Kiss's Paul Stanley the Solo Album

MODERN RECORDING

SERVING TODAY'S MUSIC/RECORDING-CONSCIOUS SOCIETY

#06691 (F)
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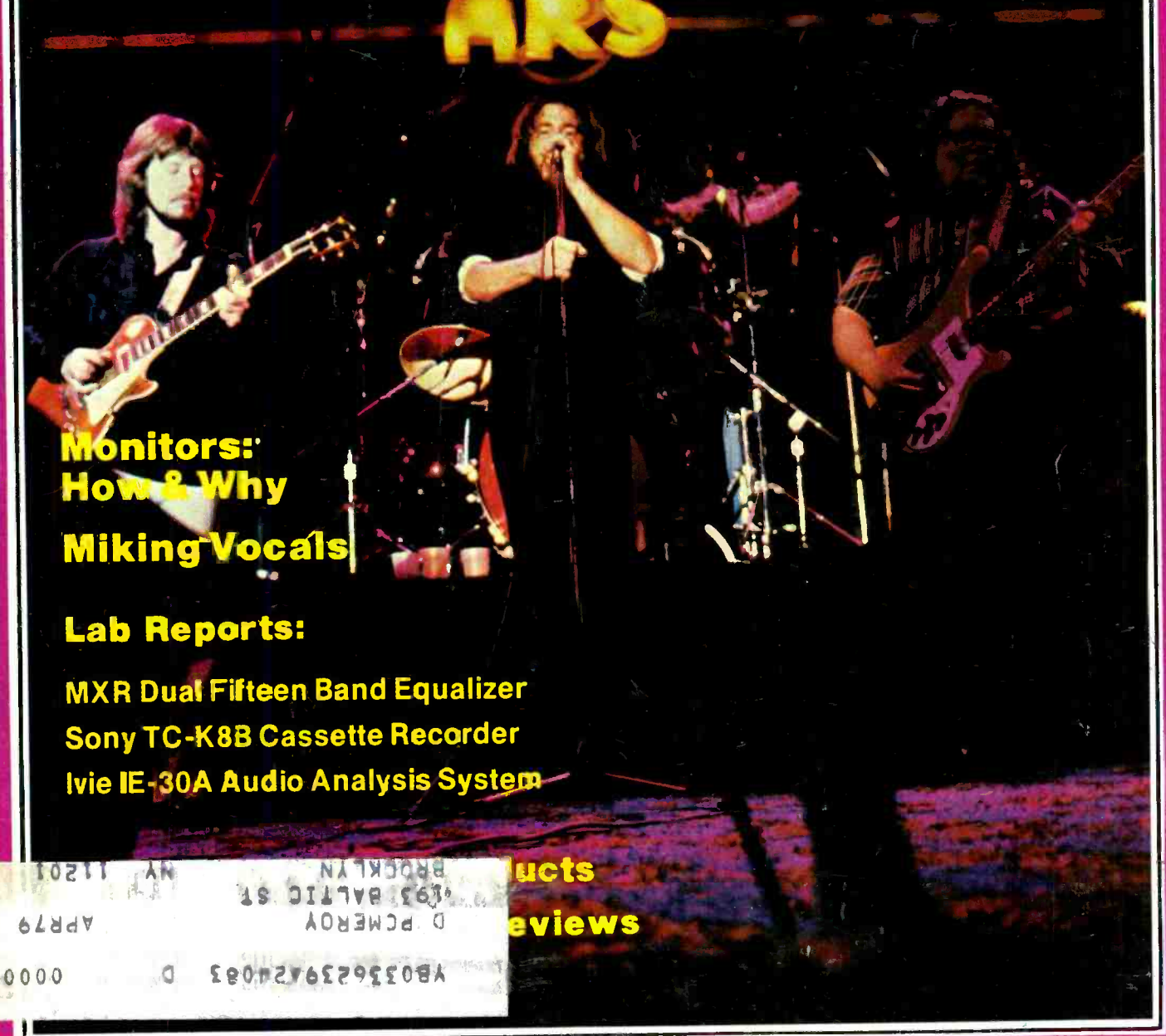
VOL. 4 NO. 2
NOVEMBER 1978

A Session with the ATLANTA RHYTHM SECTION



Monitors: How & Why

Miking Vocals

Lab Reports:

MXR Dual Fifteen Band Equalizer
Sony TC-K8B Cassette Recorder
Ivie IE-30A Audio Analysis System

...ucts
...eviews

More Than Great Specs. Great Ideas.

For the past three years we've been telling you about the benefits of using graphic equalizers; now we've made it even easier to appreciate them. Introducing the MXR Dual Fifteen and Thirty-One Band Equalizers. Two equalizers designed with the imagination and understanding to solve your toughest equalization problems. Designed for use in either studios or sound reinforcement situations, our new eqs offer features not previously available at any price.

The Dual Fifteen Band Eq features two channels of equalization with the bands set two-thirds of an octave apart. By breaking the frequencies down further than conventional octave equalizers, you now have the flexibility to contour your music with much greater selectivity. As most musical information occurs in the midrange, this is where you need even more definition, and the Dual Fifteen Band Eq gives you six bands of contour in this area rather than the usual four. In addition, each channel has its own level control.

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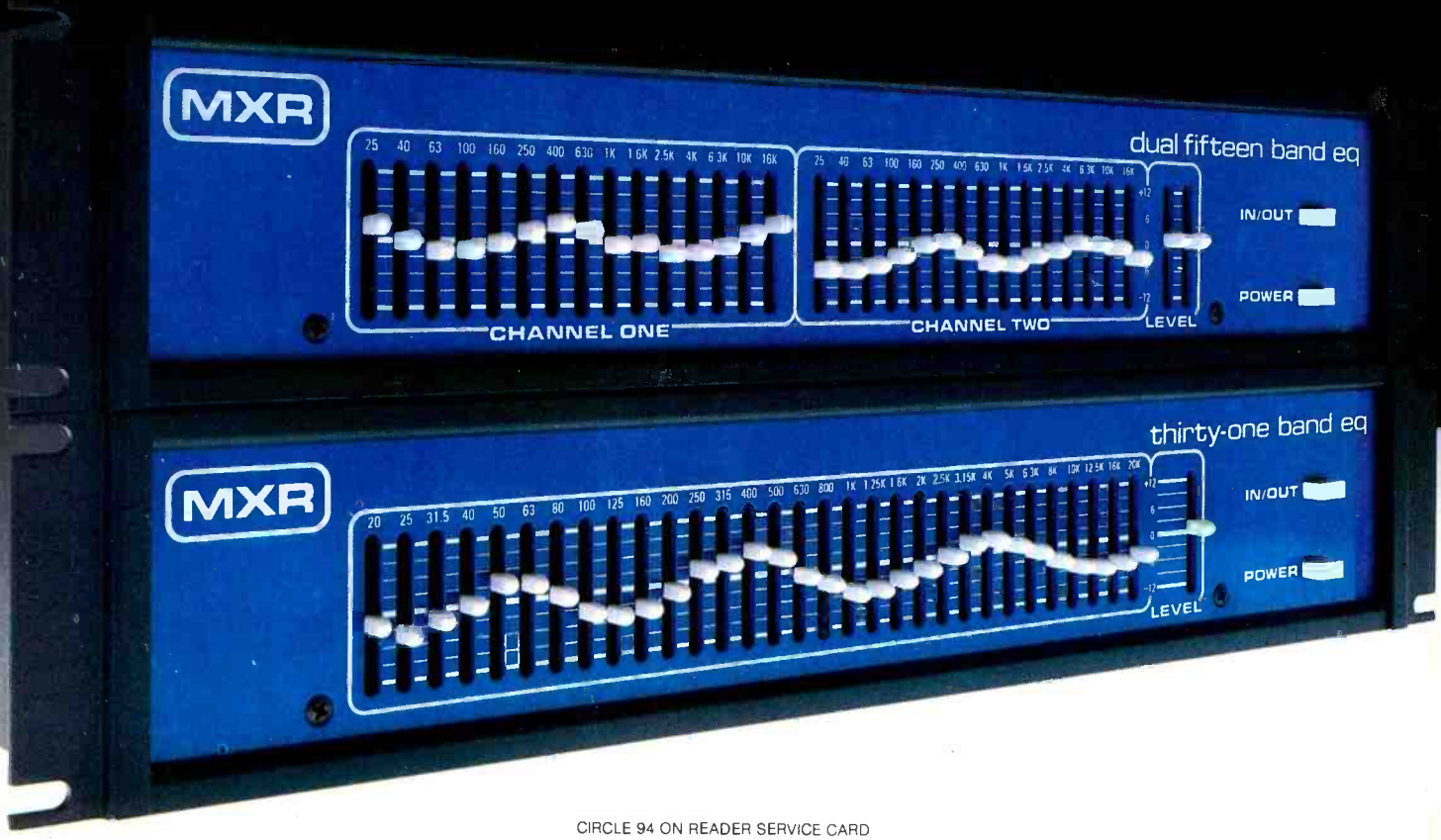
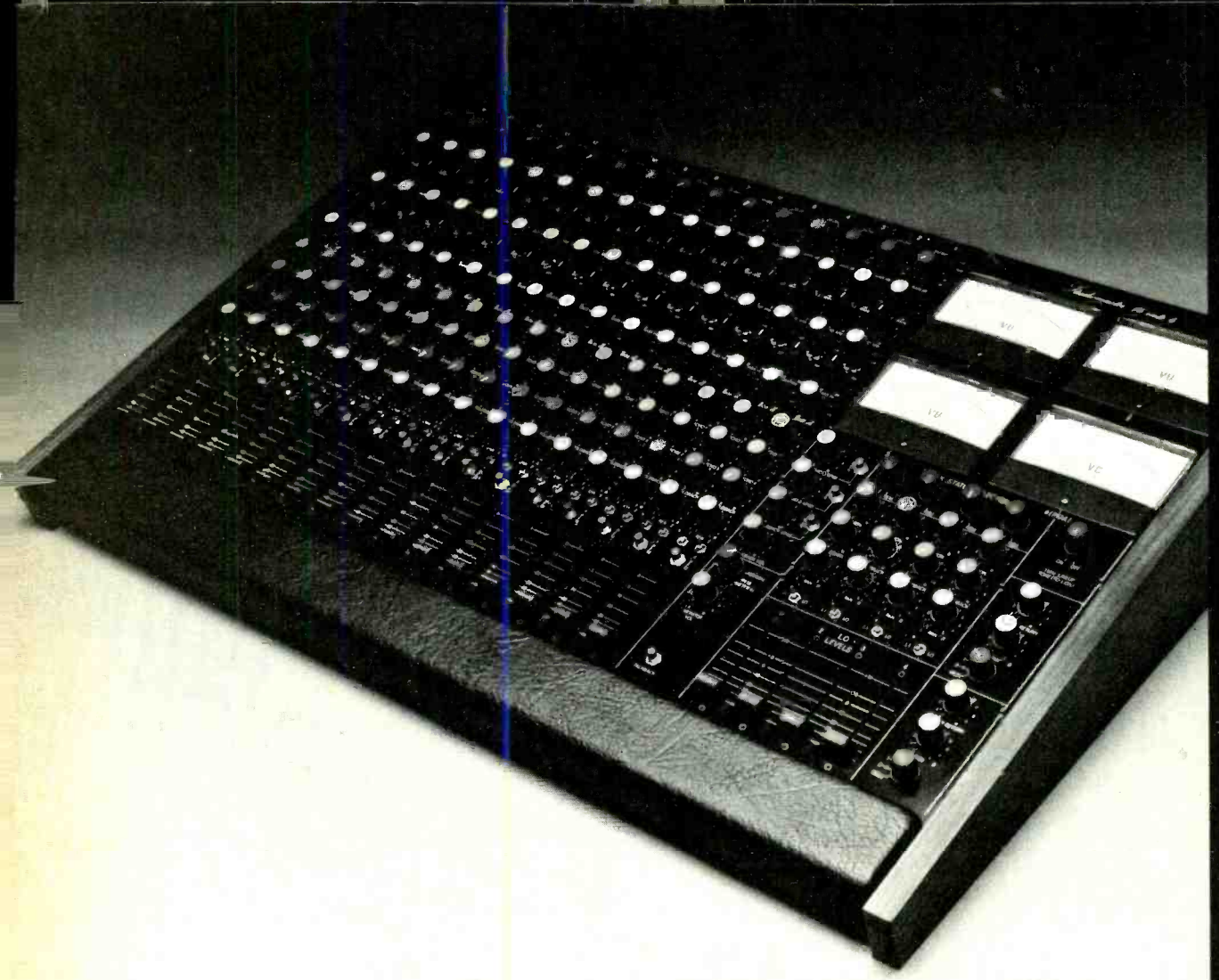
Both units feature a range of −12 to +12 decibels on each band, standard 19" rack mount, and the rugged construction you always get with an MXR product. Both units also feature phone plug input/output connections, (the Thrity-One Band also features Cannon type XLRs), high slew rate (7V/microsecond), and incredibly low noise (better than −90 dBM). But not only do we offer great specifications, we produce great ideas...you wouldn't expect any less from us.

MXR Innovations, 247 N. Goodman Street, Rochester, New York 14607, (716) 442-5320.

MXR Professional Products Group



CIRCLE 94 ON READER SERVICE CARD



The Best Advice We Can Give About Recording Consoles:

"Visit your closest Studiomaster dealer"

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Birmingham 35206
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602-327-6375

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714-535-8616

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K&K Music
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For more information about our 16X4 and 12X2B mixing consoles, or about a new dealer perhaps closer to your area, please write: Studiomaster, P.O. Box 221, Rowlett, Texas, 75088. In Canada contact RMS, 2271 Kingston Rd., Scarborough, Ontario, MIN-1T8.

CIRCLE 96 ON READER SERVICE CARD

No problem.

That's what TASCAM SERIES mixing consoles are all about because whatever stage of recording development you're in, we provide the solution, not create another problem.

Our attention to "human engineering" is what keeps TASCAM SERIES number one and the functions included in our mixers demonstrate just that.

Monitoring. If you already have a mixer, do you have to use the input section for monitoring? You don't if you have a Tascam. *Any* Tascam, not just the Model 15. So when we tell you you've got 8-in on the Model 3 or 5A, you've got 8-in. *Plus* enough monitoring combinations to satisfy anyone in a control room or studio.

Mixing Groups. Problem solving is an orderly pattern of thought. Thinking it through, one element at a time, is the most logical approach. In design you find our mixing groups do just that. Each element on every console that makes the total Tascam mixer has been positioned as a group. This means that each time you operate any Tascam console you are able to logically think about what you are doing, not which knob to twist or button to push.

Meters. Tascam meters are not options. They are an integral part of every mixer we make and they're less visually confusing than a lot of multi-color LED displays we've seen. Compare and see what we mean.

Patch Points. How flexible is your mixer? We have the simplest external patching system in the business. Period. And every Tascam mixer is designed with the same flexibility to provide access to signals and increase your ability to influence and change them to suit your individual ideas.

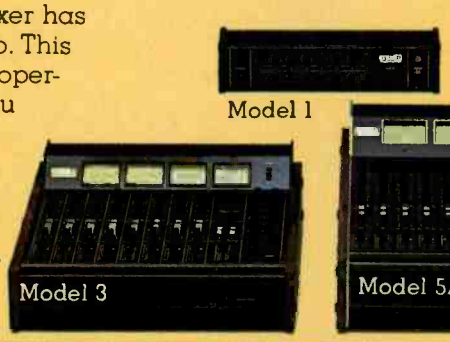
TASCAM SERIES
BY TEAC.

A new generation of recording instruments for a new generation of recording artists.

Channel Assignments (Busses). We believe that channel assignments should be simple and comprehensive. Simple in number and visually comprehensive. All TASCAM SERIES consoles have identical channel assignment color coding, making it easy to see to which output channel any particular input is assigned. Additionally, we have a unique panning system. Whenever any two or more channel assigned buttons are depressed, the pan is automatically engaged. If only one button is pushed, then pan is totally out of the system. Easy, simple, and terribly logical.

A Special Note About The Model 1. Our model 1 is really an inexpensive compact eight by two line-level mixer. It gives you the additional submixes you'll need without costing you a fortune.

Where are our specs? In the equipment, where they belong. Because hearing is believing. So be a skeptic. Pick up the phone or drive to a TASCAM SERIES dealer near you. He has all the information and a personal systems plannings brochure from us to you. And remember, whatever your recording needs, the TASCAM SERIES mixers is no problem.



Model 1

TEAC Corporation of America • 7733 Telegraph Road • Montebello, CA 90640

NOVEMBER 1978
VOL. 4 NO. 2

MODERN RECORDING

SERVING TODAY'S MUSIC/RECORDING-CONSCIOUS SOCIETY

THE FEATURES

COMING NEXT ISSUE!
Bruce Springsteen "Live"
More On Choosing a Mixer
Building an Active Mic Splitter

THE STAPLES

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ARS Story Photos by Murray M. Silver, Jr.
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SERVING TODAY'S MUSIC/RECORDING-CONSCIOUS SOCIETY

H.G. La TORRE
Editor

PAM HIGHTON
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Assistant Editors

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Advertising Director

VINCENT P. TESTA
Publisher

Editorial and Executive Offices
Modern Recording
14 Vanderventer Ave.
Port Washington, N.Y. 11050
516-883-5705

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LETTERS TO THE EDITOR

Reverberation

It occurred to us and to some attentive readers that Robert L. DeMoss' letter to the Editor printed in the July 1978 issue sounded very familiar. Investigating this, we found what might have been Mr. DeMoss' source in Talkback of our very own Vol. 2, No. 1 Modern Recording *(Oct/Nov 1976). In that issue Sami Uckan of Atlantic Studios, New York, responded to a reader's quest for facts on ground loops in schematics and words now adopted by Mr. DeMoss, whom we havn't been able to track down to get him to tell us if and why he wanted us to join him in infringing on our own copyright. We thank him for what was his own input, but ask that in the future* Modern Recording *and its contributors and writers be identified when quoted.*

—Ed.

Cleaning Dilemma

Being a recording and *MR* enthusiast from way back, I noticed that in the August 1977 and March 1978 issues you printed two conflicting reports on how to clean the various parts of tape decks. On page 11 of the August Talkback section, T. H. Richards of ILNY Records mentions common lighter fluid as being "the magic elixir" and promised us that it wouldn't harm heads or rubber parts such as pinch rollers.

