together and, to my surprise, I found that Korg has used some very advanced technology. By now, you should all know what an integrated circuit (IC) is (see figure). Well, for more functions we now have Very Large Scale Integration (VLSI) packaging which is generally an IC chip about 1/2" wide by up to 4" long. This length has nothing to do with the chip itself but is required only by the number of leads or connections (generally 40 to 70). From my work in military electronics, I'm familiar with Leadless Chip Carriers (LCCs) which are smaller and lighter, representing a major advance in electronic technology. The added advantage of high reliability caused their usage in many military applications such as avionics and missiles. Yet today, the LCC accounts for less than one percent of total worldwide IC packages but is predicted to increase to 36 percent by 1990.* Korg is already utilizing this technology in its KPR-77. So what? Well, the average musician may not be as excited about technological advances as I am, but he should be. The use of what *was* considered strictly military technology has helped make the KPR-77 smaller (real estate prices are high even inside equipment) lighter, more cost effective, and most important,

more reliable.

Intrigued by this discovery, I called Unicorn and spoke with a very knowledgeable engineer named Jim Wright who started off by giving me an expected reply of "Korg has always tried to stay on the forefront of technology". I questioned him as to why they went to all the trouble of providing a mixer and didn't have separate outputs for each instrument. He felt the KPR-77's internally set panning was good and that the separate snare/clap output would aid in a more realistic sound. They themselves can't get involved in custom modifications but they would provide schematics (\$3.00) if *you* wish to. He suggested using a multiple connector such as a Molex as opposed to separate 1/4" connections. He felt that the cymbal sound was about the best it'll be from a synthesized source but that they're "still working on it". We talked about the Sync Out and he informed me of something that's really exciting. The Ministry of International Trade and Industry (MITI), a Japanese government organisation which helps point its companies in the right direction, has opted for a universal sync code interface standard. Since Roland's sync code works very well and is similar to many others, it's now MITI's standard. The KPR-77 and other Korg equipment now conforms to this standard. Additionally Yamaha, Sequential Circuits, obviously Roland, and possibly Oberheim will also adopt this interface. What this means is that future products such as keyboards and sequencers, as well as rhythm machines made by these and hopefully all companies will be able to link up together and automatically play together in perfect sync!

The KPR-77 also has a switch which allows it to become the "master" or source of the main sync code or a "slave" or receiver of some other unit's sync code. All in all, aside from the cymbal sound, this unit's sounds are more than acceptable. It's a cost effective, small, light weight, fully programmable device incorporating *many* advances. It has a warranty of one year (does not cover any modifications) and again lists for only \$695.00. The worst thing about the KPR-77 is its case. I'm no macho-man, yet there's no way I could feel comfortable walking down the street carrying something that unmistakably looks just like a woman's purse. However, I have opened the Korg KPR-77 and seen the future of musical instruments and I'm excited.

Mike Shea

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- 5 Do you find *IM&RW* a useful magazine for drummers and percussionists? ____
- 6 How could *IM&RW* become more useful to you? ____
- 7 What other music magazines do you read regularly? ____
- 8 What is your average annual expenditure on all drum/percussion equipment \$ ____
- 9 What is the total value of all the drum/percussion equipment you now own? \$ ____
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Do manufacturers do their part to keep you informed on these events? ____
- 11 Do you read music? ____
- 12 Are your drums stored in flightcases? ____ What kind? ____
- 13 Which microphone do you prefer for stage use? ____
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- 14 What drummer or percussionist would you like to see featured on the cover of *IM&RW*
(1) ____
(2) ____
(3) ____
- 15 Why do you read *IM&RW* ____

- 16 What could drum and percussion manufacturers do to help you that they're not currently doing? ____

- 17 In the chart below, fill out the brand name and model number of the equipment YOU CURRENTLY OWN in the 'REALITY' COLUMN, and the equipment you DREAM OF ONE DAY GETTING YOUR HOT LITTLE HANDS ON IN THE 'FANTASY' COLUMN.

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2 Kick Drum		
3 Tom Toms		
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5 Ride Cymbals		
6 Speciality Cymbals (Splash, China, etc.)		
7 Hi Hat		
8 Speciality Percussion (Timbales, Gongs, Chimes, etc.)		
9 Hardware		
10 Drum Heads		
11 Drum Sticks		
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13 Hi Hat Pedal		
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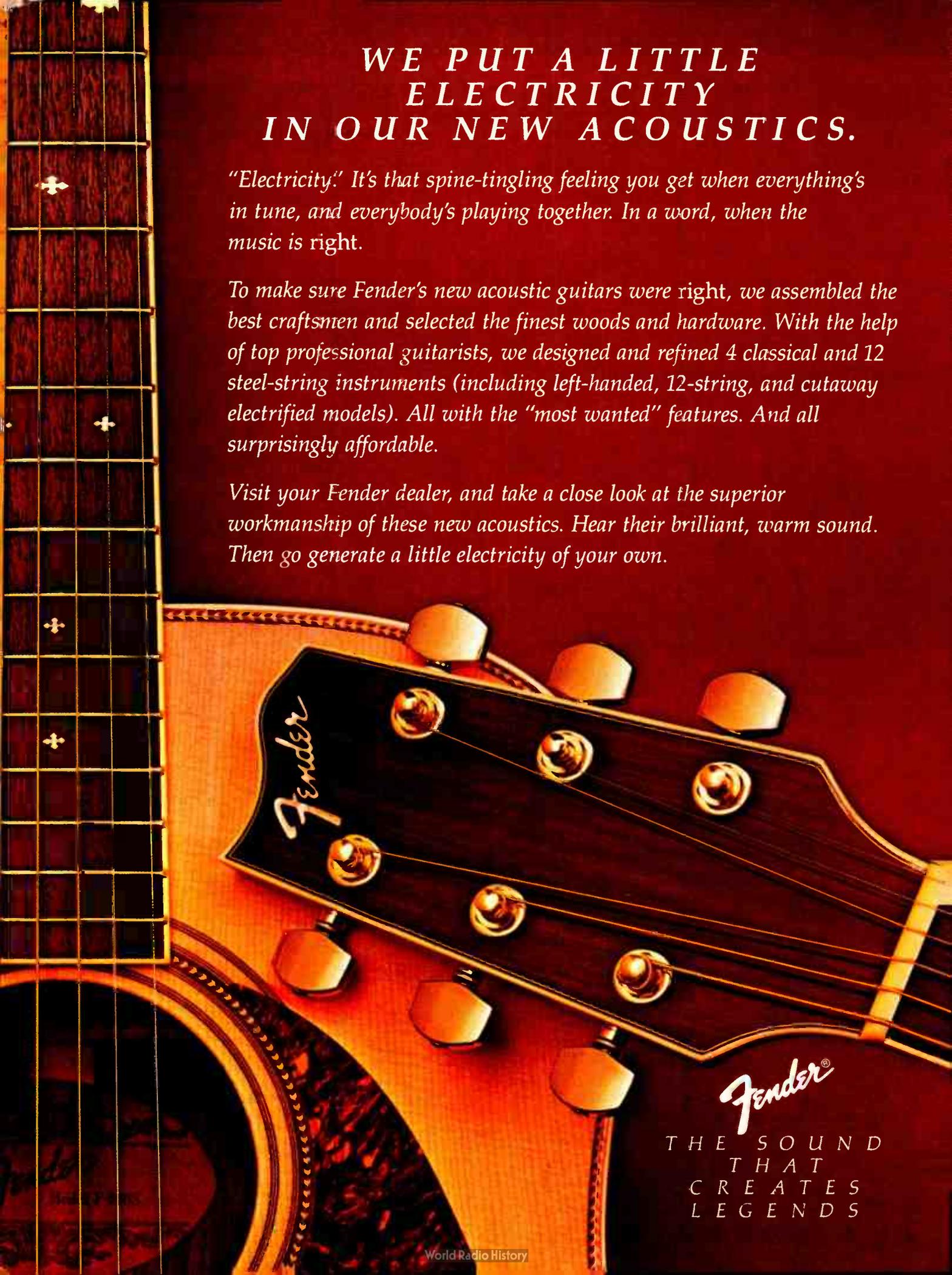
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Roland Juno-60

Six voice programmable polyphonic synth

When the Juno-6 came out, early in 1982, I resolved to buy one immediately. For me it represented the best value polyphonic synthesizer on the market, with superb sounds, simple layout and pleasing design to boot. For some reason, however, I didn't. Was it the cash flow? Could it have been those icy glares from the wife? Well, I must say that I'm pleased to have escaped Roland's (hopefully innocent) attempts at inbuilt obsolescence as the new model represents a bargain not to be missed. Basically the Juno-60 is a Juno-6 with the addition of a 56 channel memory bank, and cassette interface, but the addition rockets this polyphonic synth into a class occupied by instruments three times its price. And if you think you're going to find 'budget' sounds, you're wrong. This is pure class.

For some reason, however, I didn't. Was it the cash flow? Could it have been those icy glares from the wife? Well I must say that I'm pleased to have escaped Roland's (hopefully innocent) attempts at inbuilt obsolescence.

The Juno-60 measures 44" x 5½" x 16" and weighs 26½lb. Its long, sleek,

wood-finished body lies comfortably on top of a Rhodes 73 thanks to four sturdy rubber feet, that prevent unwarranted movement. Of course, the stacking of instruments on top of one another is hardly de rigeur these days with the introduction of purpose-built stands. But, it's good to know that Roland continue to think of those reluctant to play through a barrage of scaffolding.

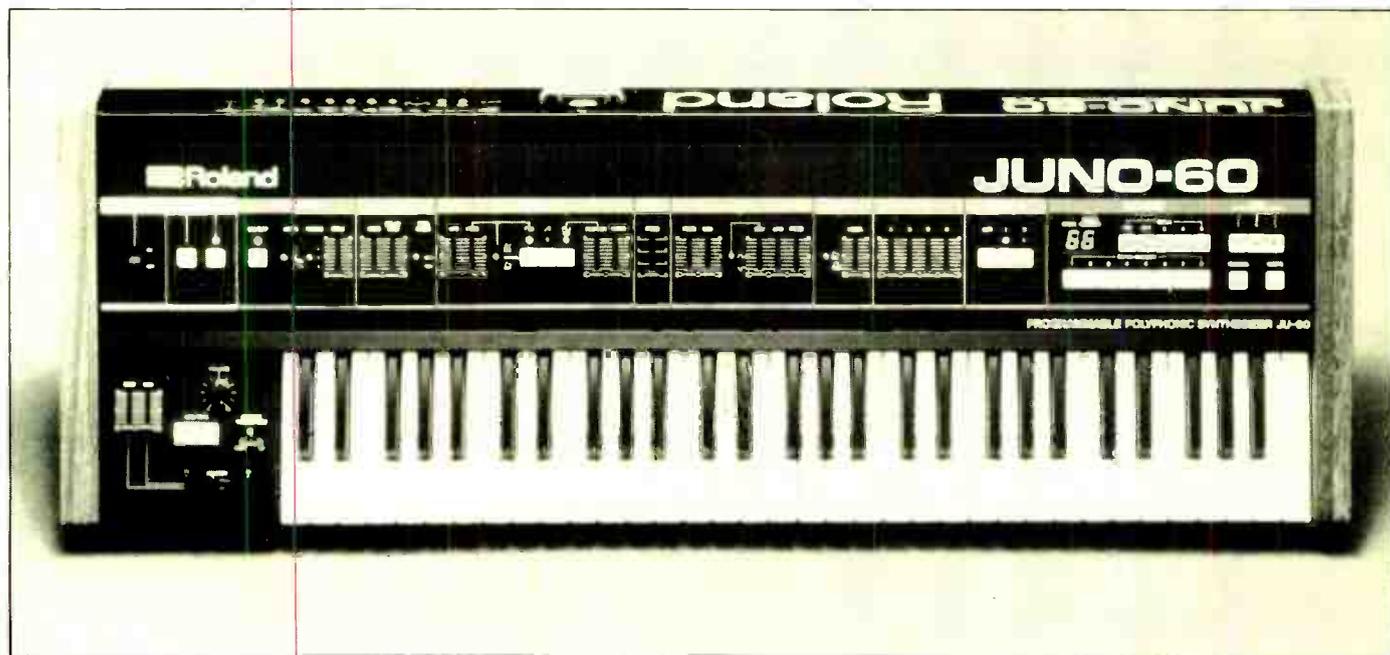
The black metal panel is lit up with flashes of color to indicate a section or feature change, and all sections that are edged in red may be programmed into the instrument's memory.

The heart of every synthesizer lies in its oscillators, and the digitally controlled oscillators that Roland have used on the Juno-60 produce a warmth and richness that totally belie the cost of the instrument. Digitally controlled oscillators are far more stable than their voltage controlled counterparts, but in this instance you also must sacrifice any portamento device.

On the DCO panel, three push buttons represent the three initial waveforms. *Sawtooth* is merely there, 'sub osc' (a square wave set one octave below the others) has its own volume slider, and *pulse wave* has an accompanying three

position PWM mode switch and PWM slider. When the PWM mode switch is set to 'manual', the adjacent slider can fix the width of the pulse wave from 50% square (at the bottom) to thin and reedy (at the top). The two remaining positions are for LFO and ENV, which can then control the pulse width. In these instances, the PWM slider governs the intensity of such modulation. All three push button waveform selectors have LEDs to indicate which waveform is being used. You can use all three at one time if you like. Finally on this panel is a slider for 'noise'. I seem to recollect that on the Juno-6, the noise was described by Roland as 'pinkish'. Results obtained by simple rearranging of waveforms prove that this instrument is capable of producing a staggering array of sounds. And of course, you've only just begun.

Moving along, we come to a lonely slider marked HPF, or high pass filter. At the bottom of its range, the sound remains intact. Raising the slider will slowly eliminate all but the higher frequencies. Along the way, the numbers 1.2.3. will be passed, and a small glitch lets you feel their presence. You can also see where you are, so I am



Continued on page 72

Dean ML Baby Guitar

The Dean ML Baby looks like a cross between a Flying V and an Explorer, but manages to combine aspects of both these designs into its own unique look. Weighing in at just 6 lbs, 4 oz. it's a pleasure to swing about on the stage or, in this case, in the office. This guitar makes no bones about it. It is designed for Rock'n'Roll, pure and simple.

The semi-star shaped body is constructed of poplar, a durable and dense, yet lightweight wood. This model is finished in a premium blue-on-blue sunburst which is quite striking — Dean terms it "Blueburst". The excellent visual appeal of the guitar makes it a natural eye-catcher onstage, just right for the pyrotechnics, lighting, and acrobatics in which Rockers indulge. The body and neck are balanced well, though this guitar is most comfortable when played in a standing position, rather than sitting.

Electronics consists of a passive circuit, controlling two custom-designed DiMarzio Super-Humbucking pickups, via single volume and tone controls. Nothing fancy here — everything's very

simple and straightforward. A 3-way mini-toggle pickup selector is wired in the standard fingerboard/both/bridge configuration. A Schaller bridge completes the picture.

The set-in neck is also of poplar — a one piece design. The tuning machines are Schallers, and the 22 fret rosewood is a full-scale 24 $\frac{3}{4}$ ". The neck is shaped in the form of a sort of chunky 'V' which is very reminiscent of the old Pre-CBS Fenders. It's an extremely playable neck, very conducive to Rock voicings. Intonation was fairly accurate, when checked against a Petersons stereo tuner, the frets were dressed properly, and the overall quality control seemed to be pretty good.