Now, in "The Care and Feeding of Your Multi-Track Recorder" (March, page 32), David Moyssiadis says to use alcohol and only alcohol on the pinch roller. Are both gentlemen correct? I realize that professionals often disagree about details such as these. However, I would appreciate some advice on what I should use. While I'm in this dilemma, my recording heads are getting dirtier and dirtier!

—David Albulet
Mississauba, Ontario, Canada

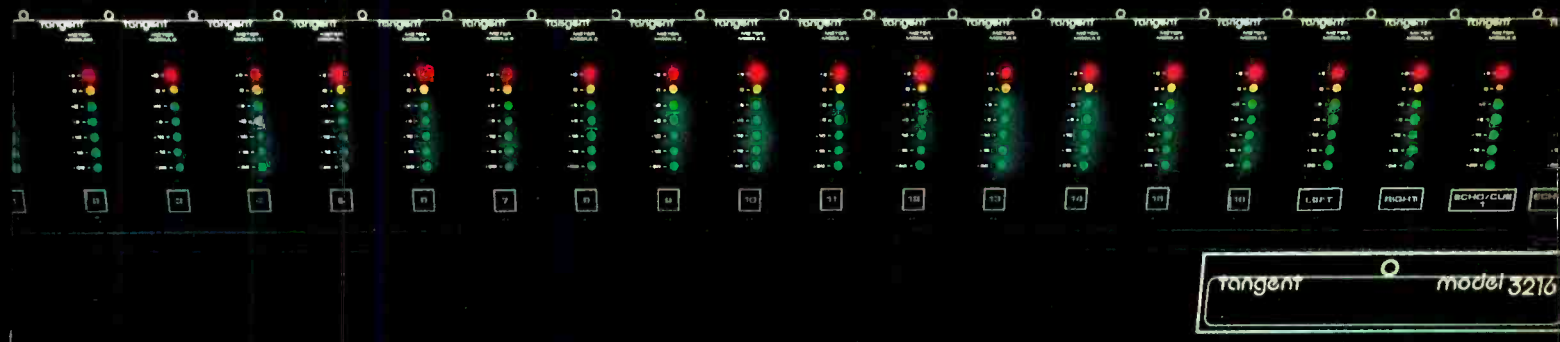
There is quite a controversy over this topic, and what it seems to boil down to is that pinch roller and head types differ widely—with regard to both composition and construction. Also, "rubber parts," including the pinch roller, may be any of a number of chemical compositions: thus, it is hard to make a definitive and conclusive statement. The best advice, we've found, is to follow the manufacturer's instructions for cleaning.

Noting opinions expressed by a number of industry professionals might be helpful in determining one's own practice. For instance, lighter fluid cleans well, but it might leave a filmy residue, and might, after a period of use, soften the pinch roller. Alcohol may eventually dry out the pinch roller, or contribute to slippage. One manufacturer suggests dusting the cleaned roller with talc afterwards.

One might be wary of xylene, which has been both vetoed and recommended for head cleaning, with the varying reasoning that it will dissolve epoxy—which is often used to bond heads—and, conversely, that it does not affect epoxy. Something generally agreed upon is the prohibited use of acetone on anything but glass,

Specs and Price.

It's about time someone offered both.



The Tangent Model 3216 Professional Recording Console. Take a look at the specifications and the price . . . you won't find any other consoles in the world that compare with Tangent.

SPECIFICATIONS

Total Harmonic Distortion (1 kHz, +20dB output)	.004%
Intermodulation Distortion (+20 dB output)	.004%
Signal-to-Noise (Equivalent Input Noise)	-128 dB
Frequency Response (± 1 dB)	10 Hz-65 kHz

These are typical specifications measured by MODERN RECORDING in the "Hands-On Report", October 1977. The unit reviewed was a Model 1202, which the Model 3216 surpasses with even cleaner and quieter performance.

PRICES

Eight channels in a sixteen-channel mainframe	5,580
Sixteen-channel mainframe, filled	8,940
Sixteen channels in a twenty-four channel mainframe	9,540
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Twenty-four channels in a thirty-two-channel mainframe	13,500
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CIRCLE 106 ON READER SERVICE CARD

unless you want it dissolved. Type of alcohol (methyl (wood), ethyl (grain), isopropyl, rubbing, denatured) to use is generally not agreed upon. Yes, alcohol can dissolve lacquer on head surfaces, but the permalloy type of head, according to Haron Appleman at Nakamichi Research, is impervious to alcohol.

To make things more complicated, the tapes you use, depending on their *make-up, may leave a variety of residues with no "best" solvent. And, as David Moyssiadis admitted, when we contacted him in this matter, sugar and pizza sauce are difficult to remove from heads, no matter what your cleanser. To quote David further, "One guy I spoke to uses plain water on the monophane pinch rollers used on 3M machines (although here on the east coast the availability of "plain water" may be questionable). He also likes to use alcohol on the heads because it leaves no residue, although with alcohol it takes more knuckle grease to remove goo from heads.*

"In the course of getting to the bottom of the head cleaner problem, and determining which, if any, solvent is universal, I have discovered what I regard as vastly superior to any solutions anyone can find. I get 95° grain alcohol, and drink about ½ pint of it. The recorder's heads stay dirty, but I couldn't care less."

Crying Over Spilled Tape

I'm involved in various recording and duplication operations in the Chicago area. Being economically and environmentally minded, I'm seeking a use for "spilled" tape. Could you help me with any suggestions? As the days, weeks and months go by, I watch the garbage bin fill with luscious TDK, Maxell, etc. that is no longer any good for recording purposes. It's such a waste.

—Daryl Duda
Chicago, Ill.

Why, there are hundreds of uses for spilled tape! For example, it is remarkably useful as gift-packaging ribbon. Many of us tie up our friends with the stuff, and on May Days and at parades, spilled tape is often used as streamers. An acquaintance has foregone beads as a room divider, and is using strands of assorted widths in his studio apartment. Another friend tells us of restuffing a bean bag chair with useless tape. And during the recent pasta shortage, we heard of one chef using spilled 2-inch tape in a lasagne.

Well, you can't say we didn't try . . . Actually, the only real suggestions in-

The KORG VC-10 turns words into music.

The Korg VC-10 makes any electronic sound source (musical instruments, tape recorders, etc.) appear to talk. The VC-10 "encodes" your speech signal (singing or just talking) and controls the tones of the musical source, so they become "words within music."

Vocoder effects can be very spacey. And so can their prices. But Korg's new VC-10 puts "vocoding" within the reach of all musicians.

Hear the VC-10 at your nearest Korg dealer. And the next time you're recording or performing, "say it with music." Literally.

CIRCLE 86 ON READER SERVICE CARD

Suggested List Price: $1299.

Unicord Division of Gulf & Western Manufacturing Company, 75 Frost Street, Westbury, N.Y. 11590

volved splicing for recording use. One person we spoke to said he splices heavy tape into 15-20 foot continuous loops for use in echo effects units using tape (such as the H.H. Echo Unit). However, if your spillage is very extensive, or if it really gets stomped on and would require ironing (don't try this, please), there's really nothing much practical to do with it.

Babe in the Woods

I mailed in my subscription immediately after I finished reading the July issue of *MR*. Now—a request for you: I have just purchased a TEAC A3340S, Model 2 mixer, MB 20 meter bridge and a TEAC 2300 2-track. I realize that I'm really a babe in the woods, and have ordered the Home Recording Course. My request? Is there a past issue of *MR* that dealt specifically with 4-track recording? If so, let me know all the info I need to get it on the next southbound train or best possible method. Thanks for any help you can give me—and for a great magazine.

—Barry Bouchillon
Columbus, Miss.

Ask about a future issue dealing specifically with 4-track recording, and we can help you, because an article of this nature is in the works. In the meantime, you'll find the Home Recording Course a welcome light in the forest. (Also, check out especially the Woram and Runstein books described in the "Looking for Books" letter.) But since MR *does deal with multi-track recording in general, you should be able to find information applicable to 4-track recording throughout every issue.*

Dokorder Service Manual

I have recently learned to do head alignments and bias and equalization adjustments. I'm now ready to make my first attempt at it on a Dokorder 7140. I heard the company went out of business, though, and I need a service manual for the unit. Can you tell me where I can get one?

—Taylor Sappe
Hazleton, Pa.

Worry not, Dokorder owners! Even though Dokorder has stopped manufacturing, service information and manuals, warranty service, information on parts availability and schematics are available by writing or calling Dokorder at P.O. Box 8, Lawndale, Ca. 90260, 213-644-4421.

An ant in trouble screams for help.
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It is a startling demonstration of the sensitivity of our New Professional Series Cassettes. You get more headroom, greater dynamic range, a better signal-to-noise ratio and unheard of sensitivity. And that's why you hear music the way you have never heard it before on cassette.

Sounds of other worlds.

Visit your BASF dealer soon and ask him about the New Professional Series, including Professional I, our new ferric formulation, Professional II, our new second generation chrome formulation, and Professional III, our new ferrichrome formulation that is ideal for auto cassette players.

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We will send you a $4.99 Professional II C-90 cassette with these sounds. This offer will be available while supplies last. Please allow 4 weeks for delivery.

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Sensitive Sound. From The People Who Invented Magnetic Tape.

CIRCLE 104 ON READER SERVICE CARD

Foreign Intrigue

I am an Italian sound engineer who had the occasion to read your magazine, which I have found very, very, very interesting. Unfortunately, in Italy *MR* is not sold; would it be possible that you could send me your magazine?

—Augusto Brivio
Como, Italy

Of course! Foreign subscribers need add only $3 to the subscription price per year to cover mailing costs. We ask only that the subscription be paid in U.S. funds by international draft or money order.

Address Correction

Inadvertently printed in the September 1978 MR issue's Letters to the Editor column was an obsolete address for Orban Associates Inc. The correct address is: 645 Bryant St., San Francisco, Ca. 94107. "Parasound" is no longer part of the Orban brand name.

—Ed.

Global TV Audio

I have been reading your magazine for the past few months and find it very informative and interesting. Recently, I started work for KSCI, a TV station, in the audio department. We do live voice almost exclusively and occasionally have a choral group come in. Our equipment consists of Sony ECM-50 mics, Sphere mixer, U.R.E.I. compressor/limiter, Orban 111B Reverb, plus the usual turntables, tape machines, etc. I find myself lacking, though, in enough background to know how and when our equipment can be used to best advantage. I'm wondering if you could recommend selected manuals on recording techniques and equipment usage that would best serve my needs here.

—Ned Mathers
KSCI Global Television
Los Angeles, Ca.

The Journal of the Audio Engineering Society, Vol. 21, No. 3 (April 1973) included an article that you may find helpful: "Multitrack Audio in Video Production," by Eugene M. Nothaft and Tom W. Irby (pages 172-6). The manufacturers of your equipment, though, could give you the best information on their use "to best advantage." Sony is located at 9 W. 57th St., New York, N.Y. 10019; Sphere is at 20201 A Prairie, Chatsworth, Ca. 91311; U.R.E.I. (United Recording Electronics Industries) is at 11922 Valerio St., No. Hollywood, Ca. 91605; and Orban's address is 645 Bryant St., San Francisco, Ca. 94107.

An overall approach, though, as you mention a lacking background (we won't trace your heritage), would be through those warhorses written by Robert Runstein (Modern Recording Techniques) *and John Woram* (Recording Studio Handbook) *often mentioned in the Letters to the Editor column.*

Recording Science Programs

After reading "Furthering your Education" in the July issue of *Modern Recording's* Letters to the Editor, I immediately wrote to all of the schools listed. I was disappointed to find that three of the schools required the "Music Industry" student to pass an audition and enter the college as a music student, as well as a recording student. Not being a talented musician type, this ruled out for me Memphis State University, the University of Miami, and the University of Wisconsin. While I can see that having an in-depth musical background would be of great value, not having one

MOST MUSIC IS RECORDED UNDER IDEAL CONDITIONS. UNFORTUNATELY, IT USUALLY ISN'T PLAYED BACK THAT WAY.

Recording studios are designed for perfect sound reproduction.

Your living room wasn't.

So even if you own the world's best hi fi system, you may not be hearing your music at its fullest potential.

Your rugs may be soaking up the highs.

Your high ceilings or blank walls can make every singer sound as if he's singing in an echo chamber.

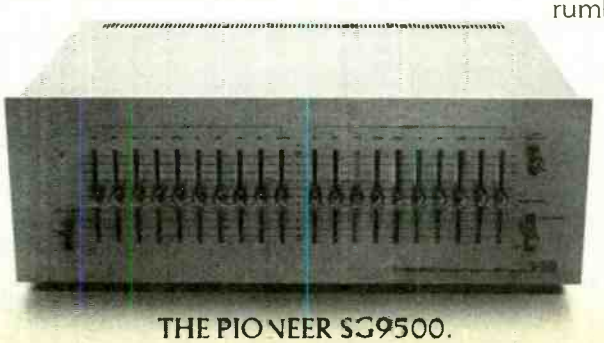
And if your room is stuffed with overstuffed furniture, even live recordings can sound lifeless.

At Pioneer, we've developed a simple, and inexpensive way to avoid redecorating with an audio consultant: the Pioneer SG9500 graphic equalizer.

In brief, the SG9500 plugs into the back of your receiver or amplifier and acts as a massive tone control. It then divides the musical spectrum up into ten different frequency bands, and gives you a separate level control that lets you add or subtract up to ten decibels to each frequency.

So you can cut the exact frequencies that are rattling the windows.

Or boost the bass your bookcases are soaking up.



THE PIONEER SG9500.

Or simply remix the music to compensate for your own musical tastes, or bad speaker placement.

Of course, if you're not lucky enough to be blessed with components that are all of Pioneer quality, you can also use the SG9500 to overcome deficiencies in the rest of your audio equipment. Like tape hiss in your cassette deck. Or audible rumble in your turntable.

You can hear the difference the SG9500 can make at almost any Pioneer dealer

Your living room may not have been built like a recording studio.

But with an SG9500, at least it can sound like one.

PIONEER®
We bring it back alive.

CIRCLE 36 ON READER SERVICE CARD

is no reason to give up. The programs at Middle Tennessee State University and Belmont College both sounded great. Anyway, I started looking for other programs. My search has thus far turned up three more, at Bradley University, Peoria, Ill., 61625; Syracuse University, Syracuse, N.Y., 13210; and West Virginia Institute of Technology, Montgomery, W.V., 25136.

While digging through pile after pile of dusty files and catalogues at my old High School's guidance office, though, a thought occurred to me: Being the great magazine it is, *Modern Recording* must surely be read from cover to cover by at least one person at every school or college that offers a program of study in Music Recording! Well, if this person took it upon him or her self to write and tell you about the school and its program, in no time flat you'd have a complete list of all the schools that offer programs in the recording sciences! Then you could compile this information and print it as a service to those of your readers who wish to pursue an education in that field. Great idea, huh?

—Larry Siedentop
North Syracuse, N.Y.

Why, yes, Larry, that's a great idea.

Byrd Identification

In Joe Klee's review of Ry Cooder's new album (*MR*, Sept. '78, pp. 94-5), he wonders about Joseph Byrd, the album arranger and co-producer.

Byrd is not related to Charlie Byrd. He is a Los Angeles-based scholar, composer and synthesizer wizard whose credits, among other things, include the first rock group to utilize synthesizers in live performance as well as recordings (*The United States of America*), leadership of the Yankee Doodle Society (which is researching American musical trends), three albums on Takoma and quite a few commercials as well.

Klee might be interested to hear some more of Byrd's work, and I'd appreciate it if you'd pass this information along.

—Garry Margolis
Applications Engineer
International Division
James B. Lansing Sound, Inc.
Northridge, Ca.

Consider it done. We'd like to clarify, though, that although Joe pondered on the Byrd name, he did conclude that the relation of Joseph to Charlie Byrd was dubious.

Meanwhile, Joseph Byrd himself forwarded to us a copy of a letter he sent Garry Margolis, which, printed below, is an interesting postscript and ought to be self-explanatory.

I appreciate your sending me a copy of your letter to *Modern Recording*. I am writing to clear up an evident misunderstanding.

The fact is, I didn't have anything to do with Ry Cooder's new album. They just put my name on it to sell records. (Warners is presently conducting a search for other composers' names to spice up album covers—I hear they have already signed George Crumb for the new Carly Simon record.)

Evidently, however, reviewers are getting hip to this ploy, and nearly all have given full credit to Ry for the concept, artistic direction, arrangements and the selection of music and musicians.

Nonetheless, I was pleased with your well-intended letter.

—Joseph Byrd
Santa Monica, Ca.

The Making of a Record

I was first made aware of your magazine the other day in a shopping center. I picked up a copy and began reading. It is a fantastic magazine. I only wish I could have found out sooner. I have the August issue, Vol. 3 No. 11, 1978.

"The Making of a Record" article caught my attention immediately, but to my dismay I have only Part 3. I happen to be in the middle of making a record and found the article very useful, but I wish I could see the first two parts.

Is there anything you can do for me?

—Roger Palmer
General Manager
Rahj Music Co.
Oakfield, Wis.

Presently, the July '78 issue of MR *is out of print, but we do still have copies of the June issue, which has Part 1 of "The Making of a Record." Back issues are $2.00, plus 50¢ for postage and handling for each.*

Sound Sheets

I've been a subscriber to and devotee of *Modern Recording* since you began publishing about two years ago and I hope that you can help me out at this time with a small problem I have.

I've been trying to get in touch with a company that manufactures sound

Tandberg Presents the Next Generation

. . . in reverent quest of the last dB

John Joseph Boyle

December 20, 1947—August 9, 1978

For those of us who were lucky enough to have known John Boyle, his passing from this physical world is a time of tremendous sadness, yet it is also a time of great strength. John was able to see the future as it related to the music, the equipment and most importantly, the people involved in pro audio. It was his great foresight and energy that inspired so many to follow his visions and his ideas. His accomplishments, through his involvements with Altec, Teac/Tascam, Express Sound, Sound Workshop, and so many others are numerous, but they are far surpassed by his inspiration to those he touched. In a competitive industry such as ours, John was always able to convey the importance of the music and the people. The gear was John's vehicle to what he cherished most; bringing friends and music together. We will miss John dearly, but he will live on in everything we do.