We called DiMarzio to find out more about the humbuckers supplied with the ML Baby and we were told that the course, could not be discussed in detail — this is a dirty business in addition, the pickups are indeed custom designed for the Dean guitar lines, and that special wiring and windings are used which, of coil colors are different from standard DiMarzio Super Humbuckers. Whatever it is, these pickups are loud

and have the potential to be real low down and dirty when they want to be. The 3-position toggle switch is wired in such a way as to place both pickups out-of-phase when the selector is in the middle position. Because the pickups are humbuckers, rather than single-coil, this out-of-phase sound is rather deep and pleasantly ballsy.

As stated throughout the review, this guitar is designed with a single purpose in mind — loud Rock playing — and it would seem to handle this area well. Keep in mind that the tonal variations required to play other styles and types of music aren't really present with the ML Baby, and if that type of versatility is required, this may not be the axe for you. For example, a Les Paul can handle soft, single-note Jazz passages with the same ease with which it accommodates Heavy Metal. Not so with the Baby.

All in all, for excellent stage presence and a Rock'n'Roll bite, the Dean ML Baby is a good bet, with prices beginning at \$659.00, suggested retail and \$99.00 suggested retail for the case. But, have a definite purpose in mind for this guitar, and stick to it.

Continued from page 56

programmes, and buttons A to D are for the different modes.

'A' advances the programmes by step, or when you set up a chain, steps through parts of the chain.

'B' backsteps, ie the reverse of A, whilst 'C' accesses the cassette interface system or for turning off any voices that have 'lunched'. It has another function which is mainly for the use of service engineers. Basically it is a diagnosis that is meant to assist in times of need, such as when it is broken. Amongst many other things, it displays tuning calibration and frequency centering (Hot stuff!). And not forgetting mode C-O. This is the LED check and is guaranteed to cause hours of fun when inspiration across the entire keyboard panel.

'D' is the programme chain mode. Ten different songs can be stored, each containing up to a maximum of 10 different programme steps/changes. This is rather a clever idea, particularly for playing live, and

I cannot figure out why no one ever thought of it before.

Keyboard Modes — There are four different polyphonic modes:

Poly 1 — 'Cyclic', ie, as you play the keyboard, all the voices are called up one after another.

Poly 2 — 'Cyclic with Memory'. This is the same as above, but if you repeat a note, the same voice will be played again.

Poly 3 — 'Reset to voice A' — If you play a monophonic line, the same voice will be used, though this only works when playing with distinct gaps between the notes, ie, not legato.

Poly 4 — 'Cyclic with Memory and Reset to A'. (All of the above.)

All modes are easily summoned by pressing the 'Keyboard Mode' button and then selecting 1, 2, 3, 4 on the programme panel.

Arpeggiator — This gets the award for the most over the top arpeggiator yet. It has a total of nine variations. I won't bore you with the details, but suffice to say it goes up, down, across,

over, under etc. Everything except random, which is a pity. This, at least for me, is the most interesting arpeggio effect.

Mono — Three modes. Last note, low note and high note priority.

Sound

Two things above all others were unique in the creation of the Mini-Moog sound. First, its filter, which had a very distinctive warm quality to it. The second was something that people are inclined to forget when they discuss the 'fat' Moog sound. There's no mystery to this. It is simply due to the Mini having three oscillators which could be independently tuned and used to beat against each other. For years I pleaded with manufacturers to get off their spotty backsides and realise this fact of life. It is crazy, but it has taken until now for someone to do something about it. What is even loonier is that the company who did the first time around have just been an' gawn and done it again. Stone the crows!



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Simon Phillips Offers A Few Tips On Choosing A Drum Set Within Your Budget.

"I find when choosing a kit, the two main things to keep in mind should be sound quality (of course) and durability. No matter what your budget, make sure that you're pleased with the sound of what it is you're buying. After all, this instrument is your medium for musical expression.

Also, keep an eye out for construction. With the kind of

gigging most players are doing today, a set has to be able to handle abuse. You don't want to find yourself in the middle of a set and discover that your kit is falling apart. That's the reason I'd recommend Tama drums to anyone looking for a set. Tama makes full sounding, well built drums in a variety of models and prices within the limits of just about anyone's budget."

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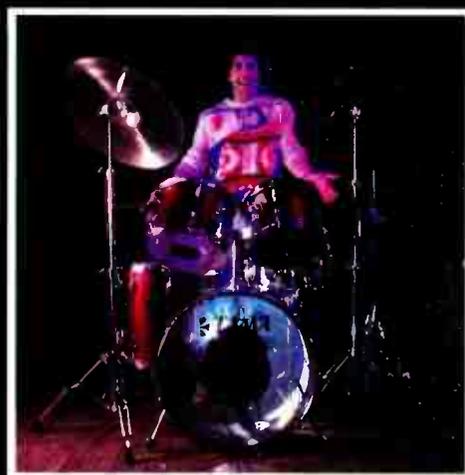
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Swingstar set S5522
Finish shown: Jet Black



Royalstar set R5592
Finish shown: Brazilian Grain



Imperialstar set 8400
Finish shown: Dark Red



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World Radio History

The Linn Drum

Review by Warren Cann of Ultravox

The Linn Drum Computer can single-handedly take the credit for kicking electronic player programmable percussion out of the 'For Kooks Only' category and into the applicable and practical present. It's set the standard by which all others must meet or surpass in order to be competitive. When approached to examine the successor to the LM-1, the 'Linn Drum', I eagerly accepted because of my long love/hate relationship with Roger Linn's first brainchild. . . I just had to know how the development of this unique instrument had progressed.

It's unfortunate that my access to the test Linn was limited to only a few days because it takes time to discover all of the quirks and true capabilities, but first impressions can go a long way. I set about my review with more of an approach typical to, say, someone relatively new to the use of a programmable drum machine rather than from the viewpoint of a familiar player.

The first thing one notices (after the price, that is, this Linn is considerably

less expensive than the LM-1) is the size. It's much smaller. I'd debate as to whether this is going to prove a wise move, but it certainly is much handier for people who will appreciate the compact dimensions.

There is the same format of square button-switches and faders but the entire logistics of the layout has changed. Faders are smaller and have shorter travel, rather akin to an ARP. Above the individual voice gain faders a new feature is situated, a short travel fader with central detent to enable one to pan the relevant voice anywhere within the stereo picture.

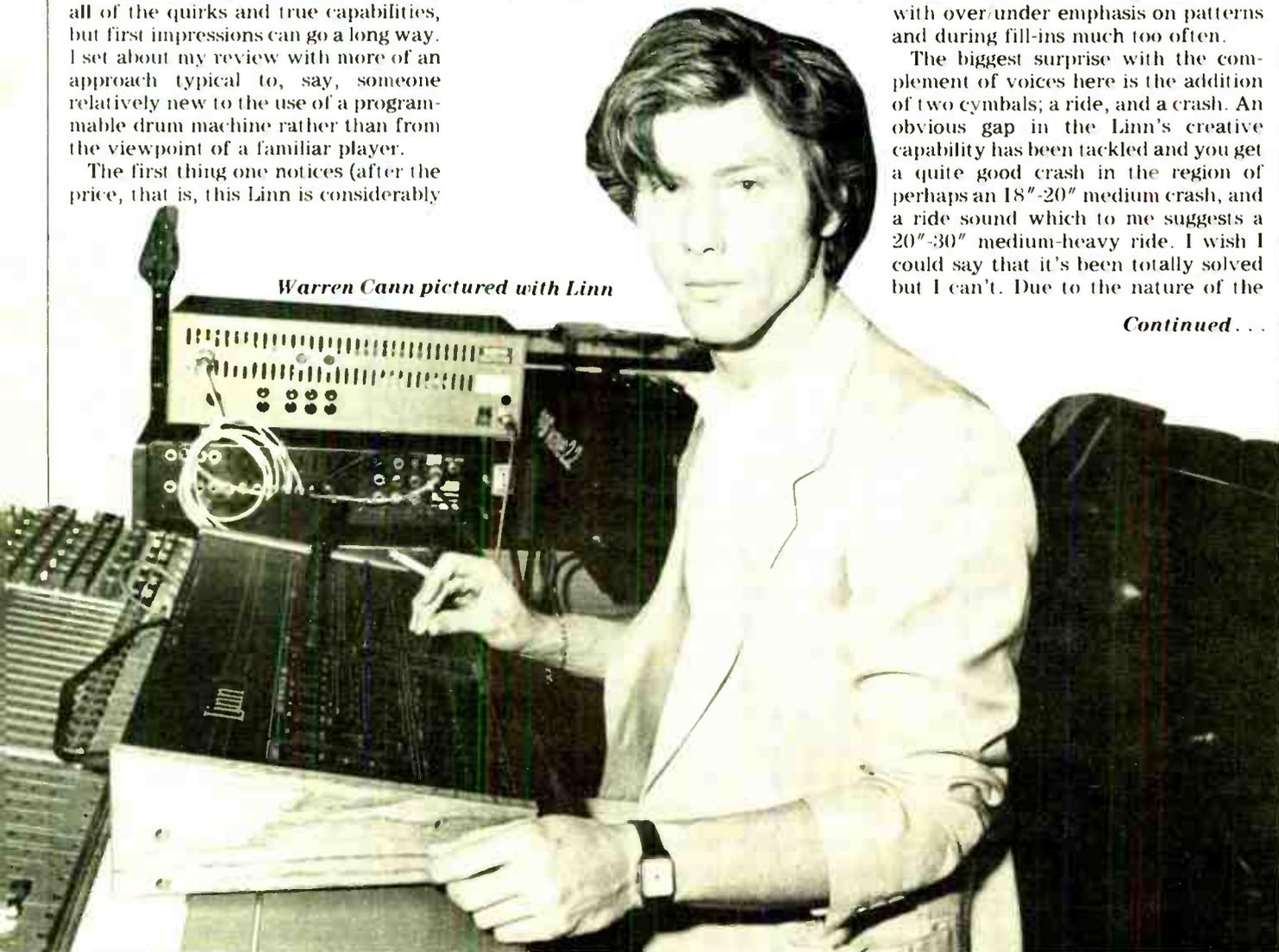
Drum voice buttons are on the lower left of the front panel, above that the

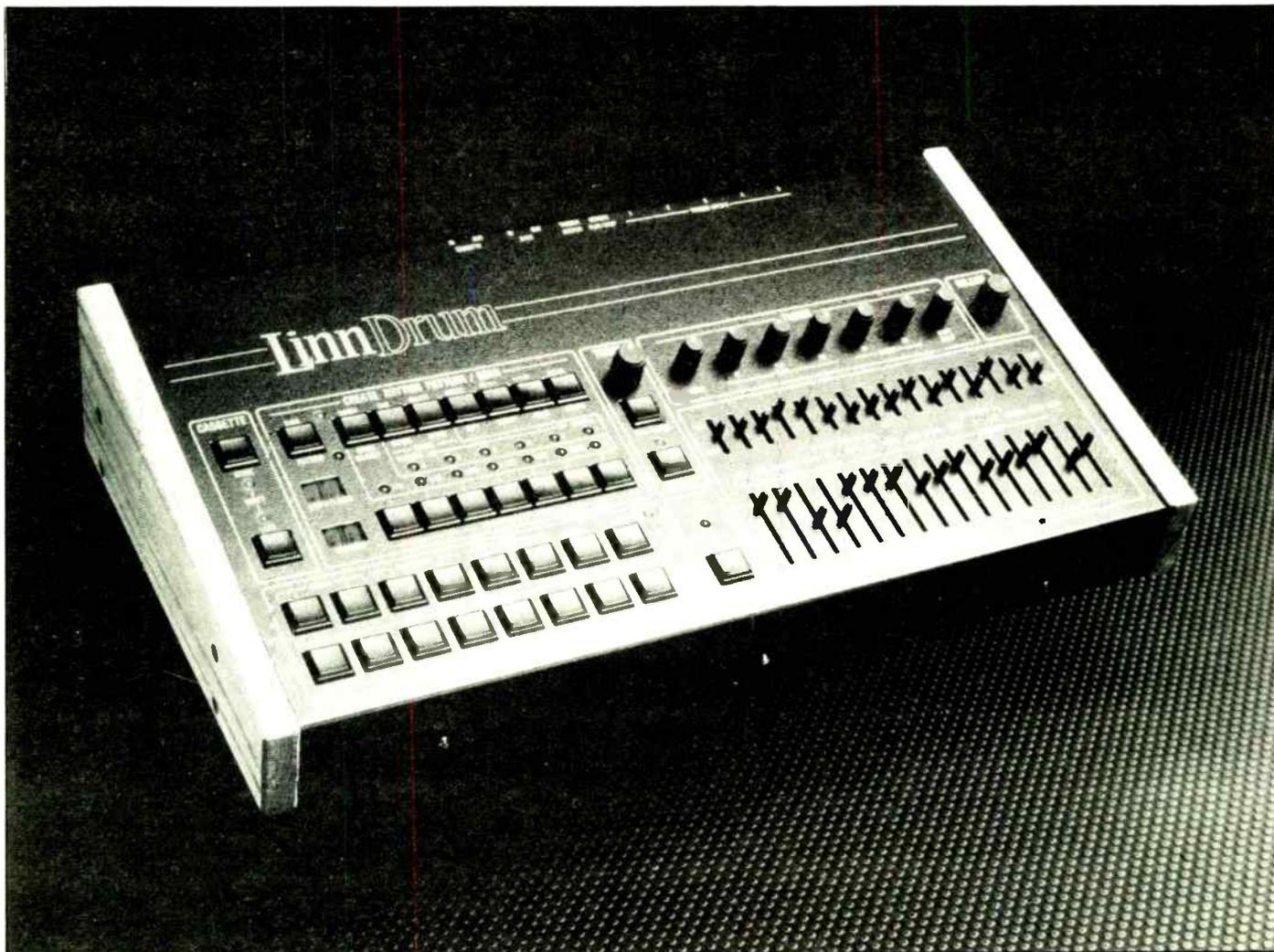
next row of voice buttons is dual function. You press one of them simply to determine which of their two voices you use. To enable the user to have programmable dynamics some buttons have more than one level; snare has three, bass drum, hi hat, cabasa, tambourine, and ride cymbal have two. The higher the number, the louder that voice is programmed. Now, three choices is better than two, but it's still vital to have more control in this area. There's a dozen ways in which totally variable level for each voice could be incorporated into the Linn, and I wish the people in Tarzana, California, would get with it. The present arrangement leaves one feeling dissatisfied with over/under emphasis on patterns and during fill-ins much too often.

The biggest surprise with the complement of voices here is the addition of two cymbals; a ride, and a crash. An obvious gap in the Linn's creative capability has been tackled and you get a quite good crash in the region of perhaps an 18"-20" medium crash, and a ride sound which to me suggests a 20"-30" medium-heavy ride. I wish I could say that it's been totally solved but I can't. Due to the nature of the

Continued . . .

Warren Cann pictured with Linn





New Linn Drum smaller in size, and price

... Continued

IC's being used the duration of the decay of each cymbal has to be abruptly cut short. The result is a good initial attack, good decay, and then suddenly the die-away just drops off — pfffft! It's not too much of a problem in full, loud Rock music but it would be very off-putting in songs with sparse arrangements and minimal use of instrumentation. Let's hope that next time this problem can be cracked.

The proliferation of buttons on the front fascia may look quite daunting initially but soon things begin to sort themselves out and the dual functions of many of these are no longer confusing. Roger Linn seems to have done this not only to cut down on the amount of controls that the play has to deal with, but also to save production costs due to simpler software. This is obviously reflected by the new purchase price. It's definitely a mixed blessing, I feel. Once over the initial hump of acclimatization the player

begins to wish for much more control and happily would trade a limited number of very symmetrical dual function buttons for a lot more odd buttons and switches if his parameter of programming capability were expanded.

An excellent improvement is the shifting of the tuning knobs from the rear of the unit to the front panel. You have the ability to tune the snare, sidestick snare, toms, and congas by approximately one octave, and one can also adjust the decay time of the 'closed' hi hat (simulates different pressures on the hi hat pedal). Great, but for the benefit of all, what the hell happened to the LM-1's feature of each and every voice having tuning facilities? No tuning the bass drum (!), no tuning the hi hat, no tuning the percussion. There's much to gain by thoughtful re-design but that's one 'improvement' with a double edge to it...

LED display panels give you information regarding which mode you are in, program status, tempo, auto-correct

status, and sundry other information. The tempo read-out is operable while the Linn is in the 'play' mode which is a *very* welcome improvement.

The pattern select buttons are curiously numbered from one to seven instead of from 0 to 1 to 2 etc though to 9. So, instead of simply equating any particular programmed pattern to its particular designated number in the Linn's memory in a fashion one can relate to, we now have to remember there's no '18' or '29' or '89'... not only has the amount of beats and patterns you can write in been cut down from 100 to 49, but you've this strange filing system to deal with.

The auto-correct facility enables you to move your rhythm entries to the nearest note value appropriate for the timing you are working in. 8th notes, 8th note triplets, 16th note and 16th note triplets, 32nd note and 32nd note triplets can all be corrected to the

Continued on page 85

Letters

Hoshino Comes Through With The Goods

Dear Editor,

This is old Ervin Warren again — the inmate at the Huntingdon, PA State Correctional Institution.

First, I want to thank you for printing my letter "Jailhouse Rock", in the November 1982 issue. I wanted to let you know we did get some help from Hoshino, USA, Inc., the Ibanez people. They donated 25 acoustic guitars to our prison musical program. Thanks, IM&RW!

What I would like to know now is, where can I

buy good sheet music, and is there a store where you could buy tapes and sheet music in the same place? Our band is a Top 20 group, but we can't seem to find good, complete sheets on the current songs we want to cover. If you know of a place in our area, please let me know.

Again, our thanks to you and Hoshino for helping us out.

*Ervin Warren
Drawer R, F5601
Huntingdon, PA*

(Ed. Reply: *Ervin, we're delighted to hear that Hoshino was good enough to supply you and your fellow musicians with the guitars. As far as your question about the sheet music — how are you planning to get to the store?*

Your best bet might be to contact some sheet music and tape companies through the mail instead, as that way your satisfaction will be guaranteed. I'll send you a list of some companies you might want to contact.)

STUDIOS WANTED DOWN UNDER

Dear Editor:

I recently returned from a trip to Australia and New Zealand, and I thought I'd let you and your readers in on a fact they may not know. There are not nearly enough recording studios in the major cities in Australia to handle the number of bands who require 16 or 24 track facilities! I became friendly with a number of Australian musicians who assured me that the situation is practically hopeless at this point — established recording acts often have to book studio time up to a year in advance of the sessions. If they miss their spot, or

have to cancel — tough luck. I'm not kidding. Considering the amount of good music coming up from down under, as well as the fact that Sydney and Melbourne are both pretty good-sized urban areas, you'd think this problem wouldn't exist.

I'm telling you — there are some great opportunities for someone with the energy and the funds to open a state-of-the-art recording facility in Australia. I, unfortunately, have the energy but not the dough to follow my own good advice.

*Kent Ledbetter
Hyram Heights, OH*

(Ed Reply: *Thanks, mate. We heard similar complaints when we spoke with MEN AT WORK's manager while he was visiting New York. While it seems like a good opportunity, you should keep in mind that there are a whole bunch of*

government regulations and restrictions on bringing in equipment and opening up a business that apply to non-Australians. Make sure you check all that out before you buy the SSL console and Studer decks. . .)

Not all Wireless Microphones are Created Equal



This One Is A Telex

Recommendations by performers, as well as engineers, have made Telex the fastest growing wireless mic system in the industry.

Performers tell us they prefer Telex wireless mics because of the rich, full-bodied sound. And because the mics feel and look like conventional microphones.

To quote performers:...the Telex wireless mic sounds superior to any I've used for vocals—wired or wireless...
...the freedom it gave our group sold me on the concept, and the sound sold me on Telex...

Audio and broadcast engineers stated that they prefer Telex because with just the addition of a second antenna, they have the most reliable diversity* wireless mic receiver available, indoors or out. And because the compander circuitry provides dynamic range from a whisper to full fortissimo.

To quote engineers:...the Telex wireless is the best we've tested, and we've checked them all...
...from a quarter mile, the signal was still crisp and clear...
...for the money Telex outperformed all others we tried...

When you're ready for wireless mics, Telex offers you a choice of three VHF frequency groups, hand held or belt-pack transmitters, dynamic or electret microphones and a host of accessories. Compare our specs against any others, and by all means, compare the price. We're quite certain you'll also prefer Telex. Made in USA. Please write for full details.

*US Patent No. 4293955 Other patents applied for

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not too sure as to why this feature is included. The VCF panel has sliders for cutoff frequency and resonance, and you can route the VCF through the envelope generator. A two position switch allows the use of reverse polarity in order to upturn a pattern set on the envelope generator. The VCF can also be modulated by the output of the LFO, and the LFO slider on this panel governs the resultant depth of modulation. Similarly, the ENV slider governs the amount of modulation from the envelope generator. A keyboard follow slider varies the tone color as it applies to different ends of the keyboard. Thus, you can have excessive brightness in the bass register and comparatively muted sounds above, or a more balanced sound, however you like it in fact. The filter panel is neat, offering the maximum of opportunity for the minimum of fuss. As a footnote to this section, fun can be had by using the filters as a sound source. Tuning is rather haywire, but if you use the 'hold' button having played a reasonably in-tune chord, and operate the VCF bender to sweep up and down in pitch, then you can create some wonderful 'ghostly choir' noises. Use a long attack on the envelope generator.

The VCA panel has a switch for 'env' or 'gate' signals, and its own level slider. The hitherto much talked about envelope generator has the customary four sliders for attack, decay, sustain, and release. The LFO panel consists of two sliders for 'rate' and 'delay', and the various vibrato or growl effects can be triggered automatically, or by using the LFO pad — a spring loaded manual device that lies alongside other performance controls to the left of the keyboard. The pad does not respond to the amount of pressure you put on it. At all times it will merely trigger the degree of LFO modulation already set. The depth of LFO mod is controlled by the LFO slider on the DCO panel, and I found this a very sensitive control. At about 'two' the modulation is fairly severe; by about five or six I was beginning to feel seasick. The wave-shape is set permanently for smooth vibrato effects. The delay works only for the first note of a legato passage, and once you begin to play continuously, the designated modulation becomes instant.

These then are your basic tools for creating sounds. Of course it is far from the end of the story. For a start Roland have included their famous 'chorus' — in two modes, which can be harnessed at the push of a button. Both shallow and deep chorus can be programmed and stored in the memory, and ideally you should use the stereo outputs to

obtain maximum effect.

The square panel to the left of the keyboard which houses the LFO pad also carries a spring-loaded bender which can modulate either pitch or tone. Or both for that matter. DCO and VCF each have their own slider so that you can set a ceiling for such alterations. *Master volume* — a rotary knob, and *octave transpose* — down 1 octave, and *normal*, and up 1 octave, complete the picture.

Two push buttons at the far left of the main control panel are for 'hold', which continuously sustains any sound, and 'key transpose', a device whereby a passage can be instantly transposed into another key. Play a chord of C major. Press 'key transpose' plus, say, the note D. Now play C major once again, and it will sound as D major. An LED indicates whether you are using the 'key transpose' or not in order to avoid embarrassing key clashes should you forget. An interesting side effect of this feature is to play a chord and 'hold' it. Now if you keep the 'key transpose' button pressed down and play individual notes you achieve the effect of one note chord playing. Obviously, the initial tone of the sound is drastically altered, but the result can be fairly impressive.

The 'hold' button also will hold an arpeggiator pattern, to give you one continual stream of notes. This doesn't replace a sequencer exactly, but there are times when such a configuration can do a similar job. The Arpeggiator has three modes — up, down, and up and down, and the pattern will play over one, two or three octaves. To initiate an arpeggio you merely press the relevant push button marked 'on/off' and play a chord or group of notes. The speed is governed by an adjacent 'rate' slider. The speed can also be controlled externally by a sequencer or drum machine. These have to be connected to the 'arpeggio clock' input at the back.

As I said earlier, the main advantage over the Juno-6 here is the addition of memories. Up to 56 individual sounds can be stored that are immediately recallable via seven banks, each containing eight patches. The panel is positioned at the far right hand side of the instrument, a position in fact that I found not too easy to get to whilst playing. Time would no doubt improve my style. There are five push buttons to select the bank numbers; numbers '6' and '7' are to be found by pressing '5' and '1', and '5' and '2' respectively. Obviously, they just ran out of space. Alongside the bank selectors is a program number display window to show which program has been chosen. I have not played the Juno-60 under

stage conditions, but I would imagine that as with the Prophet-5, bright stage lighting almost invariably obliterates the digits, compelling you to shield the display with your hand in order to read the wretched things. Is there a way around this?

Apart from the performance controls and the Arpeggiator, all other features, parameters and devices can be programmed and the Juno-60 arrives with 56 of the most impressive factory sounds I've ever heard. You can edit any program at all times. Merely moving a control is sufficient to activate the same, and you can re-position accordingly. When an edit is being made, two dots in the display light up to indicate that an edit is taking, or has taken place. Should you make a hash of 'improving' the sound, then all you have to do is press the relevant patch number once more and the sound is returned as it was initially stored. To permanently alter a program, the 'memory protect' switch at the back must be at 'off'. Then it is just a case of finding your sound, press 'write' and select patch number. 'Manual', a further push button, next to the 'write' button, serves as a blank, current channel to find sounds. You can store programs externally on tape, with the cassette interface controls. 'Save' 'tape verify' and 'load' make up the controls on the main panel, and 'save' and 'load' connections to a cassette machine lie at the back.

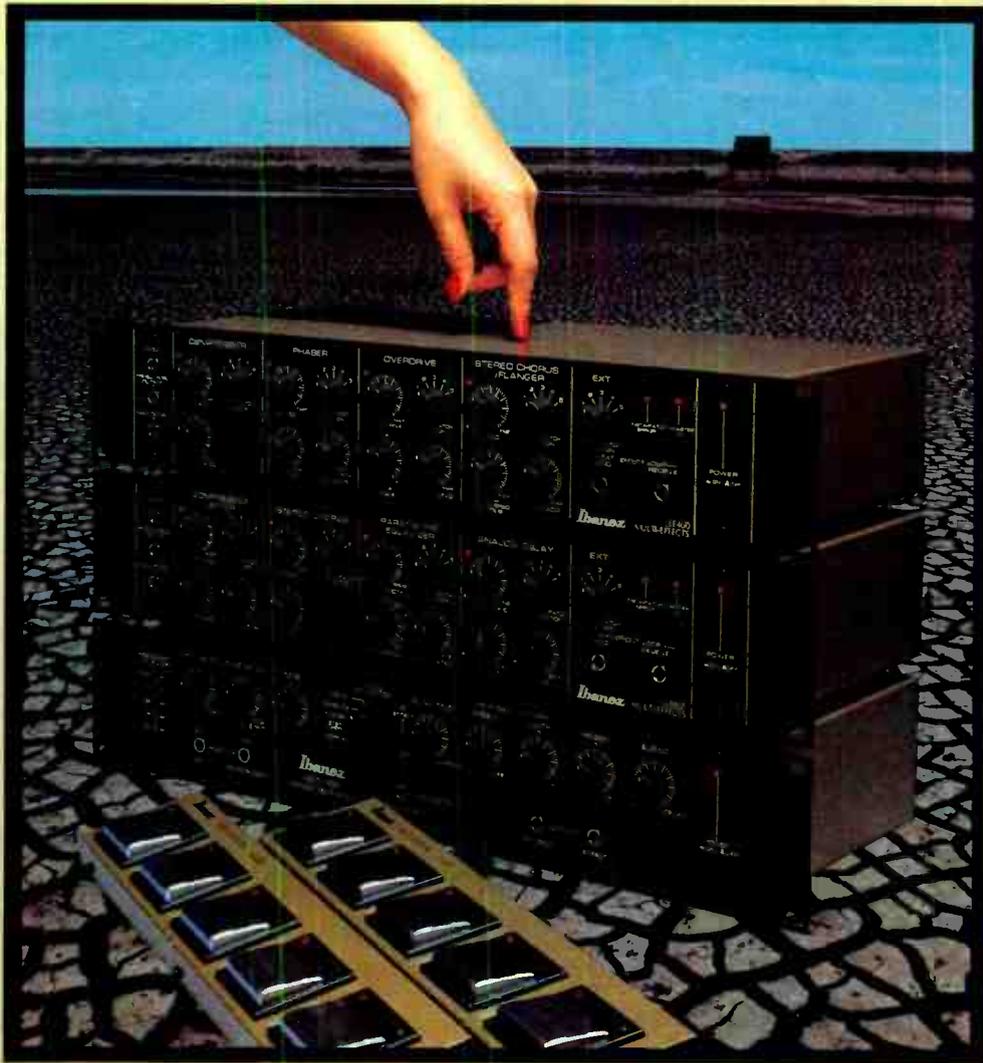
An extremely useful feature here is the Juno-60's ability to switch or copy programs from amongst the 56 already in storage. Thus you can move number 12 to 43, if that sound fits in better with other sounds in the fourth bank. It becomes wise to re-allocate positions if you take advantage of the 'patch shift' capability — an optional footswitch that enables you to change patch number. Pressing the switch moves the patch number along one step at a time from 1 to 8.

Further rear panel connections are for 'hold' pedal, VCF pedal, mono and stereo outputs, phones jack (stereo), tuning knob (50 cent) and DCB (digital communication bus) — an interface system allowing you to connect to the MC4 micro-composer, via the OP-8 CV interface.

The Juno-60 is a superb piece of equipment. The range of sound, the control you have over that sound once stored, and the ease with which stunningly 'expensive' results can be achieved, all go towards making this a polyphonic synth that is available to the 'everyday' person, and not just to those with a lot of money and a lot of 'hi-tech' knowledge.

Julian Colbeck

ULTIMATELY



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Introducing The Drumulator

from E-mu Systems, Inc. A digital drum computer
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The Drumulator. Now E-mu Systems technology brings you a digital drum machine with features you don't expect. At a price you won't believe.

With the Drumulator, you'll create complete rhythm tracks with the digitally recorded sounds of real drums. The Drumulator's computer makes it easy to program complex rhythms in any time signature. It will even correct timing errors in your playing.

The Drumulator's enhanced programmability gives you precise digital control over virtually every musical parameter. With its programmable mixer you can store and instantly recall a completely different mix for each rhythm track that you create. The tempo of each track can also be programmed, along with tempo changes within the track.

The Drumulator's unique programmable dynamics offer expressive capabilities never before possible with an electronic drum machine. You have access to normal and accented versions of every sound, with the accent levels independently programmable for each drum, cymbal, and percussion instrument. What's more, these accent levels can be programmed differently for each song and, like the mix, stored in memory for instant recall.

For flexibility in live performance, the Drumulator allows you to define sections within each song that can be

programmed to repeat until cued to continue by the press of a footswitch. This allows you to change the length of a song each time it's performed, shortening or lengthening solos, or repeating choruses as many times as you like.