From John's friends in the industry who loved him dearly.

sheets. Most of the companies that I've contacted have either discontinued printing them, or the companies themselves have gone out of business. Any information you could dig up would really be welcome.

—Crystal Star
Seattle, Wa.

You're in luck! Mark Mangold of Eva-Tone Sound Sheets tells us that Eva-Tone, for one, is manufacturing them now "more than ever." Eva-Tone is located at 2051 Waukegan Rd., Deerfield, Ill. 60015, phone 312-945-5600. We welcome tidings from any readers who know of other such manufacturers.

Looking for Books

Being an enthusiastic beginner in the area of recording and electronics in the music industry, I'm finding it difficult understanding all of the technical aspects. What I need are books, pamphlets, leaflets or *anything* dealing with the basics. Can you help me out and suggest some literature that would meet my needs?

—Tami Resch
N. Syracuse, N.Y.

I am very interested in recording. I buy your magazine regularly, but sometimes end up confused over the technical aspects of this field, especially electronic references such as ohms, watts, etc. In short, I'm lacking in the basics. Can you recommend a book (the more complete and encompassing, the better) that could answer my questions and put me on the right track?

—Charles Keenan
Downey, Ca.

I am seriously considering a career in the recording industry as an audio technician—although I know very little about the field at this time. I'm planning on attending a college of recording arts within the year; what can I do in the meantime to prepare myself a bit more in the field? Can you suggest a list of books that would give me a greater familiarity with the recording business?

—Jinny Spinharney
San Francisco, Ca.

A fine volume that truly starts with the fundamentals but which also provides coverage of more advanced concepts and applications, is Basic Electricity, *Prepared by the Bureau of Naval Personnel, and published in 1970 by Dover Publica-*

fact: you can choose your microphone to enhance your productions.

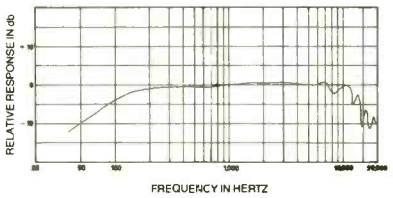
Shure makes microphones for every imaginable use.
Like musical instruments, each different type of Shure microphone has a distinctive "sound," or physical characteristic that optimizes it for particular applications, voices, or effects.
Take, for example, the Shure SM58 and SM59 microphones:

SM59

Mellow, smooth, silent...

The SM59 is a relatively new, dynamic cardioid microphone. Yet it is already widely accepted as a standard for distinguished studio productions. In fact, you'll often see it on TV . . . especially on musical shows where perfection of sound quality is a major consideration. This revolutionary cardioid microphone has an exceptionally flat frequency response and neutral sound that reproduces exactly what it hears. It's designed to give good bass response when miking at a distance. Remarkably rugged — it's built to shrug off rough handling. And, it is superb in rejecting mechanical stand noise such as floor and desk vibrations because of a unique, patented built-in shock mount. It also features a special hum-bucking coil for superior noise reduction!

Some like it essentially flat...

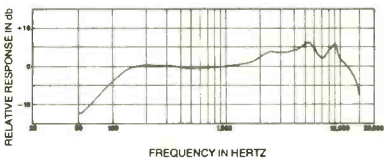


SM58

Crisp, bright "abuse proof"

Probably the most widely used on-stage, hand-held cardioid dynamic microphone. The SM58 dynamic microphone is preferred for its punch in live vocal applications . . . especially where close-up miking is important. It is THE world-standard professional stage microphone with the distinctive Shure upper mid-range presence peak for an intelligible, lively sound. World-renowned for its ability to withstand the kind of abuse that would destroy many other microphones. Designed to minimize the boominess you'd expect from close miking. Rugged, efficient spherical windscreen eliminates pops. Lightweight (15 ounces!) hand-sized. The first choice among rock, pop, R & B, country, gospel, and jazz vocalists.

...some like a "presence" peak.



professional microphones...by SHURE®

Shure Brothers Inc., 222 Hartrey Ave., Evanston, IL 60204, In Canada: A. C. Simmonds & Son Limited
Manufacturers of high fidelity components, microphones, sound systems and related circuitry.

CIRCLE 107 ON READER SERVICE CARD

tions, Inc., 180 Varick St., New York, N.Y. 10014. Also, the Government Printing Office publishes service manuals that are quite informative; these and other publications should be available at local public libraries.

Modern Recording Techniques, *by Robert E. Runstein, under the auspices of the Recording Institute of America (RIA) is a substantial introduction to equipment, controls and techniques used in modern studio recording. It was published in 1974 by Howard W. Sams & Co., Inc., Indianapolis, IN 46268. (RIA is a source to contact for further information on courses of study and the like.)*

Once basics of electricity, electronics and recording techniques have been grasped, a worthwhile investment for the recordist might be the comprehensive and encyclopedic The Recording Studio Handbook, *by John M. Woram, published in 1976 at $35 by Sagamore Publishing Co., Inc., Plainview, N.Y. 11803.*

A Note of Approval

I just want to thank you for putting out a really fine magazine. It has given me many helpful hints in the sound reinforcement field. I really like the Lab and Hands On reports.

—Todd Jensen
Bear Brothers Sound
River Vale, N.J.

Spectra-Sonics Specs

A few months ago, I purchased some used audio equipment at a local stereo shop and since then have become interested in sound reproduction in a more serious sense.

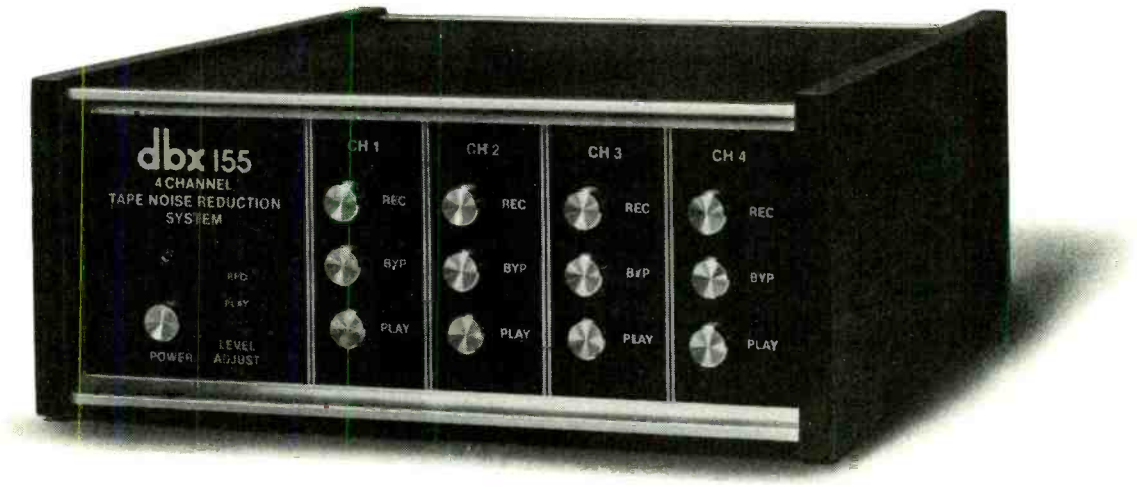
The unit I bought was put out by a company called Spectra-Sonics. I have been unable to dig up any information on their whereabouts thereby precluding any possibility of writing to see if the specs for this piece are available to second-time-around purchasers.

As far as I can tell, this amplifier puts out about 30 watts RMS per channel, but beyond that I am lost. Would it be possible for you to send me the address of this company?

I'd also like to take this opportunity to say that I have appreciated all the valuable information that I have gotten from your articles and test reports, but the most help has come from the Talkback column, where I find many answers to problems that all of us face.

—Randy Wagner
Cedarville, Oh.

HUSH UP YOUR 4-TRACK.



Introducing dbx professional four-track tape noise reduction for under $500.

You've just settled on a TEAC, Tascam, Otari or Dokorder four-track tape deck for that studio you always wanted to have. You've chosen the mikes, the carpenter is almost finished (or maybe you even built it yourself). Your console's ready to be wired into place.

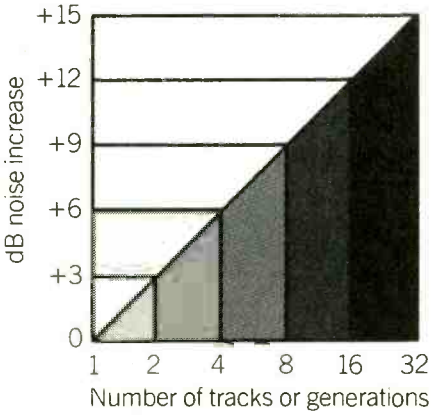
But...haven't you forgotten just one important item?

Noise reduction.

Because every time you (or your group) want to bounce a track, you're adding at least three dB of tape noise (see chart). So the great artistic result you plan to end up with, might end up sounding like a rainstorm.

Fear not. Help is at hand. It's the new dbx 155 four-channel tape noise reduction system. You can add it for far less money than you ever imagined possible. Here, on one compact chassis, is a complete dbx noise reduction system. But the best part is, it will give your tape deck an extra 10 dB of headroom, and reduce tape noise by 30 dB. That means no audible noise whatsoever will be added to your tracks. And, because dbx tape noise reduction operates by linear compression/expansion, you won't have to get involved with tedious level calibration, either.

Additive Noise Chart



All you need do is press the playback buttons to hear noise-free, full dynamic range reproduction of your music.

The new dbx 155 also has user-changeable modular circuit boards, so in the unlikely event that one processor fails, the other channels remain operational. You can even keep a spare on hand.

Visit your dbx professional dealer now, for a demonstration of our new 155 tape noise reduction system. Discover how you can put an end to tape hiss, without putting an end to your bankroll.

dbx

dbx Incorporated
71 Chapel Street
Newton, MA 02195
617/964-3210

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We spoke with Edward L. Miller of the Spectra-Sonics Corporation and he told us that Spectra-Sonics would be very happy to oblige your request for information on the piece of equipment you purchased as long as you provide them with the model number, etc. You can reach Spectra-Sonics directly by writing to them at 770 Wall Ave., Ogden, Utah 84404 or calling 801-392-7531.

Compliments, Praises And Such

As both a soundman and an audiophile, I have found your magazine to be as useful to me as any textbook. I have learned as much from you as I have from practical experience and in some cases, such as studio techniques, I have learned more. I also must thank Len Feldman for the vast amount of knowledge he shares with *MR*'s readers each month. I think he should write a book, unless he already has. [*He has*—Four Channel Sound, *published by Howard W. Sams Co.—Ed.*]

Also, will you continue to publish articles about the sound companies that work with today's top artists? The information that is passed on regarding techniques and equipment is invaluable to us little guys. It's presented in a very enjoyable manner as well.

—Dave McKellor
Thornhill, Ontario, Canada

We're happy to hear that you find us so useful. That's our intention and it's nice to know it's appreciated. We will most certainly be carrying stories in the future that deal with the exploits of today's major sound companies. They are all unique but almost universally talented in the art of bringing sound up to its highest form and out to the masses.

Pitching for Steady Pitch

We read your Lab Report on our RS-686DS Portable Cassette Recorder (July 1978) with mixed feelings. On the one hand, we are always pleased with a generally favorable appraisal. On the other, we can't help feeling disappointed over the fact that at least some of the particular and specific virtues of this design went overlooked. The oversight is particularly evident in Norman Eisenberg's comment that the price is "obviously higher than some other worthy portables."

Of course, the statement is true. To verify it, you would have to go no further than Technics' own RS-646DS, at not much more than half the price! With conventional performance specs quite close to the RS-686DS, it makes an excellent portable for many applications. But it doesn't quite concentrate the bevy of special features and facilities put into the RS-686DS specifically for those vexing remote situations in which the sound source calls for quality recording, but the field situation works against that goal.

Entirely unmentioned in the report, for example, was the ingenious anti-roll, counter-flywheel mechanism. We have demonstrated the efficacy of this feature by tossing the recorder in the air and catching it repeatedly while recording and playing back, and challenging witnesses to detect any evidence of unsteady pitch. How many other recorders, portable or otherwise, even with comparable stationary wow/flutter, frequency response, distortion and noise specifications, can come through such a test? Yet the capability is extremely important in an on-the-move field situation in which the recorder may be subject to any rough handling.

It should surprise no one that this ability comes at some premium in price, as do such other facilities as the end-of-tape advance-warning system, silent stop, selectable peak limiter, multiple in-the-field monitoring capability, multiple power-source capability, the ability to mix and match different microphones, wind-noise filtering, outstanding compactness and extreme ruggedness. The intent was to make not just a recorder, but a self-contained, multi-purpose recording facility that could cope with the frequent unpredictability of uncontrolled field situations.

If that is so, then the standard of comparison cannot be home decks of comparable electrical performance (or portables which are little more than home decks in outdoor clothing) but other professional units aimed at the same demanding type of application. Leonard Feldman came closest to this understanding in his closing comment.

As an afterthought, we may be in danger of overselling the special nature of the RS-686DS. Our sales figures suggest that it has not only won gratifying acceptance in professional field use, but has indeed found its way into a number of home systems. The logic seems to run this way: "For a relatively modest price premium, I not only have a fine recorder for my home system, but something that gives me a lot of extra capability, if and when I should want it."

—Sidney C. Silver
Merchandising Coordinator
Technics by Panasonic
Panasonic Company
Secaucus, N.J.

Norman Eisenberg makes the following reply:

What I get from Sid Silver's letter is a possible new application of the Technics RS-686DS. Since it stays steady in pitch when tossed in the air, perhaps parachutists can take it along to record their vocal reactions on jumps.

Seriously, the important thing about any drive mechanism is its low wow and flutter. Under conditions of not being tossed in the air—i.e., just sitting peaceably on the lab bench—our tests showed 0.08% as compared to the spec'd 0.07% figure. We did not make a big deal of this. But "challenging witnesses to detect any evidence of unsteady pitch" is hardly the most scientific way of evaluating transport stability. It is interesting to note that none of our lab measurements has been challenged by Technics, only my comment that its price obviously is higher than some other worthy portables. I think it is a responsible reviewer's duty to point out as much as possible about any product, including a view of its relative cost—something both Len and I do fairly often in these reports. At that, I did point out that the RS-686DS "boasts . . . a very favorable 'format-to-features' ratio." I also suggested that the price of this model probably reflects the fact that its "size and weight are minimal in view of all that has been crammed into this recorder."

In the overall report itself I cannot find one feature we omitted—except possibly to say that the low-cut filter (which we did mention) was applicable for wind-noise filtering. Everything else about this recorder was mentioned, including a few things not included in Sid's letter, e.g., separate bias and EQ switches, peak-level indicators, and Dolby noise reduction.

—Norman Eisenberg
Contributing Editor
Modern Recording

See why TDK

It's the little things you can't see that make a big difference in the way it sounds.

At first glance different brands of tape look pretty much alike. But if you look closely, you'll find there are many subtle differences. And it is these differences that make one tape stand out above all others.

Now you might not spend a lot of time looking closely at tape. But we have to—that's our business. At TDK we're committed to constantly improving our products. For years, our SA cassette has been the High bias reference standard for almost all quality cassette deck manufacturers. Yet we've incorporated improvement after improvement into SA's tape and mechanism since its introduction as the first non-chrome High bias cassette in 1975. These advances mean better quality sound for you. TDK makes this possible, by continuous attention to the little things you can't see.

The Particles

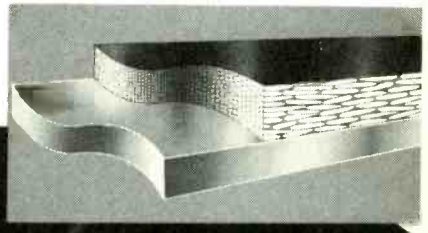
The lifeblood of recording tape is microscopic magnetic particles that can be arranged in patterns to store and reproduce sound. At best, they are as small as possible, uniform in size and shape; they are long and narrow (the greater the ratio of length to width, the better); and they are tightly, uniformly packed together, with no gaps or clumps.

Over 40 years of experience in magnetic ferrite technology and 25 years in developing and manufacturing recording tape, bring the TDK SA and AD cassette particle formulations as close to these ideals as current technology will allow.

The TDK SA particle is a cobalt gamma ferric oxide compound made highly stable by our proprietary cobalt-ion adsorption process. The SA particle possesses one of the greatest length/width ratios of any particle used in audio cassette recording: an amazing 11:1. These little wonders are truly "state-of-the-art," and mean higher maximum output level (MOL), higher signal-to-noise and lower noise.

The particle in TDK AD is *pure* gamma ferric oxide; it has been developed specifically for use in Normal bias decks—in the home, car, in portables. With a length/width ratio of 10:1, the AD particle can deliver what most conventional cassettes lack: an extended, hot high end, to capture all the elusive highs in music, from classical crescendo to raging rock and roll. It is the logical successor to the world's first high fidelity cassette tape particle, TDK SD, introduced in 1968.

Tape layers: coating (top); backing.



TDK SA tape surface (left) enlarged 30,000 times. TDK Super Avilyn particles (right) enlarged 20,000 times.

The Coating

To best attach the particles to the film used for backing, it's necessary to coat that film evenly, with neither clumps nor gaps of oxide build-up. So we suspend our particles in a unique new binding, and we're fanatic about the way we do it. TDK engineers and craftsmen wear surgically clean robes and caps, and we vacuum the air to eliminate contaminating foreign matter and disruptive static charges. The high packing density that results means that the tape is prepared to handle high input level musical peaks gracefully, and without distortion.

The Base Film

We coat our oxides on broad rolls of supremely flexible, but nearly stretch-proof polyester film, to make sure TDK cassettes don't tangle or introduce wow and flutter.

The Polishing

After each roll is coated, it goes through a polishing process called "calendering." Any oxide is removed,

sounds better.

and the surface is smoothed to reduce tape head wear and oxide shedding. Reduced friction across the tape heads means lower noise.

The Edge

If you look closely at the edges of TDK's tape, you'll find that they are uniformly straight and parallel to a tolerance of one micron. That's because we slit our tape by pulling it across an array of precisely-positioned, surgically-sharp knives. That means the tape movement is unimpeded; and mis-tracking that could result in garbled stereo is eliminated.

The Hub/Clamp Assembly

TDK has met a major challenge which has always faced cassette manufacturers:

The TDK double clamp system.

The TDK high tolerance tape/leader splice.

anchoring the tape to the hub without causing mechanical problems. We use a unique double clamp system we pioneered. It practically eliminates wow and flutter, distortion, drop-outs and other problems related to poor winding. Some manufacturers use plastic pins jammed into notches on the edge of the hub. This system can lead to uneven winding, which causes the edges to feather, the tape to bulk unevenly, and occasionally, to snap at the anchor.

The Cleaning

Like most leader tape, ours is designed to protect the recording surface from stress, and to provide a firm anchor to the hub. Unlike most leader tape, TDK's cleans your recorder heads as it passes by.

The Splice

Our splices are firm, with leader and tape lined up exactly. Our splicing tape is specially designed not to bleed adhesive into the cassette mechanism, which could gum up the works.

The Inspection

Before any of our tape is loaded into cassette shells, it must pass a series of inspections to see if it matches up to our own rigorous standards. If it doesn't pass, it's discarded. We *never* compromise on quality.

The Music and the Machine

We go to more trouble than most companies do, when we manufacture our cassettes. We see to all the little details, so you can hear more of your music. Our super precision cassette mechanism delivers the tape to your heads precisely, without introducing friction, wow and flutter and other problems in the process. And we back that mechanism, and the tape within it, with high fidelity's original full lifetime warranty*, a measure of the value we have placed in our cassettes, for over 10 years.

So next time you buy cassettes, look closely at TDK, and think of all the little things you can't see that make our cassettes just that much better. TDK Electronics Corp., Garden City, NY 11530. In Canada: Superior Electronics Ind., Ltd.

*In the unlikely event that any TDK audio cassette ever fails to perform due to a defect in materials or workmanship, simply return it to your local dealer or to TDK for a free replacement.

TDK®

The machine for your machine.©

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TALK BACK

"Talkback" questions are answered by professional engineers, many of whose names you have probably seen listed on the credits of major pop albums. Their techniques are their own and might very well differ from another's. Thus, an answer in "Talkback" is certainly not necessarily the last word.

We welcome all questions on the subject of recording, although the large volume of questions received precludes our being able to answer them all. If you feel that we are skirting any issues, fire a letter off to the editor right away. "Talkback" is the Modern Recording *reader's technical forum.*

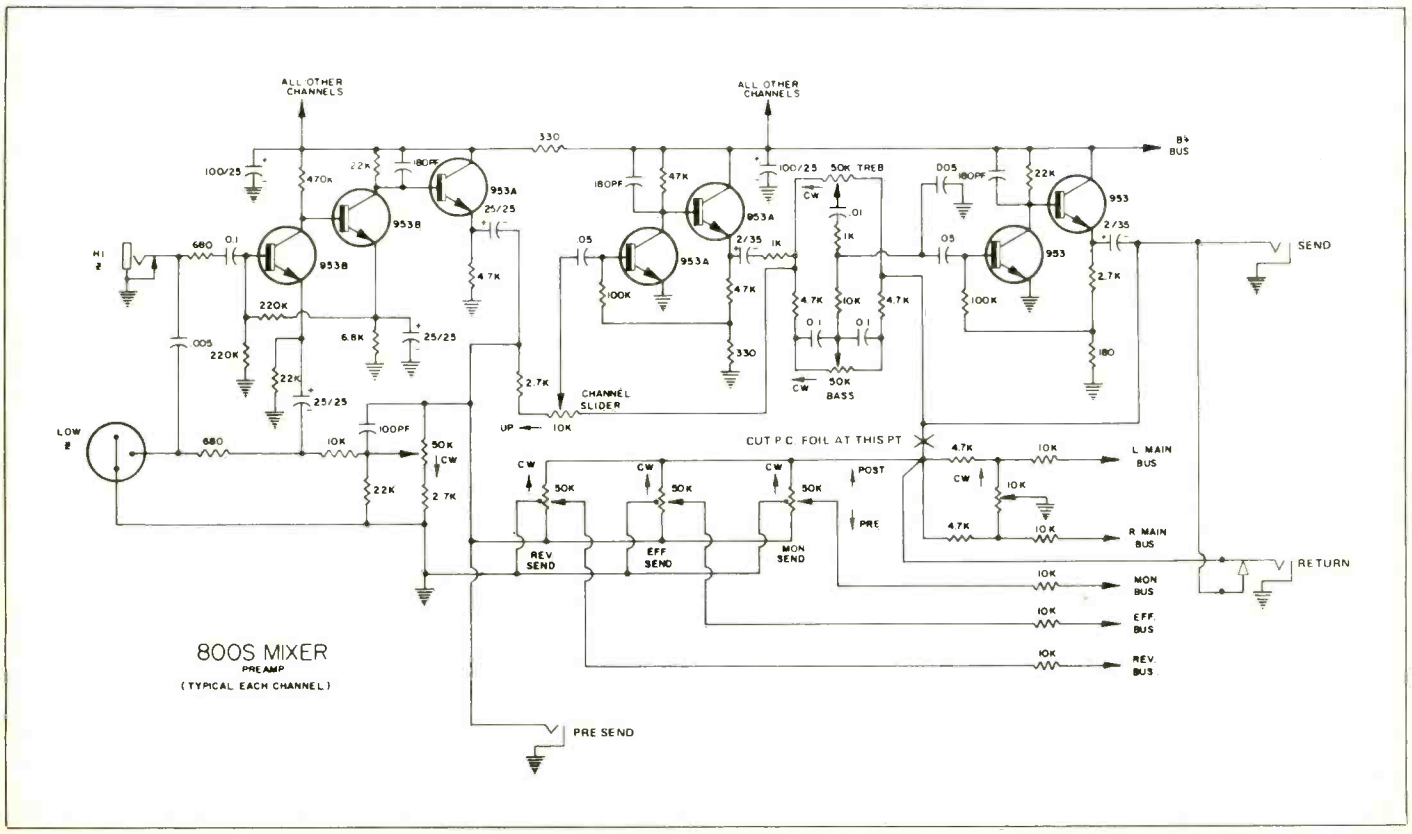
Modifying Your Mixing Console

I own a Peavey 800S mixing console and I would like to make some modifications on it. One thing that I would like to do is to modify it in such a way that I could patch in outboard equalization or effects on each channel without having to use the effects or reverb send. Where would be the best place in the circuit to interrupt it for EQ patching? I would also like to wire in individual channel sends (pre-EQ and faders). How can this be accomplished?

Also, when I've used this board with our PA system as a monitor mixing console, I've experienced grounding problems. What I usually do is split the mic signals from the stage (via paralleled connections) and send one set of signals to the monitor board on stage and the other set through the snake to the main mixing console. We ground everything on the stage side and I usually float the remote equipment or ground it to the stage. No matter what I do, however, if I try to use the 800S with our system I get a wicked hum. Could this be because the inputs on the 800S are not transformer balanced (pin 2 on the XLR connectors is shorted to ground)? I've used other transformer balanced mixers (such as the Shure M67) and never had this problem. If this is indeed the cause of my problem, could it be corrected by adding transformers, and if so, what kind of transformers would you recommend?

—Rich Bates
Springfield, Ma.

The schematic diagram below illustrates the corrections necessary for obtaining direct send and patching capabilities. Please note that I have used a



switching jack for the channel *return*. This allows you to have an additional channel send. Also, when the patch function is not in use, the mixer reverts back to normal operation. I would strongly recommend that "floating" jacks be used for all send and return functions to minimize the possibility of ground loops. The external equipment used with the mixer should have a high input impedance (greater than 10.0 K ohms) and a low output impedance (less than 600 ohms) in order to properly interface with the mixer. Before starting your modifications, please remember that these modifications will void any warranty and should be done by a competent service technician.

On the subject of your ground problems, I would suggest that you continue to use the M67s to eliminate one problem. I would suspect that your main problem is the fact that you are taking your a.c. power feeds for the mixing console and monitor power amplifiers from a different point than the main system equipment. You must take your a.c. feeds from exactly the same point as the rest of the system. Without further information, I am afraid that this is all of the advice I can give you on eliminating your ground loop problem.

—Lothar A. Krause, Jr.
Design Engineer
Peavey Electronics Corporation
Meridian, Ms.

Defining dbx Devices

What types of noise can noise reduction units (dbx) reduce? Could it "clean up" the bass tracks of my recordings so they aren't so muddy? We are presently using an MXR dyna-comp compressor but the bass is still too heavy and thick.

—Chris Heinen
Salina, Ks.

Your question is one that is asked many times! First of all, you should understand that dbx manufactures two basic types of devices that will reduce noise.

The dbx professional tape noise reduction system (model numbers 152, 154, 157, 155, 158, 208, 216, 187) will reduce tape background noise "hiss" to inaudibility. This is done by compression (encoding) during recording and expansion (de-coding) during playback. These units will only remove noise added by the tape recorder and *will not* remove noise in the signal source. For example, these units will not remove noise from an existing noisy tape. When

doing "live" recording which essentially has *no noise* (providing there is no audible noise added by the mixing console or a noisy microphone or noisy instrument amplifier) that signal can be placed on tape and played back without the normal added tape "hiss" when using these dbx units.

dbx expanders (models 117, 119, 118, 128, 3BX) are utilized to increase dynamics and also reduce noise on existing recordings with noise on them. These are not dual process (encode-decode) devices but are single-stop processing units which will remove or reduce noise on existing noisy recordings.

With reference to your particular problem, the word "muddy" could cover a multitude of possible problems. The muddiness could come from the particular bass instrument used, the microphone placement, the microphone itself, overload from the microphone preamplifier or overload in other stages of the signal path, too much bass boost or tape overload just to mention a few possibilities. An expander might be tried to see if it helps, but I cannot give you a great deal of hope that it will without actually hearing the particular problem on the tape. I suggest that you play the tape for someone who has a good deal of recording knowledge and seek his advice regarding your problem and discuss the possible solutions.

—Larry Blakely
Director of Marketing
dbx, Incorporated
Newton, Ma.

Are All Equalizers Created Equal?

How—if at all—do graphic and parametric equalizers differ? Is one better than the other for certain applications? Could you explain the reasoning behind this for me and mention specific instances?

—Bill Madison
Toronto, Ontario, Canada

The major difference between graphic and parametric equalizers is in their abilities to selectively boost or cut certain frequency ranges. The graphics usually have slide faders for each frequency band, and the most common ones have frequencies an octave apart, meaning that moving one control will alter an entire octave, which is quite a lot of music. Considering when you get up to 5000 Hz, that the next octave is 10,000 Hz, you're handling quite a lot of different frequencies. What do you do if

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While there's a lot of controversy over who makes the world's best tape deck, there's very little over who makes the world's best tape.

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Because Maxell gives you the widest frequency response, the highest signal-to-noise ratio and the lowest distortion of any tape you can buy. In fact, people who own the finest high-performance tape equipment use our tape more than any other brand.

So why buy one of the world's finest tape decks and get less than the world's best sound.

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CIRCLE 109 ON READER SERVICE CARD.

you have a high frequency buzz at approximately 15,360.00008 Hz? With a graphic, you cut the entire high frequency area with the 15 kHz control, eliminating the troublesome buzz, and everything else between 10 and 20 kHz— such as annoying cymbals, violin overtones, and any other harmonics that make music sound like music. The beauty of this method is that you can take your $5000.00 home hi-fi, and make it sound just like an AM car radio.

However, if you intend to listen to anything other than the noon day farm reports, you may want to use a parametric equalizer. The parametrics usually have four sets of three controls each: A *frequency selector,* that can be tuned to *any frequency* within one of the four frequency ranges, i.e., 30-300 Hz, 200-3,000 Hz, 1,000-6,000 Hz, 5,000-15,000 Hz. A *boost or cut control* which allows you to (you guessed it) boost or cut as much of that particular frequency as you want. For those of you who like to surprise your friends, try setting the frequency selector at about 5,000 Hz, and boost the control up all the way, just as you know a cymbal crash is about to occur. We stock replacement tweeters just for these events. A *bandwidth control,* which separates the lads from the lasses concerning equalizers. This control will let you determine how much of the frequency to boost or cut. It is variable, as are the others, and can be set to boost very broad amounts (2 or 3 octaves) or very small amounts (1/10th of an octave for some). Going back to that high-frequency buzz at 15,360.00008 Hz, instead of wiping out all the highs to get rid of it, you set the parametric to *cut,* set the bandwidth to the most extreme *narrow* setting, and move the frequency select control back and forth until you hear the nasty buzz go away. You should lose very little of the highs, except a very narrow range around the center frequency. And of course, no one wants to lose their highs—they're hard enough to come by as it is!

—Steve Monroe
President
A & R Recording Studios
Ames, Iowa

[*For additional information on the basic theory behind both graphic and parametric equalizers, you might like to refer back to two earlier Talkbacks that dealt with this subject. "Parametric EQ's" (Talkback, May 1977, page 10) contained an explanation by Ed Rehm of the inner workings of this "spoiler." In September of that same year, Skip Frazee discussed the various types of graphic equalizers ("Graphic Equalizers Exposed," Talkback, page 10). The information contained in these three pieces should give you a good, working knowledge of equalizers and their usages.*

—Ed.]

Common Distortion Distress

I have an amplification problem with which I'd appreciate some help. The equipment involved is a B-301 Guild bass with wound strings and double humbuckings and a JBL K-Series 15-inch bass speaker in a baffled bass reflex cabinet. The amplification comes from a Yamaha G100 Guitar Head rated at 100 watts.

The problem is a type of distortion, namely when the lowest notes on the bass guitar are played. Each time a

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CIRCLE 83 ON READER SERVICE CARD

low "E" or "F" is hit with anything but the lightest pluck, the speaker flutters and distorts. I find this type of restriction in my playing extremely annoying but I have been unable to find anyone in the area capable of offering any kind of explanation.

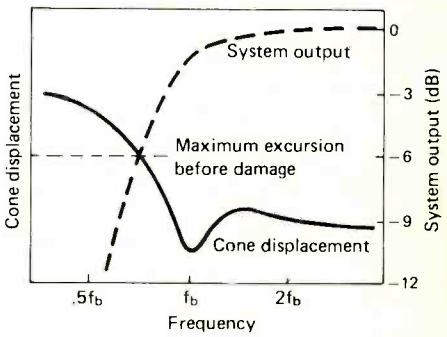
Could using a guitar amplifier biased for a six-string cause problems when it is used for a bass guitar? Do wound strings result in more distortion potential than other types?

—Daniel L. Geary
Chicago City, Minn.

The problem you have described regarding your bass guitar speaker is not only a common one with musical instrument speaker systems, but also occurs from time to time with other sound reproduction systems as well.

This low-frequency fluttering of the speaker cone is the result of driving the bass reflex speaker system at frequencies below that to which the system is tuned. Because a bass reflex system has an enclosure that is airtight except for a vent of specific dimensions in the baffle panel, the size and length of the vent is critical to the performance of the system. This same vent also tunes the enclosure so that sound energy inside the box escapes in such a manner as to reinforce the low bass response of the loudspeaker. One of the primary advantages of this type of enclosure is that the loudspeaker cone does not have to travel large distances in order for the system to produce high acoustic output at low frequencies.

However, venting a speaker system reduces the driver power handling capabilities at frequencies below the system toning frequency.



The figure compares the peak-to-peak displacement and acoustic output of a loudspeaker in a vented box with respect to frequency. f_b is the frequency to which the box is tuned. Note that the cone displacement is very small at this frequency. Above f_b acoustic output is high, but the cone displacement is still

THE REAL TRUTH
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"Ironically, in this age of education and sophistication, I've found that many musicians and soundmen have no clear understanding of the various factors affecting the cost of products they buy and use everyday. Too often we try to relate price and quality on a direct or "you get what you pay for" basis without considering the processes involved or the way the manufacturer is structured who produced the product.

It is generally understood that the farmer who grows the wheat and grocer who sells the bread actually receive a small percentage of the total profit on that item. The real costs involve so-called "middlemen" or other production and corporate inefficiencies.

The point is, that the price of a product *does not* always reflect its quality, especially when all the factors are considered.

One of the ways Peavey maintains its high quality while at the same time keeping prices at a minimum involves a concept known as vertical integration. Most of our competitors make extensive use of outside suppliers for many parts and assemblies that go into their equipment. This means that each supplier or subcontractor's overhead, profit, and taxes are added to the total cost of the product and passed directly on to you. Peavey manufactures almost every major component by putting it "together (integration)" "from the ground up (vertical)" or "vertical integration"

This kind of in-the-factory production provides us with much better quality control at a considerable savings at the consumer level.

The methods by which a product is put together also plays an important part in the final cost. Good examples of design efficiency are our one-piece covering methods for cabinets and our modular electronic packaging. Two of the many processes that cut time and expense.

Another and most often overlooked factor that determines what a company charges for its product, has very little to do with the product itself. It's called corporate structure. Every company, if it is to remain in operation, must make a profit. Most of our competitors are subsidiaries of large holding companies and must produce, in effect, two profits: one for internal operations, the other for their corporate headquarters. This, of course, has a drastic effect on the price of the product in the marketplace.

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Peavey is not owned by any outside company or interests, answers to no board of directors, stockholders, or corporate "sugar daddy". Peavey brings to the musician and soundman top quality, engineering, and performance at reasonable prices because of our internal structure, and our determination to be the most efficient and progressive company in the music industry today.

The key word in making any major purchase is *think* before you buy. Not only of performance, quality and price, but also about *why* the product is made and priced as it is. We firmly believe that if you compare everybody's quality, design and organizational structure, you'll be convinced that Peavey represents the finest products at the best prices available."

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CIRCLE 93 ON READER SERVICE CARD

relatively small. Notice, however, that below f_b the acoustic output of the system falls off but, because the box now provides no air load for the speaker, the cone excursion quickly approaches its maximum displacement limit as the input frequency goes lower. These large excursions of the cone produce little output at these low frequencies, but do cause modulation distortions of high frequency sounds that can be audible.

I hope from this brief explanation of vented box performance characteristics you have concluded that your particular system is tuned above low G (50 Hz) or even higher. When the speaker system is called upon to reproduce frequencies below this pitch, the cone just "flaps in the breeze, so to speak," without producing any sound.