Add to all these features the ability to sync to tape or other sequencers, assignable play buttons, external triggering from drum synthesizer pads, and individual channel outputs, and you have a digital drum computer that would be an amazing value at \$1990.00. But what's even more amazing is that for \$1990.00 you would get something that you probably wouldn't expect.

Two Drumulators.

The Drumulator's suggested list price in the United States is \$995.00.

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RSD Studiomaster

Mosfet 1000 Stereo Power Amp

Problems, problems. First people phone me up, having not seen me for a year or two, to commiserate with me that all the years of dissipation and excess have finally taken their toll, and then I am sent an amp with a spec so good that a fly with a microscope, sitting on the Jodrell Bank telescope, couldn't find anything amiss. But first things first...

RSD are one of the most respected names in the studio, hire and professional sound world, and any product bearing the name is going to be good, but this all new Mosfet creation defies belief. I must start out by saying that the kind of figures claimed in the technical spec are quite simply beyond my measuring capabilities, and this has necessitated a very close cooperation between RSD and myself. I am extremely grateful for the very helpful assistance I received from them.

The front panel is attractively finished in brushed black with protective, rather than functional, handles, LED bar graph VU meters for each channel and volume controls, thermal cutout indicators, mono/stereo switching with a mono state indicator, mains switch and indicator are all nicely set out and very clearly lettered. Around the back we have mains Euro input socket, voltage selector, XLR inputs and outputs and additional terminal post-type outputs. The review model

is the prototype and as such some of the panel work is not as it will be on the production models. The only real difference is that there is a switch for normal stereo or bridged mono operation, and a switch to turn the fans on and off.

The thinking behind the switching of the fans is different but sensible. Instead of the fans cutting in and out thermally you are given the choice of whether or not to have them on. Under normal working conditions they will not be necessary, and the overload and thermal shutdown circuits are sophisticated enough to prevent damage. All the protection on this amp is based on an output relay (one for each channel). Any increase in heatsink temperature above the norm will result in the thermal indicator lamps lighting (they flash to grab your attention) and disconnection of the speakers via the output relay. Similarly, any DC voltage above +3.5 volts present at the outputs will operate the relay. Output impedance mismatch is very interesting in its effect on the relay. This amp will actually work into a complete short circuit without blowing the output, although it will obviously get hot. This rise in temperature will then operate the output relay as for a thermal problem, and you will have a thermal problem if you stick 1,000 watts into a six inch nail!

The protection sensing circuits are completely independent of the signal path and on a separate printed circuit panel from the rest of the amp. We therefore have DC, open and short circuit protection, for an indefinite period until the mismatch or problem is removed, and all the usual mains and DC fuses are provided on the back. The fuses on the back also light an LED indicator when they blow. Each fuse has its own LED and this is a very useful and sensible function, especially if you have got half a dozen of these amps racked up. You could see at a glance which one of 30 fuses had blown if a problem did arise.

This model is 1¼" less in height than the usual size, and that allows for mounting five Mosfet 1000s in the space normally taken up by four similar units. The 1000 is also not as heavy as 1000 watt units of rival manufacture. At the time of writing this review no figures were available for the weight and my bathroom scales said it weighed 14 stone 2lbs. That is obviously not true and also accounts for the trouble I have been having with my dieting! I can therefore only repeat that this amp is, of course, not light weight, but it is not overly heavy either.

I will now refer you to the manufacturer's specifications and then try to comment on them to put them into perspective and make some

Continued . . .



... Continued

sort of sense to the less technically minded. I do try to get away from the strictly technical kind of review, preferring the subjective approach whereby if it sounds good, it is good, but with a power amp all you have to go on is figures. A power amp is perfectly capable of sounding good, but actually being a whole lot better than that. You simply cannot hear the difference between 450 and 500 watts and you certainly will not appreciate the difference between .05 and .09% total harmonic distortion, but these factors when refined to the degree that they are in this amp, and all added together, make for a very fine machine indeed. By the way, the figures I have just given you are by way of an example and do not relate to the Mosfet 1000 — it's much better than that!

Let's start at the top and comment as we go. The actual tested output power was found to be between 8 and 10 watts RMS in excess of the claimed figures all the way through, which will make no difference at all to the performance — except that the rating is surpassed and the output power will be at least as good as claimed — better 10 watts too much than 10 watts short!

Total harmonic distortion is indeed not more than .003% at 1kHz, 400 watts into 4 ohms, which is ridiculous. At these levels of distortion there is actually a difference in the amount of distortion found at the XLR outputs compared with the terminal posts, but don't go and never use the terminal posts because the spec figures refer to the XLRs, because at .003% the figures are just as likely to change if it's raining outside! These figures are far in excess of necessary practical needs but you must realise that to get this kind of quality, techniques must be applied which mean that no corners have been cut, and everything else must obviously have been done right.

The more useful figure is THD into 4 ohms over the typically useful bandwidth of 20Hz-20kHz. This figure of less than .03% is still very good and puts the Mosfet 1000 easily into the hi fi bracket and indeed I would expect much interest from the more fussy hi fi buffs.

A full power bandwidth of 5Hz to 200kHz is, again, silly. This is again more a superior hi fi spec than the kind of thing associated with high powered music. The end result is that any sound that can be heard by man — and his dog, can be faithfully reproduced at very high sound levels with no coloration — what goes in

comes out!

Don't worry yourself too much about the slew rate but the end result is sharper, clearer, cleaner highs — appreciably audible 'clean-ness'. The hum and noise figures are very good, the actual measured figures being several dBs better than quoted. When turned full up with no input the amp is quiet, which is an understatement because you can't tell whether it's on or not. Channel separation is very good — especially so considering that both sides share a common power supply. The toroidal mains transformer is massive, and together with computer grade smoothing capacitors give a hefty old power rail.

The stability and overshoot figures mean that the amp will perform perfectly into any speaker connected via virtually any lead of any length, through crossovers and anything short of a piece of wet string!

Internally the Mosfet 1000 is constructed very well. I seem to be always saying that this and that amp uses first grade components well laid out on good quality panels, but fortunately this has become the norm. No one cuts corners on electronics manufacture these days and Studiomaster are no exception. The layout is compact to say the least — confined would be a better word. I thought that servicing would be a real headache until I realised that with the removal of a few bolts on each side the whole relevant power stage pulls away giving easy access to the driver boards, leaving the protection and VU

panels easily accessible. Incidentally, although they share a common power supply, shutdown due to mismatch, overload or any other condition only disconnects the faulty side, thus enabling the other amp to be used in the event of any failure. There are a total of ten output Mosfet devices in each channel which probably accounts for the tough old output stages.

In conclusion I will sum up by saying that as difficult as it is to come up with anything radically new on the power amp scene, RSD seem to have cracked it. The basic requirement is for a clean, quiet powerful stereo amp, capable of being run in a mono configuration, and it is difficult to add anything to that and not be gimmicky. Studiomaster have added to the basic format only with a new degree of technical excellence. The Mosfet 1000 must be aimed firmly at the PA and hire companies and should become the standard by which the others are judged.

This amp is not cheap, although the price is probably about right and fairly competitive for the kind of product and facilities we are dealing with here. I for one would not like to have to try to improve on the quality of this amp, and would guess that anyone wanting to better it would have to content themselves with giving us the same quality, but at a lower price. In this day and age, however, even that is going to be a hell of a problem. As I said before — problems, problems.

Alan Kensley

— Specifications —

Measurements taken at Cannon outputs

Output power: 500w RMS per channel at 4 ohms
399w RMS per channel at 8 ohms

THD at 1kHz: 400W/4 ohms less than 0.003%

THD at 20Hz to 20kHz: 400W/4 ohms less than 0.03%

Full power bandwidth: at +0dB, -1dB to 5Hz to 200kHz

Slew rate: greater than 100V/us

Hum and noise: better than 80dB down, ref full output

Channel separation at 1kHz: greater than 70dB

Sensitivity: 4dBv (1.23V)

Input impedance: greater than 20Kohms

Unconditionally stable: eg. 4 ohms +2uf

No overshoot at all into resisting loads

Indefinite short and open circuit or load mismatch protection

Thermal overload protection: when misused

DC fault detection: protects the load loadspeaker if any

DC voltage: greater than ±3.5 volts are present at the amplifier output.

The DC protection circuit is totally independant of the amplifier drive boards.

Width: 17½"

Height: 5"

Depth: Excluding handles on the back: 11½" Depth —
Including handles on the back: 13"

EXCLUSIVE

The Guitars of Jimmy Page

Jimmy Page 'officially' made it a long time ago, and if he ever needs reminding of the fact, Paul McCartney even mentions him by name in Rockshow on the Venus and Mars album. Big deal I hear you say! Like McCartney he no longer needs to court the press which merely increases their desire to court him. Indeed, Page hasn't spoken to the press for some three years or so, and yours truly, who's had three interviews with the bloke cancelled in the last year, was more than a bit excitipated when word came down the line that it was in order for me to call at the home of Jimmy Page, who is I suppose, the most famous guitar player in the history of Rock'n'Roll.

Because Jimmy Page is an immensely rich and famous person, it was decided that I should pit my wits against his guitars, to prove my worth, instead of interviewing Jimmy Page the man himself, guitar player, and hero of so many of our readers.

Being a wealthy man, Page has a large collection of guitars that befit his status in the Rock world. It's said that he's a very mean man when it comes to parting with hard cash for these instruments, but as he declined to see me in person, I wasn't able to ask him about this.

When the big day arrived all the obvious questions were milling through my mind, just in case the man should change his mind and see me for a few minutes.

Are Led Zeppelin kaput, or simply taking a well earned rest from this mad, mad game they call Rock'n'Roll? Is there still an album's worth of unreleased Zeppelin material in the can, featuring the late John Bonham? Is Page selling up his other home in Kensington to avoid writing more film soundtracks like Deathwish II for neighbors like Michael Winner? Are Plant and Page still mates? Will Zeppelin reform with Cozy Powell, or is it as John Entwistle suggested, merely another rumor started by Cozy



Some Page favorites in the flesh. See page 81 for detail shots

Powell? Have fame and wealth made Page a happy man? Oh if only I could speak to him for a few milliseconds What if I blow my journalistic cool, ask Page if my version of Stairway to Heaven is the correct one, demand his autograph for the little brother I don't actually have, and forget to ask the questions I'd intended? Holy Shit, will I crack under the immense pressure of touching guitars that have been

played by Him? Will I recognise Him if I see Him? Will Him recognise me? Golly, maybe I'll get to jam with the man, it's happened in the past with other stars. Mind you it was a bit of a disappointment getting 14 bars through All Right Now and THEN discovering Paul Rodgers had forgotten the lyrics. Dreams can be shattered, right?

Continued on page 78

Continued from page 77

The electronic gates close behind us automatically and I'm wondering if we'll need a secret code to get out of this place. I mean, will we be allowed to leave?

It's a very nice gaff with lots of flowers in the gardens and even the gnomes here look like security cameras. Can't be too careful, wot?

We're shown up a flight of stairs to a building Tim calls the attic where we're greeted by a collection of statues and a small golden throne (Jimmy is in fact rather small). Apparently Pagey picked them up in Bali when the local temple was having a clear out. It's a bit SPOOKY.

Outside an old mill stream tumbles past the window and it's hard to believe that my purchasing half a dozen Zeppelin records actually helped to contribute towards a square inch or so of this enchanting abode. I wonder which bit is mine?

I ask Tim if HE will make an appearance for a piccy or two, Tim shakes his head.

"Very doubtful, there was a party here on Saturday night and it's been going on ever since. (It's now 2.15 on a Monday afternoon) Jimmy's still over in the house with a few of the guests." Cripes these Pop Stars really do live life to the hilt. Maybe I'll be invited to join in a few hedonistic activities. Maybe Jimmy'll turn me into a toad! Jesus, what'll I tell the wife? What'll I tell my Editor, will they accept copy from a toad?

My host for the afternoon is to be Tim Martin. Tim who's 28 years old has been Page's roadie and equipment manager for almost three years. So how do you get a job working for Jimmy Page?

"I worked as a guitar repairman at Andy's Guitar Workshop in London. When Zeppelin did their last tour in Germany in 1980, the Swansong office (Zep's record co.) called the shop and asked if anybody was available to go on the road with Zep for that tour to look after all the guitars. As it was me who picked up the phone I said yeah I'll do it for you (laughs) and here I am."

Tim has in fact resigned once, but as they kept sending him his pay cheque he thought it might be wise to come back and carry on working. What does a roadie do to fill in the time when his employer is only gigging once every leap year?

"I take care of the instruments as and when it's necessary and I helped out in the studio when Jimmy was recording the Deathwish II soundtrack. Jimmy's chauffeur and secretary are both on holiday this



See pages 81 and 82 for more info.

month, so I've got even more to do."

I ask what kind of hours Tim keeps and if he'd rather work in a bank or a supermarket.

"Sometimes there's no work to do so I don't come in at all for a month or two. When I'm working I end up leaving around 11 o'clock every night and it's then I find the idea of working in a supermarket an appealing one."

In his spare time, Tim plays with various bands and Jimmy openly endorses his gigging activities.

"There are times when Jimmy needs me here and I've got a gig to do! Normally I'll do the gig and he's very understanding. Jimmy said to me, without gigs there wouldn't be all this. The entire place was bought through the proceeds of gigging."

Tim waves his hands expansively round the room and my estimation of Pagey rises a full two notches. Let's face it, if you asked your employer for the afternoon off in order to rehearse the band, you'd probably end up down the road clutching your severance pay, Correct?

Jimmy Page owns around 40 guitars, but didn't want us to photograph all of them, merely the ones he uses. Of these there are six main guitars which are two Gibson Les Paul Standards, a pair of Fender Stratocasters, and a pair of Fender Telecasters, the latter being a bit of a surprise to me when I realised they were both fitted with Parsons White Stringbenders or B Benders.

Most famous of all these guitars is the No I Gibson Les Paul Standard which appears in most Zeppelin stage shots and it's Jimmy's favorite guitar. It's one of the much vaunted



Page's chequered Gibson 6/12 string double neck — not amongst his favorites

Les Paul flametops and was made in 1958. The top of the guitar is a disappointment to a tigertop head like myself, since it has very little of the red flamey stuff in it, and the rear of the headstock reveals no serial number. Other changes to the guitar are the back pickup cover which is a new chrome one instead of the old nickel type, and gold Grover machine heads which replace the original Kulsons. Oh yes, the ivory colored selector switch has been changed for a white one... Very intimate details these.

Jimmy's number 2 guitar is a 1959 Gibson Les Paul Standard (s/n 91703) and was a gift from Joe Walsh. It's the one that was exhibited earlier this year at the International Music

Show in Wembley, London, England. The neck on this beastly has been shaved and refinished by repairman Martin Woods, to resemble the profile of the '58 No I tigertop. Tim tells me that it doesn't sound as good as No I and points out some very interesting modifications that have been made to the guitar other than the addition of nickel Grovers.

"Jimmy only uses a tremolo to lower the pitch of the guitar so I tightened the springs in the stringwell and fixed the tremolo plate so that it only works in one direction. The main advantage of this is that if Jimmy breaks a string onstage, the guitar won't go out of tune." These guys think of everything...