A good tuning frequency for bass guitar systems is about 45 Hz. The table below gives vent requirements for 45 Hz tuning with respect to internal enclosure volume:

Vent requirements:
JBL K140 bass instrument driver—45 Hz tuning

Internal cabinet volume (cu. ft.)	Vent area (sq. in.)	Vent length (ins.)
3	23	5¼"
4	23	2½"
5	23	1¼"
6	56	6½"
7	56	4½"
8	56	3¼"

The table gives only one possible vent (opening and length) for 45-Hz tuning. There are other combinations for a given box size and driver combination so there is no need to change a vent because it doesn't fit our chart. However, if it seems the enclosure is mistuned, rebuilding to a correct vent size should be considered.

Remember systems designed for usages other than bass guitar reproduction can exhibit the same problem.

Turntable rumble, low frequency transients from dropping microphones or low frequency cue tones, are examples of deep bass information that can overdrive vented systems. The best protection against this type of signal is to install a 30-Hz high-pass filter before the power amplifier or to use the low-cut filter at the mixer input.

—Jim Brawley
Applications Engineer
Professional Division
James B. Lansing, Inc.
Northridge, Ca.

A NEW PREAMP FOR THAT DISCERNING PERFECTIONIST WHO CAN APPRECIATE THE DIFFERENCE.

The new Phase 3000 Series Two was designed for that discerning music-lover who has a passion for accurate sound, an eye for elegant, yet functional design, a feel for craftsmanship, and an unfailing determination to maximize return on investment.

The Phase 3000 incorporates the latest technological advancements in preamp design. Transient overloading that plagues preamps has been virtually eliminated, whether amplitude, frequency, or slew induced. Now you can enjoy the flexibility, performance and features that are priced substantially higher in other equipment.

CMOS LOGIC MEMORY SYSTEM

Most preamps use dated mechanical switching devices that force signals to travel long, noisy circuitous routes from the inputs, to the front panel, then back to the outputs. Ours doesn't. The Phase 3000 uses CMOS-digital logic to energize switching relays located where they belong, at the input jacks. This shortens critical signal paths. Noise, hum, and the "crosstalk" that's characteristic of mechanical switching is virtually eliminated.

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A listening session with a pair of headphones will convince you just how much of a difference a true headphone amp makes. Turn the 3000 around, and see how easy it is to patch in your noise reduction unit.

Two complete taping circuits allow you to copy between decks while listening to another source.

But we've done enough talking. If you're serious about state-of-the-art performance it's time for you to do some listening. See your Phase dealer.

SPECIFICATIONS:

Distortion: less than 0.04% (20Hz-20kHz). Typically 0.005% @ 1kHz.
Signal/Noise (IHF "A"): Phono 1—Moving Magnet: greater than 90dB re 10mV input. Phono 2—Moving Coil: greater than 78dB re: 1mV input.
Frequency Response: Phono-1/Phono-2 deviation: ±0.3dB
Tone Controls: High & Low Frequency controls with switchable turnover points.
Volume Control: 22-position precision attenuator with plus or minus 0.5dB tracking.
Low Filter: 18dB/octave below 15Hz.

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The two independent RIAA Phono Stages eliminate all low-level switching. As a result noise is reduced to theoretical limits.
Phono 1 is designed for moving-magnet cartridges and has three selectable capacitance values.
Phono 2 is used with moving-coil cartridges and has three selectable resistance values. The expensive outboard head amp usually required for a moving-coil cartridge is already built into the 3000.

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CIRCLE 97 ON READER SERVICE CARD

THE PRODUCT SCENE

By Norman Eisenberg

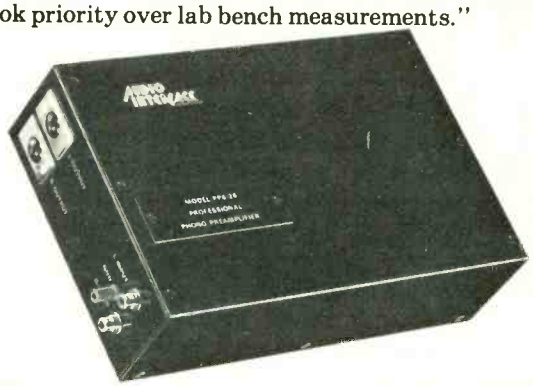
OTARI UPDATES PRO RECORDER

A new version of the MX-5050 series two-channel open-reel recorder has been announced by Otari. Known now as the MX-5050-B, and costing the same as the former model ($1795), the new deck incorporates many new features. Among them are: new control circuitry with TTL/IC logic for noise-free punch-in and punch-out; 28 dBm maximum output to provide 24 dB of headroom over the +4 dBm output level; three calibrated record levels, switch-selectable on the rear panel (185, 250 and 320 nWb/m) for ease of alignment with standard-level or the new higher density mastering tapes; DC servo capstan drive with ±7% speed control during record and playback; three speeds, field-selectable in speed-pairs of 15 and 7½, or 7½ and 3¾ ips, with automatic EQ switching; peak-reading LEDs in the standard VU meter housing (LEDs are set for +10 VU but also are adjustable); LEDs for all indicators; plug-in heads; all-XLR connectors; and more.

CIRCLE 1 ON READER SERVICE CARD

PRO PREAMP

Said to be designed for radio stations, broadcast programmers, disc mastering and recording studio reference systems is the new model PPS-26 preamp introduced by Audio Interface, Inc. of Canoga Park, Calif. Compatible "with virtually all professional audio equipment," the PPS-26 phono preamp employs balanced, transformerless "XL" tape outputs for low noise, minimum high-frequency loss and properly phased connections. Internal components—claimed to be of premium quality— are mounted on a glass/epoxy p.c. board for reliability and sound quality. In designing this preamp, says the manufacturer, a technique known as CPC 9 (for "controlled parameter circuitry") was used whereby "evaluation by the trained, sensitive ears took priority over lab bench measurements."



The use of 1-percent precision circuit parts is claimed to hold EQ to within ±0.3 dB of the RIAA curve. A high-frequency contour control lets the user make discretionary adjustments. Specs include THD of less than 0.05%; very low TIM; dynamic range of better than 90 dB. The output can drive +29 dBm into a 600-ohm balanced or unbalanced load. For silent record cueing, an exclusive feature mutes the output for a brief delay just after starting a turntable. Optional step-up transformers are available for use with moving-coil pickups.

CIRCLE 2 ON READER SERVICE CARD

NEW DIGITAL TIME DELAY

Said to be specifically configured for sound reinforcement applications in small school auditoriums, churches, theaters, clubs, etc. is the new Delta-T model 92 digital time-delay system announced by Lexicon, Inc. of Waltham, Mass. According to the manufacturer, the system's "excellent audio qualities and ultra-low distortion" also recommend it for use in studio and "live" performance applications.

The Model 92 provides two adjustable audio signal delays of up to 120 milliseconds, each controlled by a front-panel knob. Standard features include audio input and output transformers; automatic fail-safe; audio bypass; silent power up/power down circuitry; rear-mounted XLR-3 connectors. A five-position LED headroom indicator, calibrated in 10-dB increments below limiting, simplifies level adjustment and verification. Designed for rack-mounting, the Delta-T 92 requires 3½ inches of panel space. Price is "under $2000."

CIRCLE 3 ON READER SERVICE CARD

SAE PRO LINE

Three stereo power amps—designated as a Pro series—have been announced by SAE of Los Angeles. All are rack-mountable and have dB-calibrated channel level controls that use stepped attenuation via separate resistors; all have LED peak indicators. All are spec'd—with reference to rated power output—for 0.05% THD and IM, and for S/N ratios of at least 100 dB. The model P400 offers 400 watts per channel; the P300, 300 watts per channel; the P50, 50 watts per channel. These power ratings are for minimum RMS continuous power from 20 Hz to 20 kHz, both channels driven into 8-ohm loads. Automatic bridging for mono is provided. Inputs are ¼-inch phone jacks. An optional termination panel has cannon connectors with switchable polarity and a matching transformer for line levels greater than 18 dBm "without ringing even at 20 kHz."

CIRCLE 4 ON READER SERVICE CARD

NEW DISC CUTTING LATHE; BOOK ON MICS

Neumann—distributed in the U.S. by Gotham Audio of New York and Hollywood—has announced its VMS 80, described as the company's "most revolutionary development," one that embodies its "greatest visual and technical design change since 1957 when Neumann added pitch and depth control to its 1931 originated line of disc mastering lathes." In the VMS 80, a crystal time base controls both the DC servo turntable drive and the lead screw drive motors. A hydro oil bearing coupled with through-the-bearing vacuum chuck air feed, provides minimum rumble, eccentricity and dynamic wow. Fiber optics enhance microscope illumination; and an optional CCTV camera may be mounted on the 'scope for monitor display of the grooves. The entire lathe assembly is air-cushion suspended within the cabinet, isolating it from ambient rumble and touching by the operator. The VMS 80 features a stylus use hour meter, integral banding unit, automatic groove echo suppression, digital indication of percentage of available radius used, automatic run-up of stylus heat from outside to inside of the disc, elimination of the pitch control knob and the introduction of a land meter and a control that permits easy setting of both groove width and land width, and indicates the resultant pitch in lines/inch. An analysis, 16 times per revolution, of the phase and amplitude relationship of the adjacent excursions of the next successive grooves to be cut is provided by a Groove Space Computer.

Gotham also has a 74-page pocket-size book on "Microphones." Translated from the German, it was written by the chief physicist at Neumann and covers all basic types and applications. The booklet costs $1 and may by ordered direct from Gotham Audio Corp., which is located at 741 Washington St., New York, N.Y. 10014.

CIRCLE 5 ON READER SERVICE CARD

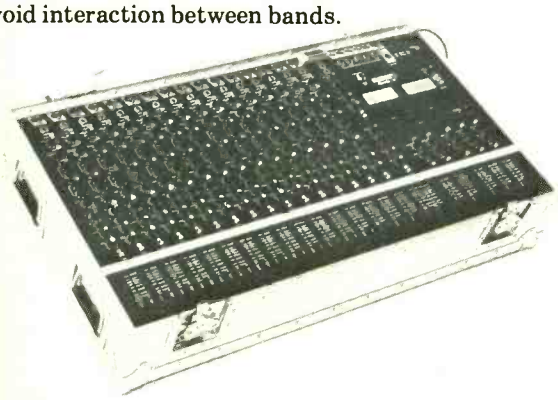
VERSATILE PREAMP-CONTROL

Among the several recently introduced audio components from Setton International is the model PS-5500 preamp-control unit which combines "classic, wide-range, low-distortion preamplifier" circuitry with "exceptional flexibility." A triple tone-control arrangement is provided on each channel, plus two turnover controls, and high and low filters which operate on a 12-dB slope to "effectively cut out noise without affecting music in the audible range." There are double jacks for mic, phono, aux, tape, plus DIN, headphone and tuner. A fader control setup permits fading from phono 1 to phono 2, or from aux 1 to aux 2, or from phono 1 to aux 2, etc. The stereo mic inputs also may be mixed. The unit includes three sets of bridged outputs that allow for a tri-amp setup.

CIRCLE 6 ON READER SERVICE CARD

NEW SOUND MIXER FROM BRITAIN

Said to offer facilities normally found only in a recording studio, and combined with those required for mixing the sound of a "live" performance in a portable stereo mixer is the Series 1S from Soundcraft Electronics Ltd. of London (U.S. office is Soundcraft North America, Jamaica, N.Y.). Available in 12, 16 and 20 channel formats, the 1S is built into a rugged aluminum flight case, although for permanent installations a walnut console is available. The mixer features a switch-in high-pass filter combined with a variable-gain mic amp to attenuate high-level low frequencies, and to avoid distortion through the input channels. Each input channel has a 4-band active equalizer for sweepable frequency of the two midbands between 130 Hz and 2.5 kHz, and 750 Hz and 15 kHz. EQ amps are independent to avoid interaction between bands.



CIRCLE 7 ON READER SERVICE CARD

NEW PRO RECORDING CONSOLE

From Quantum Audio Labs of Glendale, California comes news of its model QM-8B console. An 8-input × 4-bus model, the QM-8B resembles its predecessor (the QM-8A) in that it has an 8-track monitor section, cue system, built-in talkback, and true VU metering for each bus. In addition, the model QM-8B offers several new features.

Each input has a solo button, a smooth conductive-plastic fader, a switchable 15-dB pad for the mic preamp, a "de luxe" 3-knob/6-frequency equalizer with in/out switch, three special effects sends (cue, echo 1, echo 2), stereo panning and four output assignment switches. A pan in/out switch selects direct or panned bus assignment. Available as options are remote mic powering ("phantom power"), and direct channel outputs.

The monitor section permits an 8-track tape machine (16-track optional) to be mixed to stereo and monitored without disturbing the console's input channel settings. There are two echo return channels in the monitor section each of which can be assigned to any combination of the four mixing buses. The output section includes bus trim controls, a board master fader and the meters. XL connectors handle inputs and outputs, and multi-pin connectors facilitate interface to an optional patch bay. The QM-8B, with the addition of an 8-input expander, will accept up to 16 inputs. A 12-input version of the console, model QM-12B, also is available.

CIRCLE 8 ON READER SERVICE CARD

VERSATILE DIGITAL REVERB SYSTEM

Scheduled for delivery next month are the first production models of the SST-282 "Space Station," a digital reverberation system for recording studios, musicians, sound reinforcement and audiophiles. Offered by Ursa Major of Belmont, Ma., the $3000 system is claimed to provide digital reverb and time delay processing for many users now relying on combinations of units. The SST-282 accepts mono or stereo line-level inputs and sends them to a ten-input stereo mixer, and to a digital delay and reverb processor. Eight signals from the digital unit are returned to the mixer where they can be combined with the source in any desired combination or ratio. By suitable adjustment of the unit's controls, the user can obtain "virtually any pattern of direct sound, early reflections, and reverberation." Additional controls adjust parameters of the reverb synthesizer to permit "complete freedom in tailoring the initial delay, decay time and high and low frequency EQ." A built-in mixer permits the "Space Station" to serve as a complete reverb and delay mixdown center without an external console, thereby easing the demand on other studio equipment.

CIRCLE 9 ON READER SERVICE CARD

TEAC ENTERS EQ FIELD

A two-channel, ten-band equalizer—the model GE-20—represents TEAC's entry into the equalizer field. Priced at $350, the GE-20's ten octaves have center frequencies at 31.5, 63, 125, 250 and 500 Hz, and at 1, 2, 4, 8 and 16 kHz. Operational amps rather than coils are used to reduce RF and hum interference. Rated response is ±0.5 dB from 20 Hz to 30 kHZ. THD is listed as 0.03 percent; S/N ratio, as 85 dB. Maximum boost and cut range is 12 dB. The GE-20 has a high filter (12 dB per octave) at 31.5 Hz, and a low-pass filter at 16 kHz. The filters can be initiated after EQ functions have been completed. Also featured are input LEDs, input level and output level controls and a switchable meter.

CIRCLE 10 ON READER SERVICE CARD

METAL TAPE REELS

Metal reels for quarter-inch wide tape that feature a positive means of attaching and later releasing the tape have been announced by RF Products Co. of Lyons, N.J. Made of satin anodized aluminum, they are available in 10½-inch and 7-inch sizes ($16.75 and $13.95 respectively, plus $1.35 each for shipping and handling). Said to eliminate the need to "walk-it-around" to build up tape friction before starting a recorder, the new reel has a spring latch in its hub that does the trick.

CIRCLE 11 ON READER SERVICE CARD

TIMELY TIDBITS

Some choice items currently in the news:

Installations: A truly unique speaker system stand is the Osawa Universal Vari-Tilt. It can hold any of various speaker systems; rolling casters permit its mobility; the speaker resting section can be tilted backward to any angle needed for desired dispersion. Price is $74.95 per pair.

CIRCLE 12 ON READER SERVICE CARD

Ribbons: The first (to our knowledge) ribbon speaker made in the U.S. is the model T-1 from Pyramid Loudspeaker Corp. of Flushing, N.Y., a firm headed by well-known audio expert Dick Sequerra. Priced at $990 per pair, the ribbon speakers are offered as reproducers for the range above 3 kHz (to well beyond audibility) in conjunction with high-quality speaker systems of other manufacture.

CIRCLE 13 ON READER SERVICE CARD

Publications: Winslow Burhoe has written a "vest pocket size" 48-page booklet called "Loudspeaker Handbook and Lexicon" which contains a lot of leanly presented information, most of it arranged as definitions of alphabetically arranged terms. Copies are $1 each from The Little Speaker Co., Inc., 78 Stone Place, Melrose, Mass. 02176.

CIRCLE 14 ON READER SERVICE CARD

Video Software: Two firms—Bell & Howell and Memorex—have formed a joint venture to manufacture video tape cassettes in half-inch format for "home" video recorders. The new product will be available in both the VHS and the Beta formats, so that they will be compatible with "virtually every brand of home video device now available."

CIRCLE 15 ON READER SERVICE CARD

MUSICAL NEWSICALS

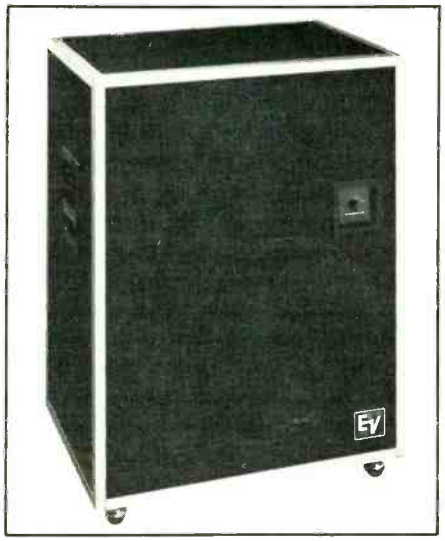
SYNTHESIZERS

The latest synthesizer from Oberheim Electronics is the OB-1 lead synthesizer, which features complete programmability. The user of the OB-1 is able to store eight complete preprogrammed patches for instant recall. Each patch consists of the settings of the 18 potentiometers and 16 switches on the unit's control panel. The parameters that can be programmed include VCO tuning, VCF tuning and resonance, envelope parameters, four waveforms, noise, cross modulation and volume. The functional blocks of the OB-1 include two voltage-controlled oscillators (VCOs) with sub-octave mode, one voltage-controlled filter (VCF) with two-pole and four-pole modes, one voltage-controlled amplifier (VCA), one low frequency oscillator (LFO), two envelope generators (ADSRs) and a noise generator. The performing controls feature the usual 3-octave transpose switch, portamento, and an envelope reset, plus a master VCF, delay vibrato, and a new modulation lever which has eight different types of modulation selectable at the touch of a switch. Furnished with the unit are eight preset programs which simulate various instrument sounds, including bass, flute, violin, and harmonica.