Fender and Gibson selection

Apparently Jimmy wanted to add a few switches to it and his engineer was loath to drill holes in a \$6000 guitar, hence we have an ingenious fixing system that doesn't devalue the guitar. Two spring loaded buttons have been attached to the lower underside edge of the scratchplate, and they're barely visible from a distance. One button selects a choice of series or parallel for the pickups, and the other offers ordinary or phased guitar sounds. All four tone and volume potentiometers have been ditched for two pairs of push/pulls giving coil tap on either pickup and the possibility of employing all four coils in parallel as if the guitar had four single coil pickups. The brain behind this appliance of science is a certain Mr Steve Hoyland.

My appetite is whetted and Tim quickly fetches two more cases.

The first contains a '60s Fender Stratocaster in Lake Placid Blue and it's Jimmy's favorite Strat. Tim replaced the tremolo arm for a newer one and has fixed the tremolo plate so that it sits directly onto the body making it impossible to raise the pitch or the arm. I ask Tim what it's all about?

The second Stratocaster that Jimmy owns is the Buddy Holly type, two-tone sunburst, maple neck affair. This late '50s guitar is Jimmy's back up Strat.

All of these stage guitars are fitted with Schaller straplocks which facilitate fast, easy changeovers between numbers.

Jimmy Page has always had a soft spot for Fender Telecasters since his early days in the Yardbirds, so seeing a pair of them here is no surprise. Realising each one is fitted with a Parsons White Stringbender, shocks me to my boots, and doubles my pulse rate.

One of them which has no serial number is a strange shade of brown, Tim says it's original, I say it's a respray. There is no original neckplate and therefore no serial number. God, even the man's guitars are mysterious. It's a rosewood neck Fender Telecaster and Tim puts it at around 1959/60. All three original bridge saddles have been exchanged for six separate saddles, giving Jimmy individual control over each string for intonation and action. Oh yeah, the knob on the selector switch is one of the old circular jockey selector caps — boring. The

plate that covers the gaping hole Gene Parsons gives away free with every Stringbender conversion, is numbered 0032 and dated 1976. Tim says Jimmy plays this guitar more than any of the others bar the No I Les Paul.

Last of Pagey's six main guitars is another Fender Telecaster with Parsons White Stringbender. It's a white 1966 maple neck Tele, and the three bridge saddles have also been changed for six separate saddles. The basic sound obtained when using this device is a fair approximation to the sound of a pedal steel guitar. You simply push the guitar away from you when you need to bend a note and this moves the converted upper strap button which activates the Parsons White system in the back of the guitar. The system itself is a relatively basic piece of machinery which operates via a series of levers...

Guitar heroes are closely identified with their guitars and I suppose if you asked me which one I associated mostly with Page, I'd say the Les Paul or the Doubleneck. Well apparently Page's chequered Gibson 6/12 string Doubleneck (s/n 911117) is not amongst his favorites, and I laugh when Tim tells me why.

"It's a real headache, we call it the TV aerial. I had to add extra grounding between the tailpiece and the jack socket to cut down on the undesirable noises we were getting from it." This is of course the famous guitar Page used for recording *Stairway to Heaven* and Tim says it's used for very little else.

As this is the first time Jimmy Page has allowed the press into his home to photograph and generally maul about his guitars, I'm feeling almost privileged but still hoping that Pagey will pop his head around the door any second.

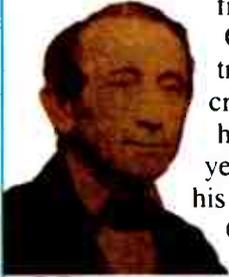
Whilst Tim's fishing out a few more axes for our, by now, very sore eyes, I ask if the man has discovered drum machines, the Linn drum in particular.

"Jimmy stopped using drum machines when he found it was easier to talk to Dave Mattacks (who appears on the *Deathwish* LP). You know an awful lot of people thought that was Jimmy's own solo album, but I can assure you it wasn't... Hey, this guitar is one that Jimmy uses on the *Rain Song*. I made it from a pair of the twin lipstick pickup, double cutaway Danelectros, and added a Badass bridge." I agree with him, it's a bit of a wheeze for compressed paper and vinyl!

Continued on page 81

THE MARTIN TRADITION

In 1833 C.F. Martin, Sr. moved from his homeland in Germany to begin a tradition of quality craftsmanship which has endured for 150 years. Six years after his arrival in New York, C.F. Martin, Sr. relocated his family and business in a rural area of Pennsylvania.



C.F. Martin, Sr.



1876 Centennial Exposition Certificate

C.F. Martin's 150 year effort to produce a better tone has resulted in many innovations. An example is the development of the "X" bracing pattern by

C.F. Martin, Sr. which has contributed to the exceptional tone of today's Martin guitars.



C.F. Martin Factory—Early 1900's

Since that time every Martin instrument has been handmade in one place—Nazareth, PA.

Tonal quality and sound

construction made Martin instruments very popular with artists and players in the mid-1800's. However, getting those instruments to the musicians was another matter. Shipments had to be sent via stagecoaches and riverboats because there were no railroads. Despite these problems, by 1876 Martin guitars were so popular that the company was invited to exhibit at the Centennial celebration in Philadelphia.



1919 Baby D-45
Ditson Model

Martin X-Bracing Pattern



The quality workmanship and innovation for which the Martin guitar is known continue today. C.F. Martin craftsmen working in a climate controlled factory perform 240 separate operations over a three-month period to produce Martin's famous D-28.



New Martin Facility



Custom Flower Pot Headstock Inlay

Even more operations are necessary for some customized guitars hand made through C.F. Martin's CUSTOM SHOP.



Martin D-28

In addition to the Martin line and THE CUSTOM SHOP, The Martin Guitar Company also offers a full line of Sigma instruments, Sigma-Martin guitars, Martin and Darco strings, plus a wide range of accessory items. Please visit your local authorized Martin-Sigma dealer and ask him about C.F. Martin products.



Martin Accessory Products

1833 A CENTURY AND A HALF
1983 OF FINE GUITAR MAKING

1 Cromwell Cello, 2 1950s Fender 3 Martin D28, Precision Bass Maple neck, 4 1950s Fender Stratocaster Maple neck Sunburst, 5 Roland GR-100 Modified, 6 1958 Gibson Les Paul Standard, 7 Gibson Everly Bros., 8 Gibson ES5 Switchmaster Sunburst, 9 Gibson ES5 Blonde, 10 Fender Electric XII 12 String.



Continued from page 79

Another case reveals an original '60s all black Gibson Everly Bros acoustic. Every musician has a particular instrument that he likes to play around the house for relaxation, and most of us have a faithful old retainer that we use for this purpose. Pagey the lucky sod, uses this one. He always did display great taste in his choice of guitars and I've wanted to own one of these myself for a very long time. Grrrr... (much gnashing of molars).

Other acoustics in the Page collection are a well used Martin D28 that's extremely filthy due to an excess of Barcus Berry gunge, and a Cromwell. What's a Cromwell? According to Tim, these cello guitars were produced under license for the Gibson coporation in the late '20s, and marketed under the name Cromwell.

"This one's fitted with a string dampener and had a Charlie Christian pickup added to it. Part of the back was removed to fit the pickup and we got someone to make this matching wooden plate, that's screwed onto the back. Jimmy played this on the Deathwish soundtrack.

All but all of Jimmy's guitars are fitted with light gauge strings, which doesn't seem like a good idea when you're talking about hollow body Jazz guitars like the Gibson ES5 and Gibson ES5 Switchmaster I see here before me — Over to Tim.

"These guitars were brought out for Deathwish and they're both pretty standard. They're strung with Ernie Ball Super Slinky like all of Jimmy's electrics. He uses Ernie Ball Earthwood on his acoustics".

This beautiful, blonde ES5 sports three P90 pickups whilst the Gibson ES5 Switchmaster has highly figured timber in a gorgeous shade of sunburst and comes fitted with three

PAF's as standard.

I ask Tim how he managed to keep all of Jimmy Page's guitars in tune?

"Onstage and in the studio we use a Conn Strobotuner all the time."

Obligingly Tim pulls out even more guitars and tells me we're getting to the end of the ones Page actually plays. He's not at all keen to show me anything Page doesn't use, claiming it would only serve as a free endorsement for that product, and wind up misleading our readers. Who can argue with the man?

"Jimmy's got this mid '50s maple neck Fender Precision Bass that he uses in the studio sometimes," again it has no serial number. "Mostly Jimmy uses the Alembic Omega Bass in the case over there. It's simply excellent in all applications and situations. I can't speak too highly of it."

I suggest he plugs Jimmy into a Steinberger immediately and tells me Jimmy isn't interested in Steinberger. As I've no desire to be ejected from the building, I omit to tell him that the vice president of Steinberger feels the same way too and that he'd double the price and treble the sales tax if the Grateful Dead ever showed any interest in a Steinberger Bass. But that's another story altogether...

"There's not a lot I can say about this Fender Electric XII, how about erm... NAUGHTY BUT NICE!?" (That was a FREE plug for the Milk Marketing Board Dairy Council — wonder what Jimmy would say about that??) Christ, there's a thought! Supposin' Jimmy has done an Elvis and blown himself out on cream cakes? Perhaps he weighs 17½ stone now? It would explain his reluctance

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to be photographed by the Press these days, wouldn't it?

There's a guitar in the next room that I've been eyeing up ever since I arrived here, three hours ago, and after pleading with Tim, he finally lets us photograph it. Lord knows why we have to plead? The instrument in question is an American Melobar guitar which appears to be based on a Mosrite body and pickups. It's played standing up using a slide on a large triangulated neck that could have

been custom built for Guy the Gorilla. I like it, I wonder what the gorilla thought? I'd say Idaho should stick to growing potatoes, cause producing guitars like this one isn't going to make them any more famous. Sorry Tim!!

Outside workmen are dismantling the marquee under which Saturday's party was held. Maybe Pagey's thrown out the last ligger just so he can come and talk to me? — I keep hoping! Someone tells me there was no band this year due to complaints from the neighbors after last year's bash (that's a larf). This regular event is held in honor of Pagey's wife, Charlotte's birthday, and last year the outfit that caused the

neighbors to grumble so much had Eric Clapton, Jeff Beck and Jimmy Page somewhere in the line up. Rumor has it that they were somewhat out of tune — end of rumor...

The very last guitar Tim shows me today, is the one that Jimmy's been pictured with in the Roland ads quite recently. One small difference though, the pickups have been changed.

"It's a standard Roland GR300 guitar synth, that's had the original Roland pickups replaced with old Gibson PAF's. We've got quite a few of those old pickups lying around the place." (Smart boy — I said SMART...BOY...) I notice that all the knobs are marked with little numbers stuck onto the guitar, so Jimmy can relate it to the handbook. See — even Jimmy Page cheats sometime!!

OKAY, assuming you have all of these electric guitars, and the money to buy them of course, and all you really want to do is sound like Mr Page, then you'll need an amplifier, and here the going gets tricky. REAL TRICKY. If you think that Jimmy only cheats with Roland guitars, forget it.

THE AMPLIFIER is of indeterminate brand or age and if it wasn't for the fact that there only appears to be one of them, I'd presume it came out of the Ark... Over to you Tim.

"I don't want to show it to you, it's so scruffy... really SCRUFFY. It's only 15 watts and looks a bit like a Woolies amp or a vintage Watkins but it has the smoothest natural valve distortion I've ever heard, but no you can't look at it, sorry."

After I haul myself off the floor and Tim stops giggling, we carry on. "Jimmy does have a couple of other amps he uses too. An old Vox AC30 that's had a few modifications made to it, erm, treble boost has been added, and he's also got a nice old Fender Concert amp, but the one Jimmy uses most of the time is the SCRUFFY one!!..."

My ghastr is by now completely flabbered, and I realise that it's time to hit the road. My man has not shown, but still it's been an afternoon to remember. I'll be able to tell the grandchildren I played my version of Stairway to Heaven on HIS guitar, and you know what they'll say?... Led who grandpa???... Finally my kindest thanks to Jimmy Page for supplying me with a good time... WHEREVER YOU ARE????????...

Ed Park

11 White 1966 Fender Telecaster Maple neck.
12 Danelectro. 13 Alembic Omega Bass. 14 Melobar.
15 '60s Fender Stratocaster Lake Placid Blue with Rosewood neck. 16 1959 Fender Telecaster with Parson's White Stringbender and Rosewood neck



Shure SM-85 Vocal Microphone

My first encounter with this mic was while watching some kind of TV variety show. It was only a small portable set, but I was still impressed with the clear, crisp, and exceptional transient response of the various artist's vocals. I looked closely at the mic and was unable to recognize it, but upon further investigation found it to be Shure's new SM85.

This is a hand-held unidirectional professional condenser which should be checked out by every vocalist who can afford the price tag of \$345.00, because it's fantastic. I mean, really an exceptional live vocal mic; light weight, great looking and, depending on your style, super high quality.

As stated, its transient response is impressive, yielding a *very* real sound. Its output is hot, similar to an SM57, and although light weight and not quite as tank-like as an SM58, I wouldn't worry about dropping this mic, as its construction is well thought out and durable, to say the least. Being a fixed charged condenser with built in amplification, it does need phantom power, but that can range anywhere from 11 to 52 VDC. As the specs show, humidity and temperature will cause no problems for the 85.

Look at the graph! You'll see that its frequency response has a sharp rolloff at 12kHz, starting to rise from 2kHz, until 12kHz and peaking at 7.5kHz — a very crisp sound. It rolls off below 300Hz and sharply at 100Hz, cutting out bottom end boominess. Not shown on the graph is the mic's proximity effect, here causing the low end to increase with closeness of signal source for intimacy. The polar pattern shows this mic to be not as tight as some cardioids, but definitely giving rejection at 180° (rejection at the sides is said to be 6dB). It was very little RF susceptibility, features an aluminum casing, steel grille with built in wind screen, *AND* comes with an additional foam add-on wind screen for further reduc-



tion of verbal pop sounds. The capacitor diaphragm is shock-mounted, yielding little handling noise, and mic just doesn't seem to distort even at very high levels (see specs).

To be completely fair, this mic was designed purely as a live vocal mic not for use as an instrument mic, but I don't care. A mic is a mic, and I want to know just what I can use it on, so into the studio it went to go up against the standards. On bass drum it was fair, only to be used in emergencies. Like the standard (SM57) it was great on snare, a real good ass-kicking condenser sound quite capable of handling the levels. On toms, cymbals and acoustic piano, again like the 57, it's only to be used in emergencies, but it

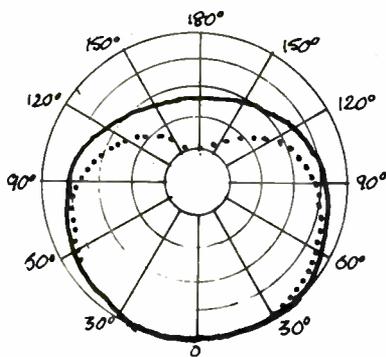
did render a pretty good sound.

With percussion instruments like congas and the like it was perfect, real crisp and transparent — just what I want. It wasn't bad at all on acoustic guitar and strings, but didn't cut it on bass amps or upright basses at all. However, on horns and guitar amps it was quite surprisingly a fine choice. It handled all sound pressure levels and was very transparent and crisp at the high mids. The transient response of this mic is unmistakably clear and quick. On studio vocals, it was on the money.