CIRCLE 19 ON READER SERVICE CARD

MUSICAL INSTRUMENT SPEAKERS

Electro-Voice, long a leader in the field of raw musical instrument speakers now offers a complete speaker system designed for keyboard

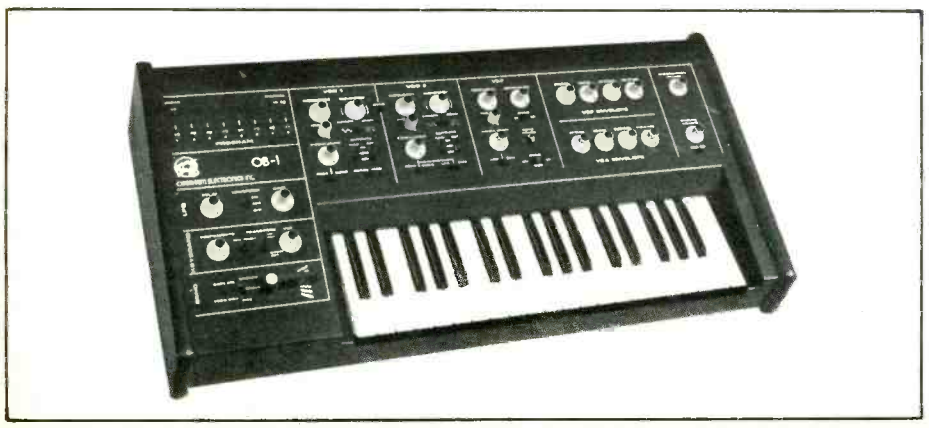


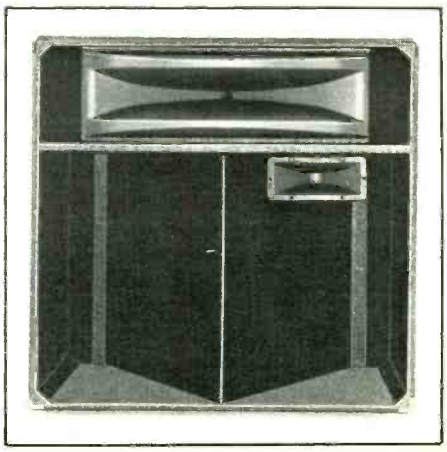
amplification use or any other application where high efficiency and wide frequency response are necessary. The S18-3 is a three-way system which uses the EVM 188 (18-inch) woofer to produce solid bass response down to 40 Hz. A vented midrange driver and ST350A tweeter with front-panel level control extend the frequency response smoothly up to 16 kHz, making this system ideal for the demanding requirements of synthesizer amplification as well as conventional keyboards. The S18-3 is also easily convertible to bi-amplification using a 600 Hz crossover frequency. Construction of the system is heavy-duty with black vinyl over ¾-inch plywood, full aluminum edging and a metal mesh grille for maximum driver protection. Nominal impedance of the system is 8 ohms, and power handling capacity is given as 100 watts which produces a sound pressure of 118 dB at a 4 foot distance on axis.

CIRCLE 20 ON READER SERVICE CARD

New from Gollehon Industries is the 400 SRL horn-loaded, three-way loudspeaker which was designed for keyboard amplification and P.A. use. The unit uses a Gollehon 15-inch woofer in a ducted-port reflex enclosure with front-loaded folded horn for maximum efficiency over the 60 Hz to 800 Hz range while radial horns and compression drivers handle the frequencies from 800 Hz on out to 20 kHz with high efficiency and wide horizontal dispersion. The design is exceptionally efficient, producing a sound pressure of 106 dB at 1 meter with a 1 watt input.

CIRCLE 21 ON READER SERVICE CARD





MUSICAL INSTRUMENT AMPLIFIERS

Acoustic Control Corp. has introduced a "do-anything" guitar amplifier head, the Model 330. The unit is a two-channel design rated at 300 watts rms to provide enough power for any application. Each channel boasts: an input pad, a bright switch and bass, mid or treble tone controls. The two input channels may be used separately, alternately or in unison, depending on which footswitch buttons are pushed. LED indicators are used to show operating mode at a glance. The amp also incorporates a 5-band graphic equalizer with ±18 dB range, a reverb unit and a "gain compensated" master volume control; these three features are assignable to either or both of the input channels, and may be switched in and out via the footswitch. Another unique feature is the inclusion of not one but *three* sets of preamp out/power amp in jacks for connecting effects devices in the optimum place in the amplification chain; the three jacks give access to the two channels individually or in combination.

CIRCLE 22 ON READER SERVICE CARD

A new generation of musical instrument amplifiers is the latest news from Randall Instruments, Inc. Heading the lineup is the Switchmaster, a compact, two channel amp rated at 120 watts rms. The input circuits of the Switchmaster feature a very high-gain FET stage to achieve healthy amounts of tube-like distortion. Each channel has its own tone controls and master volume control allowing the musician to preset two different tones and degrees of distortion and to switch between them instantly by means of a special footswitch. LEDs are mounted both on the front panel and on the footswitch to indicate which channel is in use. A unique feature of the Switchmaster is the fact that the tone controls are *after* the master volume to give the player control over his tone even when using a hard distortion setting that would normally leave his tone controls ineffective. The Switchmaster is available as a self-contained amp with a heavy-duty 12-inch speaker in a modified front-loaded folded horn enclosure, or as a head only for use with any speakers. Also available from Randall is the Sustainer, which is essentially a single-channel version of the Switchmaster design; it also is available with or without speaker.

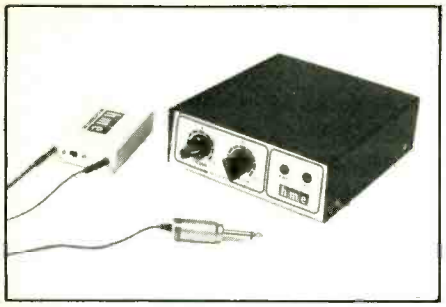
CIRCLE 23 ON READER SERVICE CARD

WIRELESS SYSTEMS

Another established wireless microphone manufacturer branching into wireless guitar systems is Swintek Enterprises. Their Mark 2L-dBS-50A system uses a pocket-size, crystal controlled transmitter which may be connected to any instrument output or to any professional microphone (including condenser mics, which it will phantom power), and a compact receiver which runs off AC or battery power. The system uses crystal-selected frequencies in the 150-216 MHz band for freedom from interference. Sophisticated circuitry makes possible a maximum range of over 200 yards, and the simultaneous use of up to fifty separate systems according to the manufacturer. The system uses an exclusive compression/expansion system known as dBS to improve both audio and RF performance and provide a system signal-to-noise ratio of over 80 dB without audible compression. Swintek's receiver uses LED indicators for both RF carrier level and peak program level. The system is available as receiver, transmitter and carrying case only ($1690) or complete with dual antenna diversity system ($2145), and a very wide range of accessories, options and fittings are available. For those musicians who would want to try out a wireless system before making a sizeable investment, Westec Audio Video Inc. (100 Riverside Drive, New York, N.Y. 10024) lists a variety of Swintek microphone systems available for daily, weekly or monthly rental.

CIRCLE 24 ON READER SERVICE CARD

HM Electronics, Inc. is a leading name in the world of wireless microphones for broadcast and motion picture applications. HM Electronics recently announced their entry into the blossoming wireless guitar market with their Cordless I System ($1295). The system uses a pocket-sized, crystal-controlled VHF transmitter with sufficient RF output power for line-of-sight operation up to 1000 feet from the receiver. The base receiver furnished with the system plugs into any amplifier or audio chain and is sensitive enough for use at distances of 200 feet or more from the transmitter. For longer distances or difficult locations, a triple diversity antenna system is available as an extra-cost



option. Various interference-free frequencies are available for transmitter and receiver to allow the simultaneous use of several wireless systems. The Cordless I System comes complete with its own professional road case for protection of your investment.

CIRCLE 25 ON READER SERVICE CARD

MUSICAL INSTRUMENTS

Multivox/Sorkin Music has announced the introduction to the American market of a new, state-of-the-art electric guitar made in Germany in the Hofner factory. This new model was designed from the ground up by noted guitarist Gela Hildebrand to overcome many of the shortcomings of typical mass-produced guitars and to help meet the increasing demand for custom-built instruments. To begin with, the body is a new shape which offers greater playing comfort whether the guitarist stands or sits. A mahogany body and a brass bridge/tailpiece unit contribute to exceptional sustain, particularly in the upper registers. Electronically the guitar is also unique, featuring a selection of fifteen independent tonal settings without the use of any active (battery-powered) electronic circuitry. In place of conventional tone controls are special acoustic filters designed to maintain a more natural tone from the high-output, low-impedance pickups.

CIRCLE 26 ON READER SERVICE CARD

Three brand new electric basses and a line of fine, handcrafted acoustic guitars top the news from Yamaha. The Yamaha BB series electric basses feature a remarkable three-octave scale range, and are designed to be uniform-sounding across that entire range. The key to this uniformity is a new pickup configuration which inverts the usual positions of the pickups. BB series models have solid rock maple or laminated rock maple and mahogany necks reinforced by a pre-curved truss rod encased in a U-shaped aluminum channel which is said to eliminate twist and warp. The bodies feature contoured backs and double cutaways for player comfort, and the whole package is topped off with high-ratio tuning machines (to make tuning more precise and minimize backlash), nickel-silver frets and mother-of-pearl inlays. The new Yamaha acoustic line comprises six models differing in the choice of woods, which are gathered from across the world and dried under computer-controlled temperature and humidity conditions for improved tone and freedom from cracks and warps. All six models feature solid spruce tops and mahogany necks (Honduras mahogany on the top models) with either Indian rosewood or ebony fingerboards and matching bridges. Various combinations of woods are available in back and sides, including the two top models in solid jacaranda wood, a lower-cost model with mahogany sides and two-piece mahogany back, and three models in between with rosewood sides and two-piece rosewood or three-piece rosewood-jacaranda backs. All six models feature bone nuts and saddles, and 15-to-1 machine heads in chrome or gold-plate finishes.

CIRCLE 27 ON READER SERVICE CARD

Gato Drums are all-wood African/Latin percussion instruments from H.K. Enterprises. The Gato Drum is available in small, medium and large sizes. Each size features the same construction, with a redwood resonator box topped with a mahogany piece split into a number of tuned tone bars, making the instrument a versatile multi-tonal device.

CIRCLE 28 ON READER SERVICE CARD

MUSICAL INSTRUMENT ACCESSORIES

Many keyboard players consider the Fender Rhodes Suitcase Piano to be a better instrument than the Stage model. Unfortunately though, the suitcase model ties the musician to the Fender speaker bottom, since that is where the preamp in the suitcase top obtains its power. Now, however, MR Engineering Company offers the Suitcase Power Supply to free the Fender Rhodes player from his speaker bottom forever. This unit clips onto the carrying handle on the left side of the piano and connects to the piano with the cable that normally goes to the speaker bottom. The supply has two standard ¼-inch phone jacks on the bottom allowing the user to plug into two amplifiers of his choice for improved power and/or wider stereo vibrato effect, or the unit may be connected directly to the input on a mixing console for recording or sound reinforcement.

CIRCLE 29 ON READER SERVICE CARD

Ross Musical Products has added a foot-controlled compressor to their line of electronic sound modifiers. The unit is housed in a cast aluminum chassis and features "recessed tactile knobs." Input impedance is 500 K ohms, maximum input level is −8 dBV, and the output level is adjustable up to 200 mV. The compression is adjustable from 15 to 40 dB, while the attack and release times of the compressor are fixed at 4 msec. and 1.2 sec., respectively.

CIRCLE 30 ON READER SERVICE CARD

New from Morley is the Pro Flanger, the company's 16th pedal model. Like the other Morley pedals, the new unit is an AC-powered photoelectric design with no pots or gears to wear out. The Pro Flanger has two operating modes; in the mornal mode, the pedal directly controls the sweep of the flanging effect while in the automatic mode the pedal controls the rate of an automatic sweep from 10 sweeps per second to one sweep every 25 seconds. An LED indicator is illuminated whenever the flanging effect is switched on and flashes in sync with the flanging rate when in the automatic mode.

CIRCLE 31 ON READER SERVICE CARD

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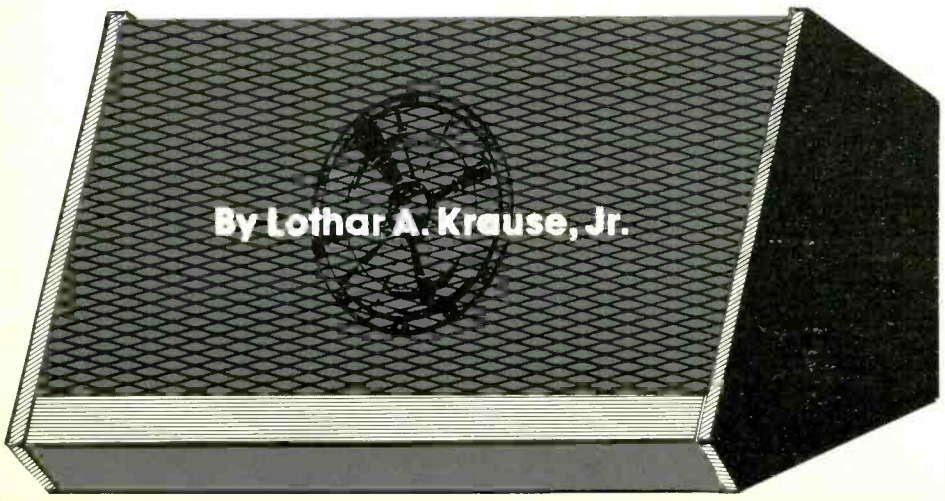
STAGE MONITORS

By Lothar A. Krause, Jr.



On-Stage Monitor System Psychology

An on-stage monitor system is probably the most complex (in terms of channel assignment and equalization) and certainly the most critical of all sub-systems used by touring groups and their associated sound reinforcement companies. Unfortunately this critical sub-system is often placed second to the main system when a total system is being designed by an inexperienced individual. Hopefully this article will shed some light on the importance of a properly designed on-stage monitor system as required for high level concert sound reinforcement applications.

Where, When and Why

In the late 1950s and early 1960s a music style known as "Surfing" music became popular on the west coast of this country. If memory serves me well the first loud group I can think of was one that used a total of six Fender Dual Showman Amplifiers with 2 15-inch J.B.L. speakers in each cabinet. At the time I could not believe that anything could be any louder. Many years later while standing on stage with Led Zeppelin in Tampa, Florida I reflected back on my first loud music experience. Needless to say my whole concept of sound, engineering and loudness levels had been altered.

What has always captured my interest has been the different approaches to monitor systems as used by the large touring groups and how these systems have been given the importance they require by the commercial sound reinforcement companies. In the beginning the first on-stage monitor system was most likely a couple of the full-range speaker columns turned around to face the band. This works alright when the group is playing at relatively low levels and in a confined area such as a nite club. I feel that it is important to evolve into modern on-stage monitor systems so let's define the limitations of this simple

approach. The first and most obvious limitation is that the monitors are reproducing the full program, or everything that goes into the microphones. Obviously, this doesn't give you much control over who hears what. The second limitation is that in all probability your gain-before-feedback point will be lowered due to the full-range wide-dispersion speakers being pointed back into the microphones. The third disadvantage is directly related to the second, you cannot run the monitor system at high enough levels. As previously mentioned if you are in a small club with defined acoustical boundaries and play at low levels this approach will work quite well, but the problem is that upon moving up to larger audiences and louder acts, this monitor system concept ceases to be valid.

Why is a monitor system so important? On the surface it would seem that the obvious answer is so that one would be able to hear what's going on between the various members of the performing group. This is a true assumption . . . to a point. Consider an elementary example where there is a vocalist who also plays lead guitar. Neglect the remainder of the band for the moment, things will get complicated soon enough. This talented vocalist and lead guitar player has saved his money and purchased a typical guitar amplifier with four to eight 12-inch speakers and a couple of hundred watts RMS of power. He plugs his guitar into the amp and with enough practice develops a controlled feedback/distortion style that is suited to his musical taste. Now is when the problem comes in. He walks up to the sound system microphone to do the vocal part and finds that he cannot maintain either rhythm or pitch. This is because the sound reinforcement system is generating such a high sound pressure level that he cannot hear himself. In many instances the level on stage is such that even with both ears held closed the vocalist cannot hear himself. What has happened is that the sound pressure level being generated on stage has exceeded the ears' ability to detect sound through bone and nerve conduction from the vocal cords to the ear drums. Also, due to the size of the stage, he cannot hear the other members of the band in the proper time frame. I think now we have some idea of the importance of the on-stage monitor system.

The Next Step

It would seem that the quality of performance as judged by the audience is directly determined by the quality of the on-stage monitor system and mix. It is true that you must have a sound reinforcement system that has adequate headroom, speaker systems with the dispersion characteristics required for a concert environment, and you must also have talent to put into the system, but the monitor system will be the dominant factor in the quality of the performance. This is a strong statement to say the least, but I feel that it can be justified with a little thought and some examples of these practices put to use in a real-time application.

Let's consider what constitutes a typical touring rock and roll road show. For this example we shall have an extremely talented keyboard player/vocalist who is the central figure or star of the show. We also have two guitarists who share the lead and rhythm parts, a percussion artist, four back-up vocalists and a horn section. All of this is spread over a 70 foot wide by 30 foot deep stage. First consider the problems involved with the vocalist/piano player. The first problem is to be able to hear the acoustic piano over the rest of the ambient stage sound. This requires a separate monitor system for piano use only. The piano monitor feeds the main sound reinforcement system as a direct from the piano pickups. Also the piano pickup supplies a separate send for the on-stage monitor mix console. So far so good, but now we have a couple of thousand watts of piano monitor being radiated at the keyboard player/vocalist. In most instances for this type of application the artist only wants his vocal and the piano in his two sections of the monitor system. There are however times when the monitor mix must be altered to apply other sources to the vocal mix. This would be when some other member of the group is doing a solo part and the keyboard artist needs to hear this signal for timing and cueing purposes. (Please remember that there are two completely separate monitor systems for the keyboard/vocalist. One for the piano only, and a second for his vocals and when required other vocal parts.)