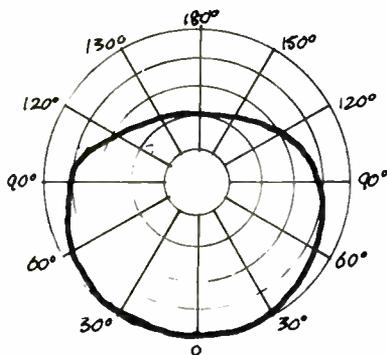
No Eq was needed — just put it up and hit record; the sound you get is pro. Here, the ability to let the vocalist handle the mic without fear of noise,

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Typical polar patterns

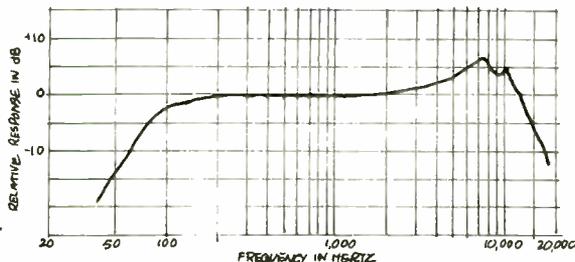


— 100 Hz
 - - - 500 Hz
 ••• 1000 Hz



—
 - - -

Typical frequency response



Manufacturer's Specifications

- (1) **Frequency Response:** 50 to 15kHz (see graph)
- (2) **Polar Pattern:** cardioid (unidirectional) response uniform with frequency, symmetrical about axis (see graph)
- (3) **Output Impedance:** 150 ohms
- (4) **Output Level at 1kHz:** Open circuit voltage - 74dB (0.2mV) (0dB = 1V/ubar)
- (5) **Total Harmonic Distortion:** less than 0.25% (130dB SPL at 250Hz into 800 ohm load)
142dB with 800 ohm load
134dB with 150 ohm load
- (6) **Hum Pickup:** -7.5dB equivalent SPL in a 1 millioersted field (60Hz)
- (7) **Output Noise:** (equivalent SPL; measured with true RMS voltmeter)
29dB typical A weighted
32dB typical, weighted per DIN 45 405
- (8) **Dynamic range:** 113dB (maximum SPL into A weighted noise level)
- (9) **Signal to Noise Ratio:** 65dB (IEC 179) at 94dB SPL
- (10) **Cartridge Capacitance:** 27 pF
- (11) **Power Supply Voltage:** 11 to 52 VDC
- (12) **Current Drain:** 1.0mA to 1.2mA
- (13) **Environmental Conditions:** Relative humidity 0 to 50%, -29° to 74°C (-20° to 165°F)
Relative humidity 0 to 95%, -29° to 57°C (-20° to 135°F)
- (14) **Dimensions:** 7-9/16" x 1-15/16" (head), 25/32" (handle)
192mm x 48.8mm (head), 20.1mm (handle)
- (15) **Weight:** 6.3oz, 180 grams
- (16) **Price:** \$345.00
- (17) **Warranty:** one year

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get a great sound and let him use the proximity effect for feel is definitely what it's all about. All in all, the SM85 is the current state-of-the-art version of the SM57. To see this more clearly, look at their graphs! The frequency response graphs show their low end response to be virtually the same. The mids are smoother on the 85 with the

boost at 5kHz on the 57 and 7.5kHz on the 85. This accounts for the 85's crisper sound. The construction of the 85 is certainly more 58-like in durability than the dubious capsule mounting of the 57. Don't get me wrong, I've seen many 57s beat to hell and still sounding fine. But, when its little wind screen gets knocked off its pro-

imity effect goes out the window. The 85 on the other hand is about as durable as a 58 with exceptional proximity effect, longevity, and remarkable transient response. Again as far as vocalists are concerned, if this suit fits, you'll wear it well.

Mike Shea

nearest note, an invaluable aid if you're a little sloppy hitting the voice buttons or, during programming, a particularly tricky rhythm. One further setting enables you to defeat the auto-correct entirely and make your entries in 'real' time. This is great for beats you deliberately want to be 'out' so as to improve the feel.

Shuffles are created by controls which allow you to vary the emphasis on odd and even numbered beats via a percentage basis. 50%-50% is totally straight, 54% (odd note) — 46% (even note) is slightly shuffled, and so on till 70%-30% is reached, this is very shuffled. By applying this, even within straight rhythms, the feel can be vastly improved and the metronome syndrome avoided.

The player has the facility to link rhythm patterns together in a predetermined order so as to provide the backing for an entire song. Intro, verse, chorus, bridge, and all manner of breaks and fill-ins can be created and then programmed to play in a particular order. The player can edit, insert, delete, and copy any rhythm link within this song chain in a most versatile manner.

A very handy (new) feature is that when you want to copy the contents of one drumbeat to another beat slot or link you do not lose the information in the slot to be copied to. What happens is the information in, say, 11 is just added on to the contents of slot 23 which is what you're copying to. Nothing is lost. You can also double the contents of any particular beat by creating what amounts to a mirror image of itself joined tail to head. And then, if you wish to, double that yet again. And so forth. In order to play in odd timings you can determine the length of the measure yourself, five beats to a bar or 27, the choice is yours.

Plugging the Linn in I noticed there was no Safe/Record switch on the back panel. Not being able to inadvertently record something or being able to 'lock' the memory to the touch of the overly curious was a drag. I can't understand the omission. A good idea would be a predetermined code number that you could choose and feed into the Linn to unlock the record circuitry, then only you or someone you allow could gain access to anything other than playback and those beats and programs you sweated so long over are utterly safe.

New features really started to catch my attention now. The back panel had all the individual output jacks for each of the voices but there were also five jacks labelled Trigger Inputs. You can use pads or virtually any audio source

to trigger any of the Linn Drum snare drum, gate it for a clean signal, and use it to trigger the Linn into producing a snare drum beat onto another track to either replace or mix with the original snare. This flexibility is definitely a step in the right direction.

I found a CV pair of inputs which remotely control the pitch of the snare and/or the pitch of the toms and congas. If you use a control voltage pedal you can then sweep the pitch of the toms during rolls.

A great feature which I feel bodes much for the future is a trigger output which is programmable to do more than just step your sequencer or synth along at constant 8th notes or 16th notes etc. The cowbell voice button can be switched to this mode and instead of a cowbell being programmed you create one step trigger pulse; so, play the rhythm you want via this and the pulse it creates will mirror that rhythm. The keyboard or sequencer will determine the note's pitch but you will have determined when it occurs. Bass lines and sequences will not remain the domain of the current crop usually associated with their production. The possibilities here are vast. I hope to see their potential maximised in Linn's to come.

Sounds

The actual quality of the voices is very, very good, but this opinion varies from person to person. It's a very subjective thing, the bass drum sound one person adores and is happy to work with drives someone else mad. This particular bass drum sound I found to be just a little too 'round' for my taste, I missed the good healthy click and think of my own LM-1. But it's definitely a sound that many will love. The snare was very meaty and suitable for anyone's application, the digital reproduction of sound has made so much difference to every facet of music making from the instant-great-snare-sound of this instance to repercussions that the most imaginative of us haven't even dreamed of yet — we just have to wait and listen. The hi hat was very good but I sorely missed not being able to tune it.

The tom-tom sound was very good, too. Sort of a concert tom-type sound with an after ring to the beat that most should find appealing. They are better than previously available factory sounds. Cabasa, tambourine, cowbell, these all sound immaculately real, which isn't too inconceivable seeing as they *are* real. I wasn't too impressed with the conga sound or the handclap, but again no doubt that's an element of personal taste creeping in. The

sidestick snare sounded good but was better when tuned almost as high as it would go. Of course any of the voices which can be tuned can be very interesting when tuning is taken far out of the natural range of the voice concerned and a trick or two in the form of reverb, echo, phasing, or flanging is introduced.

Programming the beats is straightforward enough. Just tap a voice button for the desired rhythm along to the internal metronome's click to keep you in time. The metronome, by the way, has what seems to be a very quick flam of its own click to indicate to you when the downbeat of the measure has occurred, and I find this flam — and indeed the entire character of the metronome click — to be inferior compared to the LM-1 model and its accompanying series of updated, debugged Linn's. Small point, true, but given a choice I think the majority of players would agree with me.

Erase of entire beats, selected beats, overdubbing, and the host of programming aids all operated perfectly. The trigger in/out mode was great fun and I praise the efficiency obtained by neatly co-ordinating this into the Linn itself, rather than as an outboard item. Being able to read the tempo while the Linn is running is a relief although there is still no 'fine adjust' control in parallel with the beats per minute dial. Add a read out that's accurate to a tenth of a b.p.m. and I'd really be happy, Roger. Make the tempos on each rhythm pattern programmable into the memory for instant recall and update, and your sales would increase so much I blush contemplating it.

As I mentioned at the beginning, I only had a few days to go over the Linn Drum and there are many avenues I want to explore to fully discern what this new model can do and exactly how it stacks up against the Linn LM-1. Until I do an intensive test report my general impression is that the Linn Drum is still *the* programmable drum machine to go for. Its higher profile and reputation coupled with a more attractive price should insure a bigger and better future for the instrument.

If you are considering purchasing one for the first time I can certainly give it full marks over the bulk of its competition (who are all hot on the trail), but if you already own a Linn have a long listen and a long think before trading it in, you may end up with a bizarre variety of frustration and wish you had the both of them.

Warren Cann (Ultravox)

Audio-Technica ATM11R and ATM91R

Audio-Technica describes these two mics as "for use in high quality sound reinforcement systems, and for use by professional musicians especially for instrument pickup (11) or vocal pickup (91)." They go on to mention that they can also be used for professional recording and broadcasting. Indeed, they do make perfect live mics whether for PA or recording. However, to be completely fair to these mics, I must say that I feel they're two of the best all around recording studio utility mics I know of. Whenever I'm in the studio and find that they have a few of these mics, I smile, knowing that no matter what sound the producer is going for, or whatever instrument is to be recorded, I'm covered. I've used these mics for just about everything and their sound ranges from more than adequate to the best. Considering that these are two of the least expensive, quality mics on the market, that's saying something.

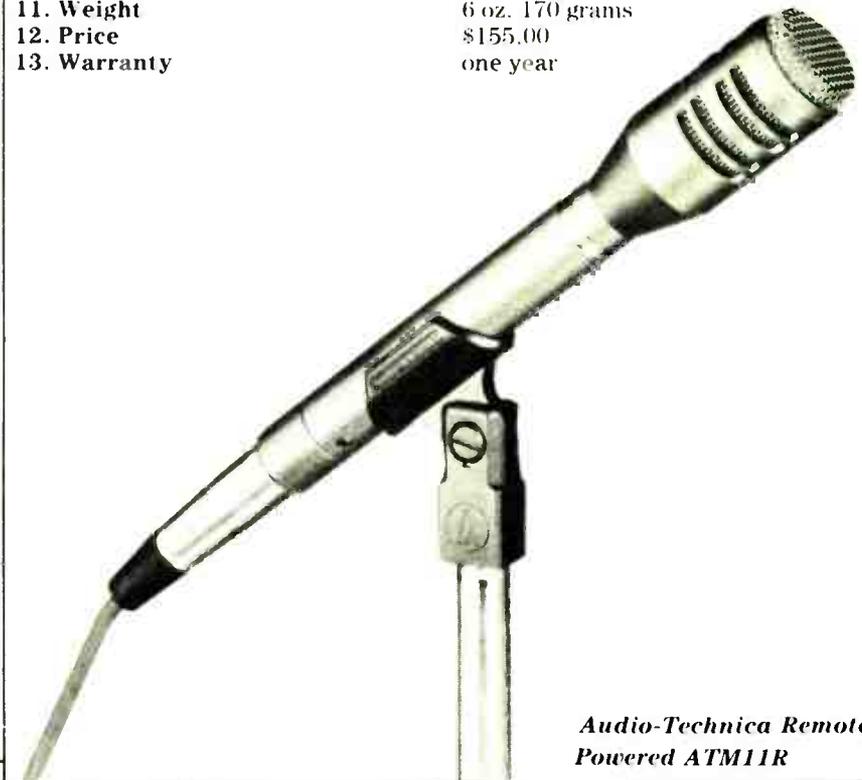
Both are fixed charge condensers with cardioid polar patterns. The graphic of those two mics are misleading. The ATM91R has more bottom end than the ATM11R with the latter rendering a better high end response. As such, the two complement each other. Try putting both of these in front of the same guitar speaker — the 91 will have a deeper and therefore mellow sound than that of the cleaner-presence accentuated 11. The difference is not that great, but it's there. Both mics sound fine here and either will do perfectly for this job but the subtle difference is noticed. The 91 also has a better proximity effect (see graphs), smoother and not as susceptible to peaks and vocal pops, due to its wind-screen. Given a handful of each of these mics, I could feed a PA system or record a complete live band without any problem at all, using the 91's on vocals, bass and drums and the 11's on guitars, keys, cymbals etc. Both are durable enough for the most demanding road work and quite a bit of pounding won't alter their sound quality. Internal shock mounting virtually eliminates handling noise. These old friends can be powered by a wide range of phantom DC from 9 to 52 volts with very little current drain,

meaning long battery life. They'll handle very high sound pressure levels up to 141dB without distorting. This is important when close micing loud signal sources such as drums, amps, and horns. These capacitors are immune to less than extreme temperature and

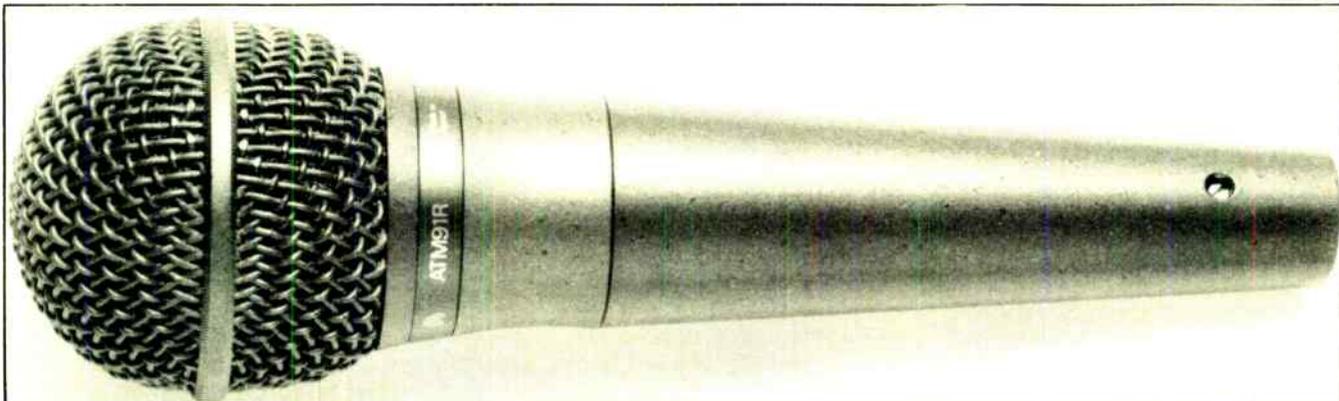
humidity problems. As far as output, they're a bit hotter than a SM67 and very close to a 58 in durability especially the 91. Both have fast transient responses, wide, fairly flat frequency responses, and very good sensitivity, making them a joy to use.