If the vocal/keyboard mix is used for the central reference point for the remainder of the group this combined signal will be assigned to other selected members of the band. This assignment is necessitated due to the lack of visual contact on a large stage presentation. The monitor system is the common bond which ties everything together. As a general rule the drums, lead guitar, rhythm guitar and bass all receive a mixture of keyboard and lead vocal material. This requirement is somewhat obvious due to the very high sound pressure levels generated by these amplified instruments. They can hear themselves, but without the monitor system the keyboard-vocal material would be inaudible. The four back-up singers must have a separate monitor mix so that they can hear themselves and the lead vocalist. Normally, only their vocal parts and the lead vocal will be assigned to their monitor system.

There is a trick of the trade—if you will excuse the expression— which is often used in regard to monitor system assignments. If you have a dominant rhythm section, or for example a percussion artist who has the ability to maintain a very precise yet flexible tempo, this can be a very valuable asset. For this individual to be able to hear himself he must also have a completely separate monitor system for his percussion instruments, due to the low acoustic output from the percussion instruments. Assume for a moment that this individual possesses an exceptional talent for generating rhythm patterns that are almost perfectly adaptable for the psychoacoustical phenomenon of alteration of physical functions such as respiration and pulse rate. If the mix from the percussion instruments, congas, etc., is assigned to the monitor system surrounding the drummers, bass and guitar players there will be a tendency for these artists to fall in sync with the percussion instruments. What all of this is leading up to is a group with an extremely "tight" and "dynamic" sound as perceived by the audience. (Please read the preceding paragraph a couple of times as it conveys some very subtle implications which upon being more fully understood [by professionals and the music-oriented in general] will possibly change the future of recorded music.)

It is a known fact that very loud music will alter your physical responses, such as rapid eye movement, respiratory rate, heart beat,

and so on. The requirement for very high sound pressure levels is what can be considered to be the brute force method of obtaining the euphoric state. What most people fail to consider is that this state can be obtained by very accurately timed rhythm patterns. The percussion men in Africa have known this for thousands of years. The two main differences between a jungle gathering and a modern, high-energy rock and roll show is: first, the length of time available to obtain the hypnotic or euphoric effect, and secondly, there is not as close a physical contact with the audience. I feel that the time element can be somewhat compensated for by high sound pressure levels, but the physical contact aspect must be left solely up to the ability of the artist.

Stop and think about some of the concerts you have attended. There have been concerts which have left you shocked or revolted due to the theoretics or stage design, and there have been concerts from which you walk away feeling completely exhausted. You may not have realized it at the time but the artist or some dominant factor in the group had been altering your physical responses. If you have followed my line of thought you can fully appreciate the requirements for an on-stage monitor system that allows a group to interact and function as a single driving force. If *you* walk away from a concert with a natural high, imagine the emotional state of the members of the band! They are in a closed feedback loop in which everyone is synced to each other and the master clock by a common bond—the on-stage monitor system. This is why I feel that you can almost directly attribute the quality of a "live" performance to the quality of the on-stage monitor mix system and the ability of the monitor console operator to make the proper level adjustments and assignments.

Consider also the dynamic impact of some "live" recordings. I feel that if a group is able to generate true high-energy rock and roll on stage that a "live" recording will come very close to capturing some of the dynamic impact. People who do not understand the sensations of a natural high as produced by a dynamic concert generally do not care for "live" recordings. True it is not possible to get ideal separation and you often hear some feedback, and there always seems to be some background noise, but the energy is there and that is what should be important. The feeling of energy is present because you are included inside the feedback loop. You are acoustically feeling and hearing the energy being generated by the members of the particular group. There is a distinct difference between being inside a loop with the band and being on the outside of a multi-track recording session which has taken months to put together as a finished product. The sound may be superb but the energy is simply not there in the majority of studio recordings. This is not a put-down of studio recordings; only an illustration of what it feels like to be a part of the loop created by this monitor system.

There are a couple of additional items I would like to mention and they fall into the small detail category. When setting up a large concert stage, provide a side monitor system for coverage of the area on stage right and stage left if these areas exist. This should be a composite signal much the same as applied to the on-stage side fill monitor systems. This system might be the best investment you can make if it is properly designed and operated. The reason for this monitor addition is that in most instances promoters, management companies, producers, and other guests are almost always given stage passes and wind up standing or sitting on equipment cases on the side of the stage. If these people cannot hear anything but the amplified instruments and drums, they usually walk away from the performance thinking that something was wrong with the

The 1984 Department

As some final food for thought on the psychology of monitor systems as applied to high level sound reinforcement I would like to present what could possibly happen in the future. I must be completely honest, there have been some experiments done in Europe of similar nature but I don't think adequate time was available for any conclusive results. I feel it is possible for a monitor system to be designed around the principles of bio-feedback and the science of cybernetics [a science dealing with the comparative study of operations of complex electronic computers and the human nervous system]. The various governments of the world are working full time on a process of interfacing the human brain with computers. When this is done and the technique becomes public knowledge it will only be a matter of time before you have the ultimate monitor system. This may sound like science fiction but 30 years ago so did trips to the moon!

A system that can be utilized at the present time is bio-feedback. This as I previously mentioned has been attempted experimentally with questionable results. It would be very interesting to be able to listen to program material written to provide physical and emotional stimulus and at the same time monitor your bio-feedback parameters. If you want to try this experiment I would suggest "She's So Heavy"/"I Want You" from The Beatles *Abbey Road* album for the program material. While in a relaxed state of mind, monitor your heart rate and respiratory characteristics. You will find if the conditions are correct that your parasystolic focus will become manifest above a rate from 72 to 106 per minute. I feel that this simple experiment will give you some idea of the progress that can be made with regard to monitor systems. For additional material on this subject I would suggest a thorough reading of *Bio-feedback & Self-Control* (1976/1977), published by Aldine Publishing Company.

I hope this article has provided some food for thought and I would welcome any correspondence on the topic of monitor system psychology. The time will come when understanding of the physiological, psychological and philosophical aspects of sound will become necessary for the advancement of the state of the art in high-level sound systems. The on-stage monitor system is an excellent beginning for experimentation in this field.

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sound system or that the person doing the mix was of questionable ability. Provide a good clean system for these V.I.P.s and it will be a very good public relation move on your behalf as the "sound company."

Another interesting experiment is to try adding a small amount of reverberation to the vocal monitor mix—echo will foul things up—using a typical spring-type reverberation system. Add a very small amount to the main vocal monitor mix and see what happens. Do not attempt this as something new in the middle of a performance but experiment during sound checks or other times when you cannot do any permanent damage. I have found that in many instances comments regarding the monitor system will be more favorable when a touch of reverb has been added. The basic idea is that people think they sing better in the shower.

The ideas here included are not ones that I have thought up for the purpose of this article. I have been making observations and measurements for a ten year period of time. It is difficult to write on the topic of monitor systems from a psychological and a psychoacoustic standpoint. There are many factors which influence the quality factor of a monitor system and obviously it is impossible to cover all of the major topics much less the numerous minor points. Given enough time, money and skill you can design and build a 200 MPH Grand Prix racing car. It is another matter to get into that machine and drive it to its design limits. You might pick up a few ideas from studying the subject or conversing with another driver but the real learning process is when you get behind the wheel. The same applies to monitor systems. Given a mixing console with enough assignments, power amplifiers with sufficient headroom and speaker systems with the dispersion and power handling ability for a monitor application, you can say that you have a professional monitor system. The difference between what you say your equipment can do and what emerges as the end result is often two different things. The purpose of this article was to provoke some thought on why monitor systems are so important in today's music. The next article shall concern itself with the design requirements for high-level monitor systems that are suitable for touring concert applications.

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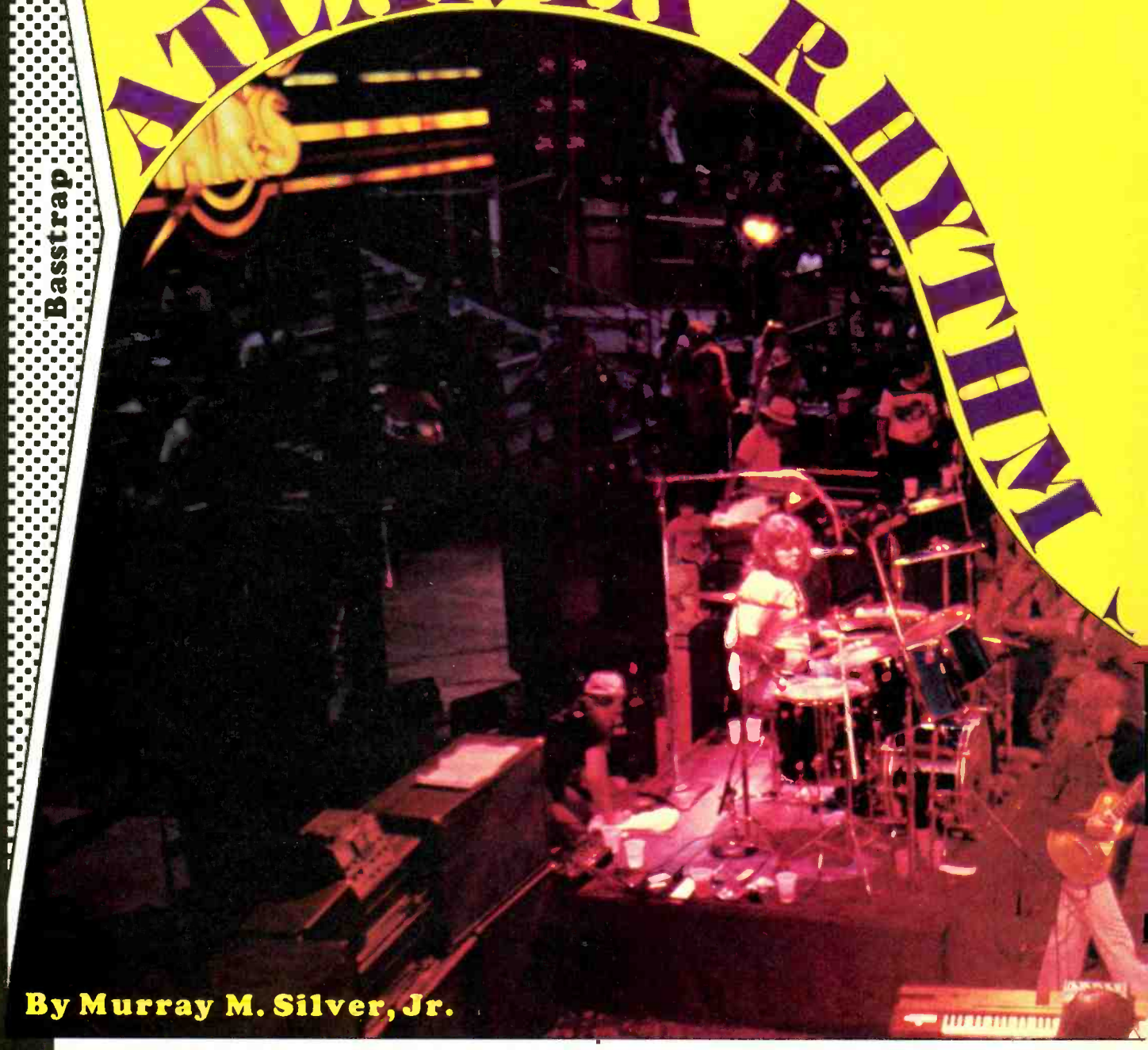
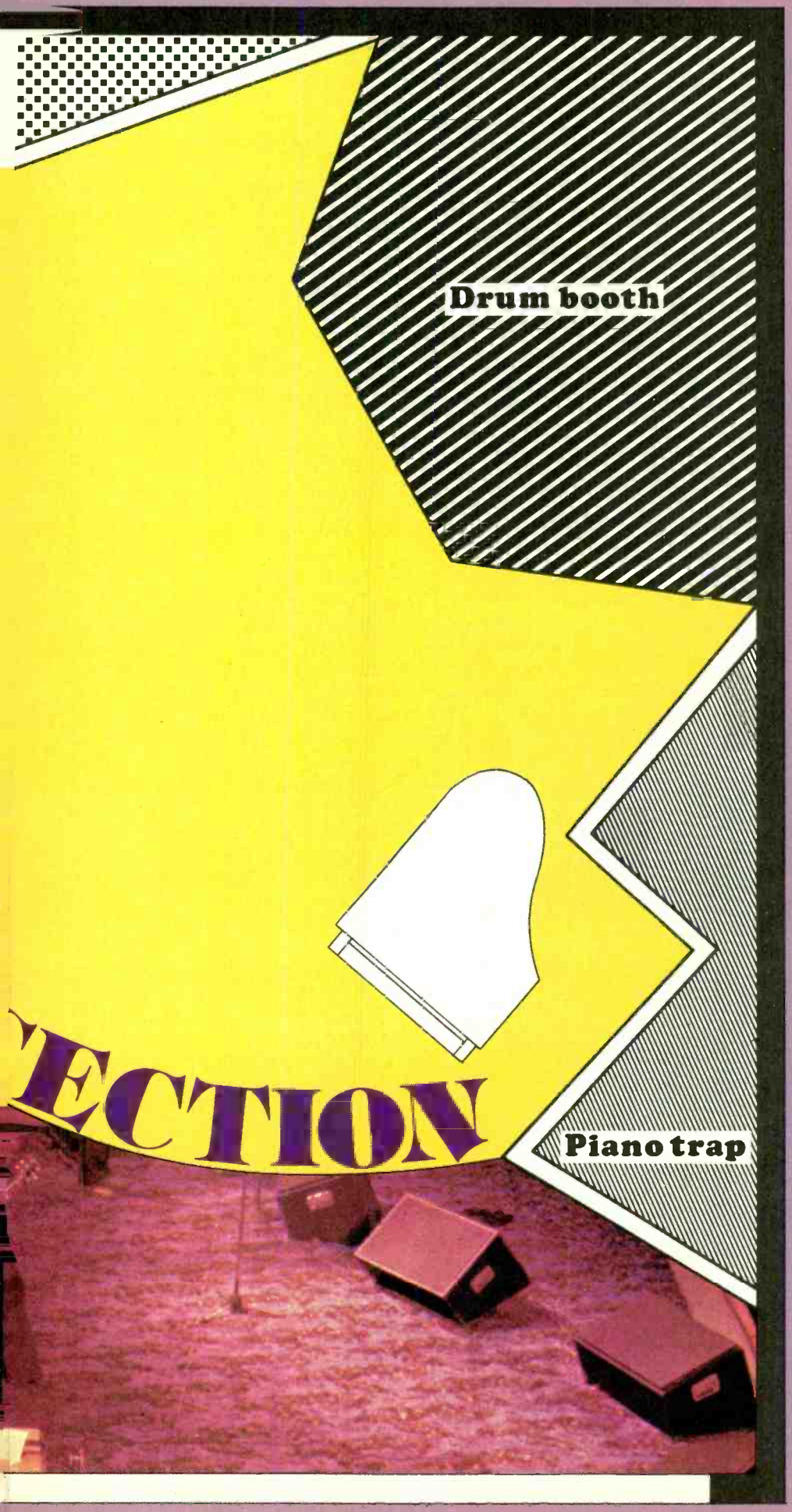
a session with the ATLANTA RHYTHM

Basstrap



By Murray M. Silver, Jr.



In recent years, the popular music world has revolved on an axis that runs in a straight line between New York and Los Angeles. Lying on an equatorial plane, from the Deep South to the Midwest, is the newest and fastest rising music mecca—Atlanta, Georgia. That is not to say that Georgians have only just begun to make music, but it has only been in recent years that the rest of the country has paid any attention. Any musician that hails from Atlanta is bound to owe at least part of his success to Buddy Buie and Bill Lowery, two men without whom Atlanta would have been just another bus stop away from Nashville studios.

Lowery has recently celebrated his Silver Anniversary as a music publisher, and for the purposes of this story will play the part of benefactor to a group of studio musicians who banded together to create a sum greater than its parts. Buddy Buie, the producer, along with Robert Nix, associate producer of the Atlanta Rhythm Section, also assumes the role of manager, with Arnie Geller, and song writer. Buie had come to Atlanta after spending an obligatory sentence as a starving artist in New York and Nashville and after becoming weary of managing the road for Roy Orbison. Lowery appreciated Buie's songwriting ability as heard in some of Orbison's songs and it was Lowery who encouraged Buie to ultimately produce and publish his work.

Buie was born with an innate ability to write great amounts of pop classics but will admit that his presentation suffers from a lack of musicianship. His first hit, "Take It Back" for Sandy Posey moved Buie into a songwriting circle with J.R. Cobb, who in 1966 was playing with the Classics—soon to be more prominently known as Dennis Yost and The Classics Four (produced by Joe South). Buie and Cobb were fast becoming a music item when Buie began to write for and produce another band of locals called the Candymen which included Robert Nix on drums and Dean Daughtry on keyboards. Get the picture? Things were starting to come together.

Buie became a successful songwriter despite the fact that he was constantly having to defend his ideas to his partners. If it had not been for his [Buie's] insistence, Dennis Yost would have left "Spooky" on the shelf. If Yost had preferred to continue his James Brown style, Buie might have had to find

someone else to record the songs "Stormy," "Traces," and "Everyday With You Girl."

When Buie gave up management for the sole purpose of writing for and producing a southern fraternity of musicians, he made a ritual of calling on J.R. Cobb, Emory Gordy, Dennis St. John and Mike Clark to comprise his studio band. And Mike Clark begat Robert Nix. And Paul Goddard came unto their midst to replace bassist Gordy. From an old association with Orbison and the Candymen, and more recently with St. John, the group initiated guitarist Barry Bailey, and by 1970, Buddy Buie had a very tight rhythm section in residence at his new studio. To the industry, Buddy's band was known as The Rhythm Section . . . The Atlanta Rhythm Section.

Studio One was intended to be Buie's artistic haven, his artist's colony. When the Atlanta International Pop Festival brought the world's finest guitarists to the south to show the locals how to play, the Yanks were offered a refresher course by Barry Bailey. Producer/artist Felix Pappalardi promptly returned to New York with Bailey, scratched a few tracks and began talking money. Buie could only offer seven days a week of session work, but he realized that he could easier afford to equal Bailey's highest offer than lose his priceless talent.