Manufacturer's Specifications ATM11R

- | | |
|-------------------------------------|--|
| 1. Frequency Response | 30 to 20kHz |
| 2. Polar Pattern | unidirectional (cardioid) |
| 3. Output Impedance | 200 ohms, balanced |
| 4. Output Level | Open circuit sensitivity 0.32mV
(-70dBV re 1V/dyne/cm ²)
EIA Sensitivity -143dB
-49 dBW (0dB = 1mW/Pa)
1Pa = 10dynes/cm ²
1pa = 10 microbars |
| 5. Maximum input sound level | 141dB at 1% THD |
| 6. Signal to noise ratio | Greater than 50dB at 1kHz, 1 microbar |
| 7. Power requirements | 9 to 52 VDC |
| 8. Current Consumption | 0.3 milliamps at 9 volts
0.4 milliamps typical from 12 to 52 volts |
| 9. Environmental Conditions | Less than 110 degrees F (43 degrees C)
for appreciable periods of time |
| 10. Dimensions | 7½" × 1¾" (head)
¾" (body) |
| 11. Weight | 191mm × 35mm (head), 21mm (body) |
| 12. Price | 6 oz. 170 grams
\$155.00 |
| 13. Warranty | one year |



*Audio-Technica Remote
Powered ATM11R*



Audio-Technica ATM91R

Manufacturer's Specifications ATM91R

<p>1. Frequency Response 2. Polar pattern 3. Output Impedance 4. Output Level</p> <p>5. Maximum input sound level 6. Signal to Noise Ratio 7. Power requirements 8. Current consumption</p> <p>9. Environmental Conditions</p> <p>10. Dimensions</p> <p>11. Weight 12. Price 13. Warranty</p>	<p>30 to 20kHz unidirectional, cardioid 200 ohms balanced Open circuit sensitivity 0.32mV /- 70dB/re 1V/dync/cm² EIA Sensitivity - 143dB - 48dBM (0dB = 1mW/Pa) 1Pa = 10 dynes/cm² 1 PA = 10 microbars</p> <p>141dB at 1% THD Greater than 50dB at 1kHz, 1 microbar 9 to 52 VDC 0.3 milliamps at 9 volts 0.4 milliamps typical from 12 to 52 volts Less than 110°F (43°C) for appreciable periods of time) 7-5/32" x 2 1/8" (head), 1-15/16 to 13/16" (tapered body) 182mm x 54.2mm (head) 33 to 21mm (body) 9 oz 255 grams \$175.00 one year</p>
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As mentioned, I overlap these mics in use, meaning one for lows, the other for highs. Take mic'ing a Leslie, for example. Put an AT11 on the top and the 91 on the bottom and you've got a perfect combination which yields an ideal sound. Again, the graphs don't show this fact as much as my ears do, but I'd easily prefer the 11 to the 91 on cymbals and the 91 to the 11 on toms.

So, let's put them up against the standards and see what happens. The ATM91R is very good on bass drum. It doesn't touch my current standard the SM81, but does rival the RE20 and Sennheiser 421 here. On toms the 91R is one of my favorites, and I know more than a few engineers who will use these before the standard 421, if given the choice. On snare, both mics render great sounds, the choice of either depends on the tone you're after. Their choice over that of the standard SM57 would depend on whether or not you're after a dynamic or condenser sound, no one being better than the other. As far as hi hats and cymbals, the 11 is a great

choice. It's smooth response, sensitivity and excellent transient response renders a sound that's real in terms of the actual sounds. This mic may not be perfect on hi hat, however as there are mics with tighter polar patterns often needed in order to isolate the loud snare's signal from this instrument recording. Don't get me wrong - the 91 will give good sounds on the cymbals and the 11 can be used very effectively on kick and toms. I just have, when given the choice, personal preference soundwise when it comes to these mics, and I've used them both extensively. On overall percussion, they're great, no doubt about it.

These mics are OK on acoustic piano though there are obviously better mics for this instrument, but the sound rendered by these is full to good with both easily better than a 57 or a 58 here. They're very good upright and bass amp mics, as well as fine for acoustic guitar. In fact, I like them on most acoustic instruments, such as strings, vibes, and especially horns. Here, they take high

levels, as previously mentioned, and are very good soundwise. They're perfect guitar amp mics, and while in this case, more than anywhere else, the choice is purely subjective, I feel they'll stand up against *any* other mic I've used.

When it comes to live vocal recording I trust the 91 as much as any other mic I can think of. Furthermore, I know of at least one occasion where this mic was used for a 24 track vocal recording. Here, no other mic, in a studio with an incredibly full complement of mics to choose from was capable of handling the pops and breath sounds of a particular female vocalist as well. As an added point, those tracks sounded very professional. There was no indication that a less than top shelf mic was used!

So, what all this boils down to is a pair of mics that are more than just useful *everywhere*. Add to this the fact that they are so durable yet inexpensive (\$155 for the ATM11R and \$175 for the ATM91R). You can see why I'd like to see every studio and sound company owning at least three of each!

INTERNATIONAL MUSICIAN AND RECORDING WORLD

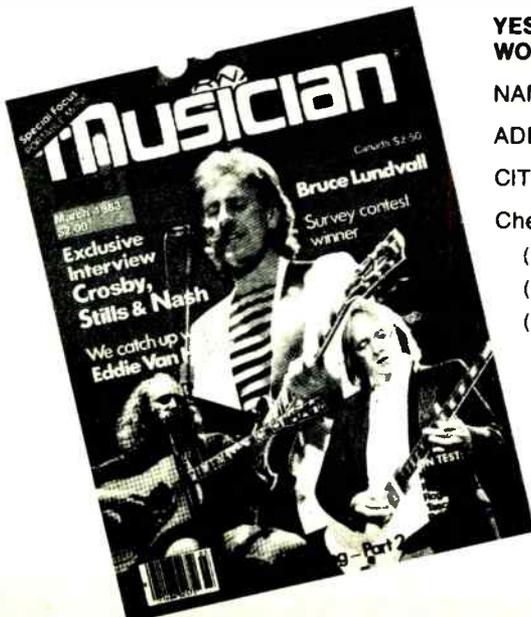
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The AF of M: Big Brother to Us All!

There is much talk in America these days of the erosion of institutions. The church, the family, the police, etc., are said to be coming apart at the seams. In these troubled times, it is reassuring to occasionally discover that there are some things which never change. There are institutions which do weather the storm and will be with us from the cradle to the grave. One of these hardy survivors is the American Federation of Musicians.

Wherever a musician works a gig, be it for the President of the United States or for the entrance fee at the local Mom and Pop Club, you can bet that the Union will be there.

For some reason that I have yet to ascertain, there has been much talk by members, lately, of trashing the Union, burning down the buildings, and heading and gutting the officers. I have even overhead one malcontent suggesting that the US Government test the neutron bomb on the Federation offices.

I think that it is time to speak in defense of this hallowed institution before it is too late. After all, most of us that are members, simply by joining, have shown that we need to be in an institution.

I would like to ease bad feelings toward the Union by listing its positive points and programs and what it has done for all of us. After reading my arguments, I am sure that you will feel the same way as I.

THE UNION HAS:

(A) AN EFFICIENT EMPLOYMENT PROGRAM

Think back on the countless gigs the Union has gotten for you. Think of all the trust fund and transcription gigs that you have had in the past and the fortunes that you have made from them.

In the last 20 years I have been a member of five Locals. One (which I won't mention by name in order not to mislead the reader into thinking that one Local is superior to another) called me to stand with four other trumpet players in front of a theater and play fanfares before the performances of a musical play. After completing four days of a five day contract, the Union Representative was informed by the contractor that he, said contractor, had erred. It seemed that in reality he wanted only four musicians instead of five. After a few drinks with him, the Union Representative apologized to me and assured me that he would make it up to me by giving me gigs in the future. Unfortunately, I wasn't able to capitalize on his generosity because I left town after only 18 months. In that time, nothing came up.

(B) A WARM CONCERN FOR THE WELFARE AND PROTECTION OF ITS MEMBERS

If the Union stands for one thing — it is protection. In one city, I was working the only steady gig in town. This particular club had been employing musicians for some years. I, and the others, were shamelessly working for under scale. The Union found out and stopped the gig. We felt true guilt when the Representative so graciously pointed out that the employer, by paying us cash on the barrelhead, was cheating us out of our pensions. Happily to say, the Union must have collected the pension money because the next night we were all back on the gig!

Once I walked into my Local to get some contract blanks. Several officers who were sitting around the hall relaxing a few hours from their arduous duties by playing checkers, smoking cigars, and drinking coffee, approached me at the threshold.

"Do you belong to this local and are your dues paid up?" one asked.

"Where have you been working?" asked another.

"You had better tell us because we will find out!" added yet another.

"Maybe you had better step into the office!" suggested the one obviously in charge.

I was impressed by their interest in my welfare and what transpired in the office, to say the least, did much for my sense of security.

Finally, the warmth of the Union is shown by their adherence to the old axiom: There is some good in every man. Just as most of us will concede that Nixon showed good sense by officially recognizing China, the Union has come to the realization that such men as Hitler, Stalin, and Joe McCarthy had a few good ideas also — especially in the areas of surveillance. As I said, whenever you work anywhere, if the Union knows about it they will be there.

(C) A MODERN PROFIT-SHARING PLAN

Whether you work for scale or for free you pay work dues.

Need I say more?

(D) A HUMANE PENSION PLAN FOR THE AGED

A friend of mine told me that his friend had paid into the pension fund going back into the nineteen-thirties and being recently retired, is now collecting his pension.

In these days of inflation and/or recession, when the Social Security System is in the process of collapsing, when insurance companies pull off monumental rip-offs, and even when banks require references for the opening of a savings account, it must be reassuring to this man after generations of Union membership to know that like death and taxes, he will receive his twelve dollar a month pension from the American Federation of Musicians!

(E) A FIRM POLICY TOWARDS EMPLOYERS TO INSURE PAYMENT — AND PROMPTLY!

When you work a Union gig such as a wedding or recording date, you can be 100% assured that after three weeks you will probably get your money.

(F) A PROGRESSIVE PROGRAM TO FURTHER THE ADVANCEMENT AND EMPLOYMENT OPPORTUNITIES OF ETHNIC GROUPS

In every city there is a day when members can go to the Union Hall and meet contractors for high paying jobs such as weddings, country clubs, debutante balls, conventions, etc. We should all of us get down on our knees and thank the Union Officers for donating the use of the Hall for the purpose of furthering the employment of, the advancement of, and alleviating the sufferings of white people.

With the points that I have raised, I think that I have adequately expressed my feelings for the organization, and I suspect that I speak for many others... UP THE UNION(s)!

I am tired of seeing *my* Union the butt of such dastardly insults as:

Q. When two officials of the Musicians' Union get married, why do they get married in a bathtub?

A. Because they like to have double ring ceremonies!

Jack Walrath

Variations On A Sax

A Talk With Paul Cohn

Writer, concert performer, studio musician, Jazz musician, historian, lecturer, teacher... will the real Paul Cohn please stand up?

If the above were a multiple choice question, Paul Cohn would have to check "all of the above". And yet, my interest in Paul Cohn was in another capacity not even mentioned — that of saxophone collector! That's right, saxophone collector. With a collection of well over 80 saxophones, Paul has gathered over the years almost every exotic, one-of-a-kind, antique, and downright fascinating saxophones one could imagine.

I managed to steal about an hour of Paul's busy performing and teaching schedule one December morning. As we talked in his upper Manhattan apartment I could almost feel a sense of life and personality emanating from the scores of saxophones that were displayed around us.

IM&RW: *The first question that comes to mind, being surrounded by all of these saxophones, is how did it all begin? Did you originally set out to become a saxophone collector? What happened?*

Cohn: It was a very slow process, and it's only recently that I consider myself to be a collector. I always wanted to have a full set of saxophones to play professionally, soprano through baritone and maybe a sopranino for the Rock band that I was in... I was playing a concert out in Ohio, about six years ago, and the school system offered their old bass sax for sale for a very low sum, and I bought it, just for fun. Very soon after, in the same part of Ohio, the Cleveland area, I came across, in an old music store, a very unusual bent soprano. So buying those things, combined with visiting a collector who has an enormous collection in Detroit, I began to see all these different types of

instruments, and I got really interested in the history of them. I started finding them. And there were suddenly so many instruments within my grasp that were so unusual that I could tie them together... I started acquiring them. That's how it all started.

IM&RW: *Do you find that many of the exotic saxophones that you've acquired were manufactured in Europe?*

Cohn: Most of the instruments of the saxophone variety are from this country. Some of the saxophone-related instruments come from Europe. But I could say all but ten instruments of my collection are American instruments.

IM&RW: *I see some really interesting saxophones that I've never dreamt of, much less seen before. The first one I notice, I can't believe my eyes, because it doesn't have any keys... What is it?*

Cohn: That's the *slide saxophone* (pic 1). That was made by the King Company in the early twenties. In the '20s, there was such a saxophone craze; it was a tremendous novelty, almost a fad, and the saxophone manufacturers came out with all different kinds of novelties to attract buyers. This is an instrument that they called a 'C-saxoprano' and it has a strap going down the length of the little tubing where there's a slit. As you slide your finger up and down the strap it effectively lowers the length of the tubing and creates different notes. It must have been a novelty then and couldn't have sold for more than ten or twelve dollars. They weren't designed to last and they've become extremely rare because of that.

IM&RW: *This instrument over here is about the smallest saxophone I've ever seen. It first reminded me of a savello but it's much, much smaller. What do you call that?*

Cohn: That's a *curved sopranino* (see pic 2). Those are quite



rare. This is one of my European instruments, probably made in Italy. This curved soprano is a modern instrument made perhaps ten or 20 years ago. And I only know of a handful that are in existence, perhaps five or six. They are small but are very well made. They are actually playing instruments, although they have a very bright sound to them.

IM&RW: *Have you ever had occasion to actually perform with one?*

Cohn: Yes. When I play some Jazz gigs I'll take it along with me and I'll use it. I use my other soprano which has a darker sound when I play orchestrally, such as when I play "Bolero", or in other kinds of concerts. It has a wonderful sound and mechanically it's made very well. It's a legitimate instrument. There is one smaller that I don't have, believe it or not. It's called a *sopranissimo*, and that's in 'B Flat'. That was part of a collection in Europe which was unfortunately stolen last year.

IM&RW: *Now this also saxophone that I'm holding, the first thing I noticed when I looked at it was that the keys looked very small and then, to my disbelief, I saw that there were actually no pads on the keys. What happened to the pads? Did they fall off or what?*

Cohn: This was an instrument that was designed and conceived by Selmer, manufactured by Heusher. It's the *padless saxophone* (see pic 3). Selmer introduced this in the '40s as an innovative construction designed to let players play faster. The tone holes have a leather gasket surrounding them. Where the pads would be, are just metal discs, and the discs come down and surround the leather and seal off the tone hole. Presumably it could help you play faster, but the problem was that the instrument was so noisy that when studio players took it into the studio to do recording dates, the actual noise of the popping would pick up into the microphones, and also, since it was leather, the slightest little bit out of adjustment would disrupt the seal, so it was always riddled with leaks. They made them in both an alto and tenor version and they didn't last very long.

IM&RW: *Now this is really unusual. It's a saxophone but instead of a bell at the end, it has what appears to be a bulb, an enclosed bulb with holes in it. What do you call that?*

Cohn: That's the *Conn-O-Sax* (see pic 4), made by the Conn People back in the late '20s, around '27 or '28. As I said, there was an incredible saxophone explosion in the early '20s, and as that fad began to die down, the saxophone manufacturers did what they could to keep people's interest up. So back in the late twenties, Conn made an 'F — mezzo-soprano' saxophone, which is an alto sax in the key of 'F', and they made the 'Conn-O-Sax'.

The 'Conn-O-Sax', of which they made only a handful, perhaps fifty, is an extremely rare instrument that's amazing. It's in the key of 'F' and it's straight, has a bulb at the bottom, and it has a key range from low 'A' up to high 'G', and the keys are arranged very conveniently so that it really works. They advertised it by saying, "Plays like a saxophone, looks like a heckle phone, sounds like an English horn". They showed a picture of someone dancing as they played it. It bombed! No one bought them. It was in the key of 'F', it was 1928 or '29, and it was just too exotic for people to become interested in. They became immediately rare.

IM&RW: *I see a saxophone over in the corner there that I recognize from seeing Roland Kirk, who was one of my favorites. He called it a monzello. Is that correct? What do you call it?*

Cohn: I call it a *straight alto*. (See pic 5.) The Stritch and the Moncello were appellations that Kirk gave to his instruments, but they are in a sense just conventional instruments that are rare now from the period. This is the Buescher Straight Alto that they made at the same time that Conn made their 'F' Alto and their 'Conn-O-Sax'. It's just the body of an alto saxophone with the extension down straight with a slight curve in the bell and a straightened out neck with a slight curve at the top. However, this particular instrument plays beautifully. It's so smooth and it's so easy to play that I've actually taken it out on jobs and sat in. It plays very well. It's also very rare. They may have made only one or two hundred of them at the time. They didn't sell very well.

IM&RW: *This saxophone that I'm looking at now looks like you can play it with only one hand because of the extra*

Continued . . .



... Continued

keys on the left hand. Is that possible?

Cohn: Possible then, almost impossible now. The manufacturers back in the early '20s or so were very eager to do customizing jobs, and this is an instrument...

IM&RW: *What do you call it?*

Cohn: Well, it's just a *curved Soprano*... a one handed soprano (see pic 6) that can be played with one hand because of extra keys that were requested by the person who bought it. This was made for someone who played in a circus in 1914. In fact, the bell is inscribed, "Especially made by Buescher for the Apollo Concert Company" which ran circuses out on the west coast. This guy's act had him riding into the ring on a unicycle, playing saxophone with one hand, and juggling something in the other hand. The instrument itself is quite ornately engraved and quadruple gold plated, and happens to be a superbly playing instrument as well as playable with one hand.

IM&RW: *Now there's an instrument that I've seen many times on album covers... I associate it with Ornette Coleman, although I know many players played this, including Charlie Parker. It's a plastic alto, isn't it? Was that manufactured in this country?*

Cohn: No, that's an instrument that was also manufactured in Europe. This is a *Grafton Plastic Alto* (see pic 7). It was manufactured in England, and it came out in the very early '50s. Innovative in its design and in its key construction, it's the bane of a lot of repairmen because they don't care to have to repair it, although the one I have is in excellent condition. My repairman has done wonders with it. It enjoyed a brief popularity in the early '50s. Indeed, Parker and Coleman played it, and despite its odd looks, its white plastic body, it actually has a very warm sound. It doesn't sound nearly as odd as it looks. It's designed for a metal neck, and maybe that makes a difference in the sound.

IM&RW: *Now I'm looking at a saxophone that I absolutely cannot believe. I think I'm going to have nightmares about this one. What do you call that?*

Cohn: This is a *Rothophone* (see pic 8). This is an instrument that was made by Roth of Italy and did not enjoy a great popularity. What it amounts to is a very, very skinny saxophone based on the Sarrusophone principles. It's got a

very small bore but the bore is conical and shaped to look like a saxophone, so it has a skinny body. It was made to be played with a double reed. I use a bassoon mouthpiece on it. And it has a very nasal, brackish kind of sound to it. The one that I have here is an alto Rothophone, so it's in the key of 'E-flat'. I use it to play alto saxophone parts.

IM&RW: *OK. I'm looking at it, but I don't believe it! It's called an 'Octavin', is that correct? (see pic 9).*

Cohn: That's right. It's called an *Octavin*. This is a bizarre instrument. I think it was an instrument that was designed to be used in outdoor bands or marching bands. It's a conical bore soprano saxophone fingered instrument that's doubled over on itself, so it's very, very small and it has a bell that you can move around so that apparently if you're marching one way, you can change the direction of the bell to the direction that you're marching. It was made by Adler of Switzerland between 1890 and 1920 in the keys of 'C' and 'B-flat'. It has a little hook on the bottom which makes me think that it can be attached to someone's belt as they are marching and at the right time they can just pick it up and play it without it getting in the way. It has a very soprano-like saxophone sound, but a little more wild, a little more exotic, less controlled.

IM&RW: *I would like to ask you one more thing, and that is, with just my brief exposure in this room with all of these instruments, I feel their personalities. I feel an individuality from each instrument, but I also sense something more. You've been with them for years and you're lived with them. Is there some way that you can express your feeling about them aesthetically? What I mean is that you must look upon them as more than just instruments?*

Cohn: At this point, of course. In fact, I can't exactly call them family but they all have very distinct personalities. And when I come to them and when I play them, those personalities are revealed every time I perform with them, and that's the fun because they cease to be just saxophones. They become part of a whole fabric of different people's conceptions of what an instrument should be and what it sounds like, and as individualized as these instruments are, you get whole different kinds of feelings when you play each one of them.

David Gross



... Continued from page 32

except for one or two really rare cases. Nobody in the Dregs has ever been given anything for nothing. We are very happy to give an endorsement to something we truly like and use, though. And that's what we do. We're just like any other musicians, who look around at stuff they'd love to buy, but can't really afford.

IM&RW: Well, is *Lexicon* building anything especially for you? Are you involved with advising them in terms of practical design?

Morse: I have no idea. All I can say is, they've been really good about supporting the band. They haven't directly solicited any design input from me, but they are always asking for my impressions about the stuff. Remember — I'm just one of a whole lot of people that they may ask, 'How do you like it?'

IM&RW: What about amps?

Morse: I'm using Ampegs right now, but I'd love to get a hold of some Marshalls. Basically, though, I'd have to have a few modifications done to the Marshalls to use 'em the way I use amps. I use two different kinds of amps, a clean powerful one, and a distorted kind of amp. I mix them together, so I need a pretty low-gain preamp output from the first amp, and I need some kind of mixer in the second one.

IM&RW: You know, the Dregs are considered by a lot of people to be one of the hottest, most technically-virtuostic bands in the country. So, I'm sitting here wondering why you're not famous, why you're not a household name?

Morse: Well... (pause).

IM&RW: Yeah, I figured I'd end up with an easy one.

Morse: (laughs). Well, to be a household name, you have to, in some way, appeal to a majority, or at least, a very large audience. What we've found is, at the moment, there are barriers in the media which prevent a lot of people from being exposed to what we do.

IM&RW: Are those barriers on the broadcasting side, or the record company side, or... well, what kind of barriers are you referring to?

Morse: Well, radio, sure. All the mass media. I'm considering *International Musician*, even though it has a pretty big circulation, to be more of a specialized magazine, and as such, not part of the kind of mass media I'm talking about.

IM&RW: Well, specialized in that it's read mostly by people who play music rather than only listen to it.

Morse: Yeah. But, I'm talking here about the mass media — the *People* magazine-type mass media. All those forms of mass media are programmed toward conservative, middle-of-the-road fare. They try to guess what people want. Or tell them what they want.

IM&RW: So, you're looking at it as if the media is creating that want — programming it into us.

Morse: That's my point. Now, maybe the average mine worker or truck driver wouldn't like our music if they heard it tomorrow, but if he were at least exposed to more experimental music, at least he'd

have the opportunity to choose what he likes from a larger selection.

Right now, all radio stations are divided into three or four little groups, you know? Black, Rock, Pop, Country...

IM&RW: Well, where do the Dregs fit in? Why don't you try and describe your music, as if to someone who's never heard you before.

Morse: It's hard. We were not created to be a corporate success, a money-maker, or anything like that. We just create music that we ourselves would like to hear at a concert.

Steven Dupler

Horizons of Sound

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The way to success is often achieved through knowledge, therefore, we will arrange courses on several items like stage lighting, sound, instruments and equipment in general etc. If you need any accessories, such as strings, sticks or skins, cables, connectors etc., the

Music Shop can assist you, however late the hour. We also arrange clinics where the latest equipment and instruments are demonstrated. If you want to sell or buy second-hand equipment, you can do it during our Swap Shop evenings.

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25 rooms are available 24 hours a day. Every room has a lock up cage for storage. The rooms range from 15 to 50 sq metres. Bands utilising these facilities may do so on a yearly contract, automatically extended for another year. If not cancelled, you can also book by the evening or hour, it's up to you.

VIDEO

What the ears hear the eyes often like to see. To this end we offer our customers a complete audio-visual package including a complete master recording of two songs on video. They are filmed in two separate studios, each built specially

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Musicians and producers are offered a studio complex of three separate studios.

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Sound and Lighting Rental Guide

KEY

- 2W — 2 way
- 3W — 3 way
- 4W — 4 way
- MB — Mixing Boards (of channels)
- SC — Speaker Components
- CDC — Compression driver components
- MA — Monitors available
- M — Mics
- LA — Lighting available
- TYE — Transport Your Equipment
- SFX — Special Effects
- SE — Sound Engineer
- C — Crew
- L — Local
- T — Touring
- LR — Live Recording
- SV — Size Venue

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MOON SOUND, INC.

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MICHIGAN

PRO-AUDIO, INC.
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Below are paid listings of musical instrument
dealers intended to help you identify stores
in your locality so you can see and obtain the
products described within our magazine.

KEY

A	Amplifiers	O	Organs
B	Brass	P	Parts
BF	Books & Folios	RE	Recording Equipment
D	Drums	RS	Repair Services
E	Effects	S	String (for Guitar)
EK	Electric Keyboards	S/H	Second hand
ER	Electronic Repairs	SL	Stage Lighting
G	Guitars	SM	Sheet Music
IN	Instruction	SR	Sound Reinforcement
IR	Instrument Rental	SYN	Synthesizers
K	Keyboard	TC	Travel Cases
M	Mics	W	Woodwind

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SYN, TC, W.

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S, S/H, SL, SM, SR, W. Dorian Clark, King,
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RE, RS, S, S/H, SL, SR, SYN, TC.

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Studi

KEY

T	Track
P/H	Per Hour
P/D	Per Day
OTC	Overtime Charge
NR	Noise Reduction
TF	Transfer Facilities
R/R	Reel to Reel
ST	Studios
CP	Copying
RH	Rehearsal
ED	Editing
BR	Bulk Rate

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Guide

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/CR Reel to Cartridge
/ST Mastering
/JMP Computer Mixing Facility
/IX Disc to Tape
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PA/SP PA Speakers
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EA Electronic Accessories
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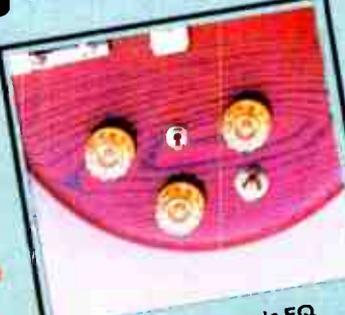
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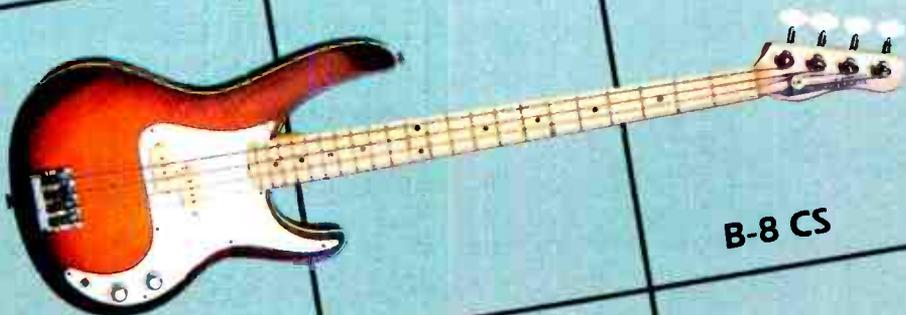
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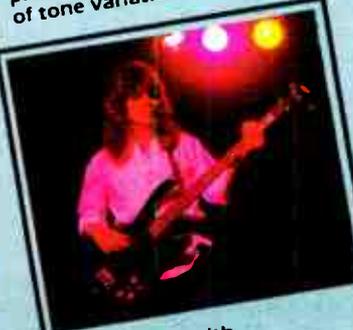
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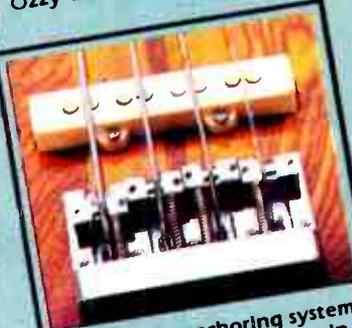
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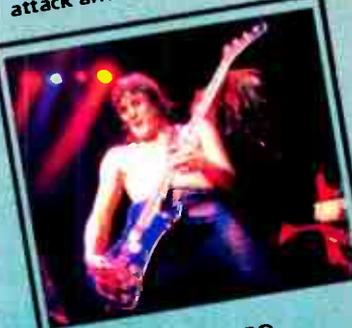
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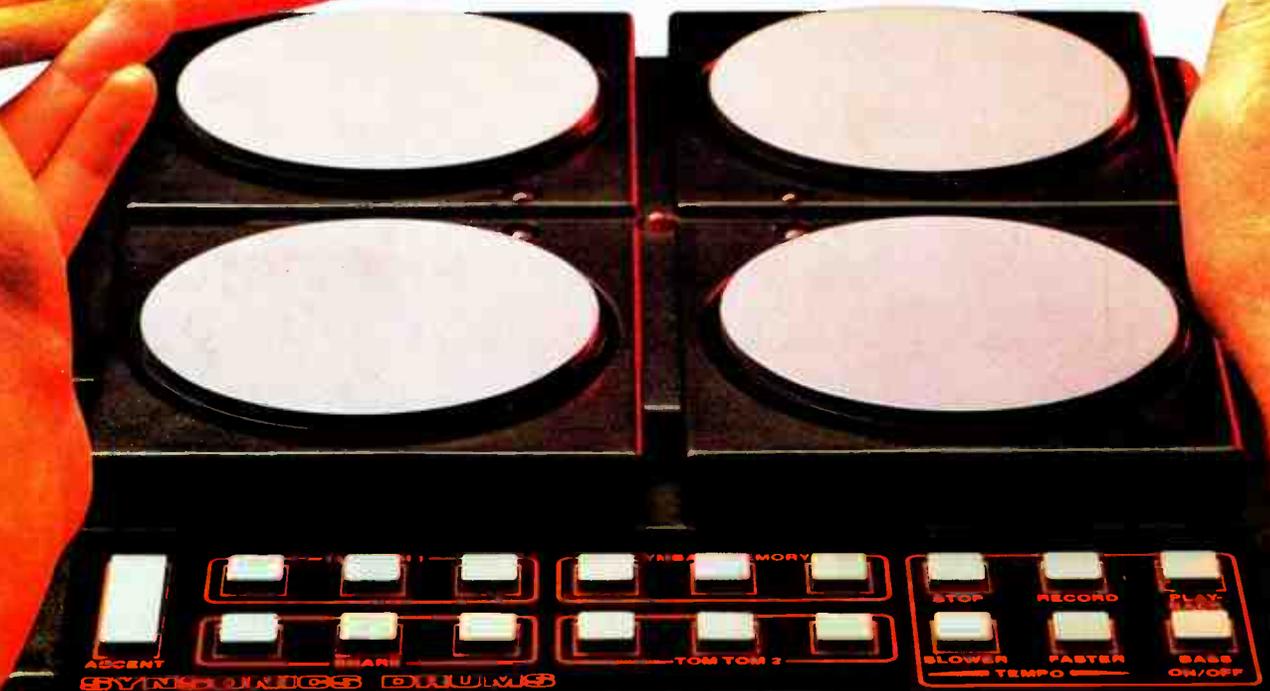
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