"The idea was to work two nights a week on ARS material and the other five in sessions for other artists," recalls Buie looking back on the first album. "We wanted to have our cake and eat it, too. We thought that we could continue hiring out to others to pay the bills as well as working on our own material. So the first album took a year to complete. It took that long to get together artistically. We had to prove that we could turn out more than Top 40 material and thought we could best do that by mixing moods by alternating rock tunes with ballads. As a result, we definitely lacked direction and continuity."

To supply the vocals for the first album, the band drafted Rodney Justo, who also had previously crossed paths with the other band members.

Brilliant on record, the band lacked finesse and stage presence and their first "live" dates were quietly suffered by small audiences comprised mostly of friends and wives.

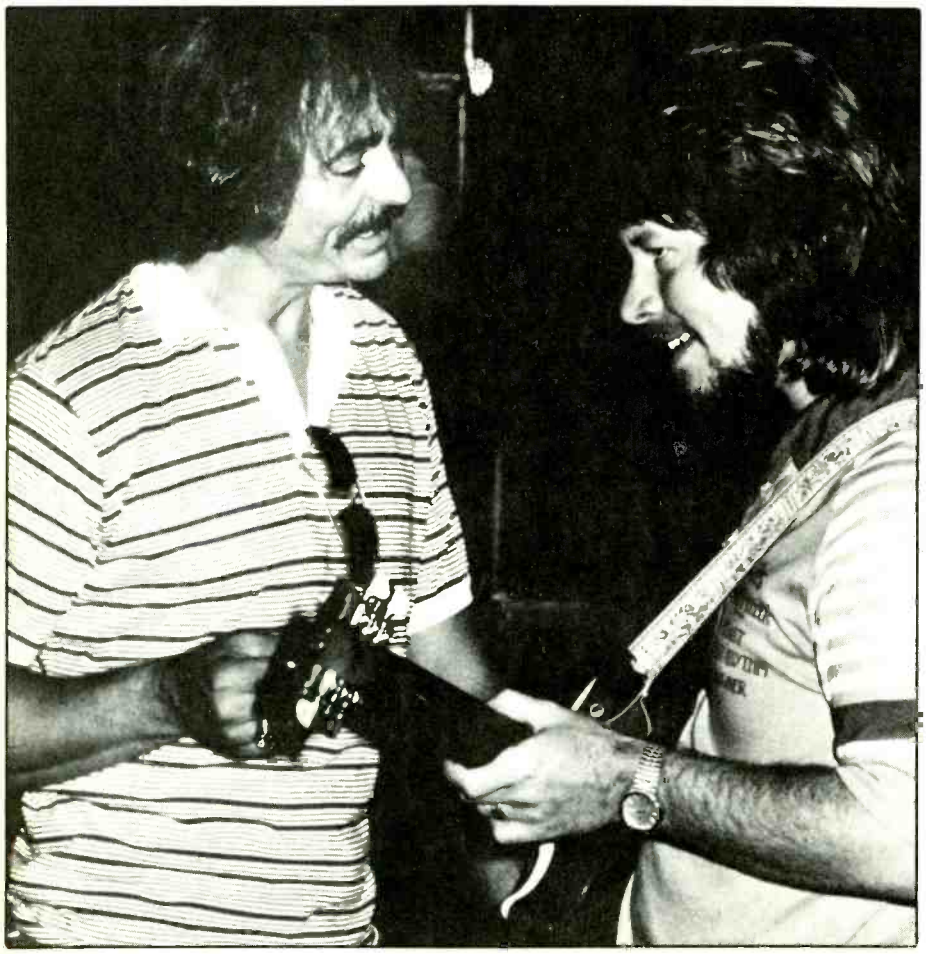
"You cannot imagine the heartbreak in finding out that what you have worked so hard for, what you have taken pride in doing, dies a horribly slow death on stage night after night," says Buie. "Friends were polite, but when offering advice, they usually recommended that we give up the idea."

Rodney Justo took the advice. Ronnie Hammond, a studio engineer who was spending off hours recording demos, was asked to step in.

"With the second album, *Back Up Against the Wall*, we were having to fight the image of a southern boogie band," says Buie. "At the time, the phrase had a certain negativism and we wanted to impress everyone with the fact that we did not boogie. Barry was listening mostly to the English guitarists—Clapton and Page—not Chet Atkins.

"It wasn't until the *Third Annual Pipe Dream* album in '73 that I put everything together," Buie continues. "The band gave up all other session work to devote all of their time and attention to their own material even though they were living in poverty. It was then that we established an artistic direction.

"In the old days, my position as producer and writer with the band would take the shape of a dictator. We would take one song at a time and when recording the basic tracks, I would tell Nix, Goddard and Hammond exactly what to do note for note. Hell, there is no one in the world more egotistical than a songwriter. You couldn't tell me a damn thing about my business, I didn't want to hear it (even though sometimes I didn't know what the hell I was talking about!). We were pioneering the layered effect, the sound that is now created by Digital Delay. We were doubling the guitars because I hate echo. I hate the sound of a bad chamber or the washout of EMT."



Guitarists J.R. Cobb and Barry Bailey exchanging notes during a session.

Exercising Independence

After ten years of working together, the band, the writers and Buie in his different roles learned to complement each other. The band began to exercise a certain independence, especially when Robert Nix realized that he could play the drums without Buddy's tutelage and Paul Goddard could work out bass lines by himself without Buddy having to sing it for him first.

"These days we will go up to the corner and sit in the Clock Restaurant to

discuss lyrics and structure for a while and then drive over to the studio to lay down the basic tracks," begins Buddy. "I make a determination of which take to use and then we set about adding the guitar solos and the vocals by having each member of the band come into the studio by himself. One night, we will have Barry come in and play four or five complete takes and then ping pong them down to one track. I won't even be in the studio; I let each man work out his own part and then I will structure the best they have to offer. My main function with the band is to be a part of the writing, to motivate their best effort and to get it on tape.

"It is time for the Atlanta Rhythm Section to record its first 'live' album," says Buie. "Studio albums are only half of what this band has to offer. If you have not seem them in concert, you haven't seen half of what they can do. It won't be slick, no overdubs, because we want the listener to get caught up in the true ambience of the show. From a production standpoint, it was difficult for me to reconciliate studio sound with the quality of a 'live' performance. It requires two sets of ears to critique the music."

Steamy Sessions

Presently, Buie is considering which takes of "Angel," "Conversation," "Champagne Jam," "Imaginary Lover," "Back Up Against the Wall" and "Another Man's Woman" he will use for the album. He plans a few surprises, such as ARS versions of "Long Tall Sally" and "Rocky Raccoon."

The two weeks in which Buie will assemble the album are busy ones at Studio One. The microphones still smoke from steamy sessions by Stillwater, Outlaws, and the Southern Jam recorded for the King Biscuit Flour Hour. For that session [Southern Jam], Studio One hosted a flock of kindred spirits including Billy Powell, Artemus Pyle, Gary Rossington and Alan Collins of Lynyrd Skynyrd, Charlie Daniels, Bonnie Bramlett, Dickie Betts and Wet Willie's Jimmy Hall and Michael Dukes. The Outlaws' drummer David Dix sat in for ailing Robert Nix. Among the cuts recorded for the special presentation are a tribute to Joplin, Elvis and Van Zant by Charlie Daniels entitled "Reflections" and a jam by Dickie Betts entitled "Southbound."

When recording at Studio One, rule number one is: Leave your rule book at home. Studio One does not conform to the current mold of thickly carpeted suites where notes are played and fall dead to the floor. The studio is one [of] close atmosphere with tile floors and baffled walls which allow hot notes to maintain a "live" sound.

ARS producer, mastermind Buddy Buie working at the board at Studio One.

The control room has recently been renovated to house a new console by Harrison Systems. It is a 32 input/32 output unit with: Four position parametric EQ on each channel, level programmable, manual and group muting, pink noise generator and two stereo foldback systems.

The studio is monitored by two JBL 4350s [and also utilizes JBL 4311s, 4320s (quad) and a pair of Auratones]. The engineers use a 3M 24-track tape recorder for recording, a MCI 2-track for mix and a Scully unit for copies.

Also used in Studio One is the Marshall Time Modulator Analog Relay for doubling, flanging and phasing.

A Studio One product is never guilty of over-production and the atmosphere evokes a certain coziness which moves many to discard shoes, put feet up and have a beer.

So what is the sercret? What are Col. Buie's secret herbs and spices that make the ARS sound so readily identifiable? Come closer. The machine most credited for embellishing the Atlanta Rhythm Section sound is the Eventide Harmonizer: a complete Digital Delay which incorporates a [continuously variable] pitch changer with a two octave range and an antifeedback unit to allow boosting of sound levels [and allows for automatic double-tracking, selectable length echos, flanging, tunnelling and vocal/instrument multiplication]. Most often it is applied to Hammond's vocals and to the guitars.

Technical End

To guide *Modern Recording* readers through the technical end of producing the "live" Atlanta Rhythm Section LP, engineers Rodney Mills and Tad Bush and ARS group members explained what is required to put champagne jam on vinyl to create an exquisite taste sensation.

MR: It seems that a "live" recording is something that most artists like to do but few people like to buy. Other than the exceptions, say *Woodstock* or *The Last Waltz*, they usually fail to kindle firey sales in the record stores. One of the primary criticisms of concert recordings is poor quality. Now I understand that *Seconds Out*, the Genesis "live" LP, took almost as much time to record and mix as a studio album. What are your priorities in engineering the ARS "live" album?

Rodney Mills: It has long been accepted that in order to capture the energy and spirit of a concert that sound quality must necessarily be sacrificed. Getting the crowd noise right is a problem. You want just enough for the soundtrack without overcoming the music, but you certainly couldn't use a cut where the crowd is asleep. Then there is a constant fear of stage monitor feedback.

Most of the time spent toward making this album will be in the preliminary recording of the different shows. We will tape ten concerts before sitting down to listen to what we've got and then we will select the best take of the songs we are interested in. But once we go into the studio, it will only require ten days to two weeks to finish up. We would only overdub for an obvious mistake, not for every minor flaw.

MR: When you mic the stage for recording, do you vary from your normal techniques?

RM: No, whether we are in the studio, performing on stage or recording on stage, mic placement is always tight in on the instruments. We strive to maintain separation of sounds and cut down on leaks but not to a point that it takes away from the natural "live" sound. The only additions we make for a "live" recording are two mics placed on the edge of the stage facing out towards the audience for ambience. Facing toward the stage would only pick up a direct sound from the band. I prefer to use condenser mics for their sensitivity.

MR: What will you record on?

RM: We will always set up two 24-track recorders for safety reasons. If one runs out in the middle of a set, we can start the other to prevent a gap.

MR: Will speakers have to be stacked any differently for recording a concert?

RM: No, we will not make any changes. We would never sacrifice stage performance to facilitate a recording. The performance is more important.

MR: Once the tape reaches post-production, will ARS have any control over the sound?

RM: No, at that point it is pretty much left up to Buddy and I. Buddy will choose the songs to be used on the album and pick the single with a little help from the band.

MR: Barry, let's discuss specifics. Tell us what you play and how you play it.

Barry Bailey: J.R. and I stick with the lead/rhythm arrangement where he most always plays rhythm and a little slide. I don't have any particular style other than preferring nails to picks. Most of the action is on the bottom strings and I bear down hard on the frets.

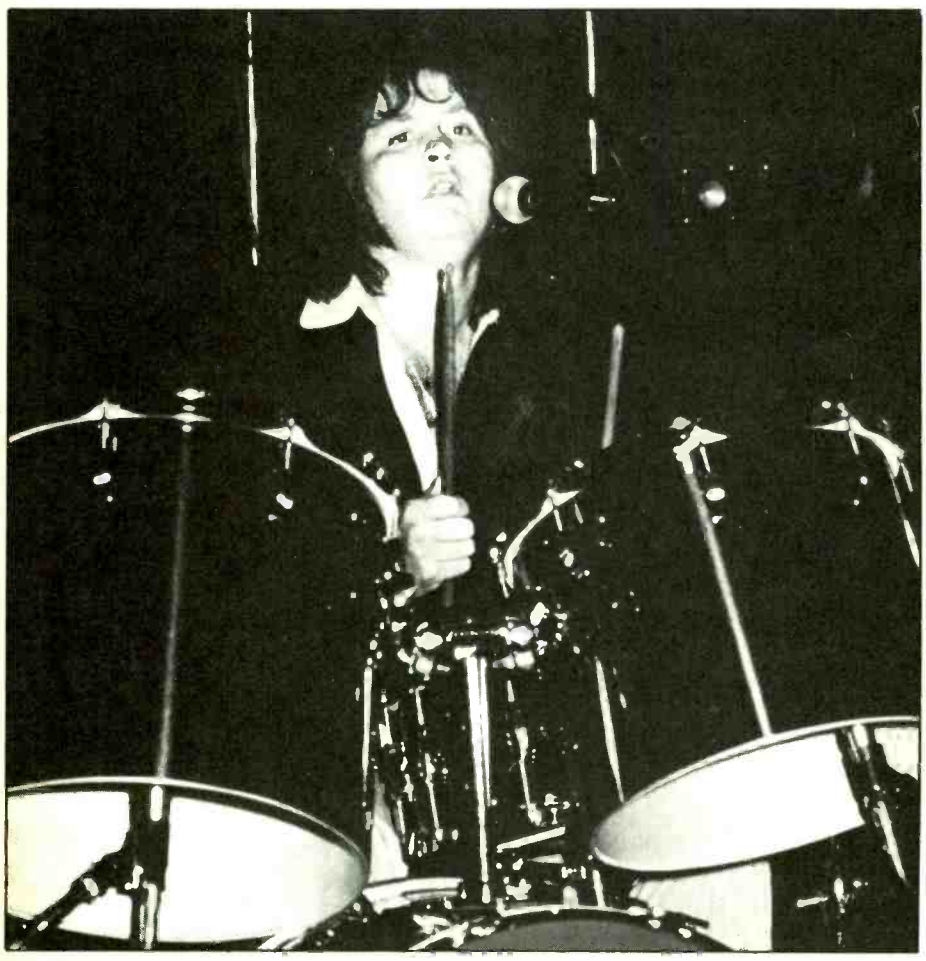
Onstage I play an old Gibson Les Paul Deluxe with stock pickups and keep another Deluxe for backup. I play through Marshall 100-watt and 50-watt amps. My hookup is different from most guitarists. They usually go into the first channel only, but I go through the first input of the second channels on both amps. What I lose on the highs I pick up on the treble control. Unlike most others, I turn up the bass on the guitar and down on the amp and volume is always wide open.

In the studio I use a Fender Telecaster and have a Maestro Echoplex hooked up to both amps.

MR: Rodney, how do you mic Barry and J.R.?

RM: Miking guitar amps is very interesting. By moving a mic from one end of the cabinet to the other, the changes in sounds are incredibly different. Most of our cabinets have four 12-inch speakers, so I will place one Sennheiser 421 mic close in on the grill halfway between the center of the speaker and its edge on the left side.

The Aphex [Aural Exciter] supplies the highs, giving much the same sound as equalization. Depending on the



ARS associate producer and drummer, Robert Nix at his drum kit.

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range, I may add a 4 dB peak and go up to 5 K on the high end. Aside from the Echoplex, we get a wide range of effects for the guitars through the Harmonizer.

MR: J.R., you use a Les Paul Custom for your rhythm work and a [Fender] Stratocaster on other occasions. Explain your acoustic work and your hook-up.

J.R. Cobb: I have been playing an Ovation acoustic with Barcus-Berry "Hot Dots" [transducers]. Normally, I run through an Ampeg V4 top and two Marshall bottoms outfitted with four Cetec speakers each. I have a lot of control over special effects such as vibrato and phasing by using a Roland Boss Chorus Ensemble.

MR: Judging by the success of *Imaginary Lover*, I imagine that the "live" LP will have at least one ballad. Rodney, how do you mic the acoustic guitar?

RM: Barry and J.R. prefer ambience to echo, so I begin by miking the acoustics 6 inches away for a close, intimate sound and gradually pulling away if we want a club or living room atmosphere.

MR: Paul, explain your unique style on bass.

Paul Goddard: I play either a Fender Precision Bass or a Rickenbacker 4001 Stereo Bass through Ampeg SVT tops for both the high and the low end, with two Cerwin-Vega 18-inch speakers for the bass and the SVTs for the treble. I use a lot of high end, no pedals and play only with a pick.

MR: Rodney, a lot of engineers assign the bass to track one leaving the higher frequencies to the inner tracks because it is generally believed that if there is any damage to the edge tracks the highs are the first to go. What is the practice that you follow for track assignments?

RM: I mic the bass and use a direct also. Then I mic the bass amp. The direct picks up the very low, practically inaudible sounds and the mic provides the attack. I will combine the two later in the mix.

Normally I assign the bass to outside tracks excluding 1 and 24 because I believe that any damage to the edge tracks would have practically no effect on the bass. I reserve the outside track for automation and never for vocals, keyboards or any other natural instruments where harmonics are concerned.

The highs can be assigned to any track. Track problems can be fixed in the mix, but I feel that getting the music down on tape quickly and efficiently is more important than holding up a hot session for track assignments.

MR: Recording the drums is probably the most involved process of any of the instruments. What are the basic methods that you follow in miking Robert's kit?

RM: I mic the drums the same way whether we are in the studio or on stage. In Studio One, the drums have a tendency for a natural ambience so the need for overall miking is eliminated by the use of the studio's ambience mics. Overall mics create a problem with leakage from the other instruments although it is not to such an extent that I would wish to do away with them completely because I like to preserve a natural sound and some leaks will occur. The drum kit is always located in the rear of the studio and is only baffled from the front to allow eye contact between the drummer and other musicians.

Because of the low frequency proximity effect, I place a Shure SM56 or a Sennheiser 421 up inside each tom-tom. The snare is miked very close, just an inch away by a Sennheiser 441. I will use a 441 inside the bass drum about two or three inches deep. I mic the hi-hats through an AKG 451 or through the 452 condenser mics with a low-end roll off and use two Neumann U87s or AKG 451s for overhead. The overheads are used basically for cymbals, not for the entire kit, to eliminate leakage and for presence.

There are no predetermined tracks for recording the drums, although it is usually in the first five. No limiting is used but the snare and the bass drums require EQ. The snare usually gets help on the high end and the bass [drum] is helped on both ends. EQ can generally be avoided by tuning the drums correctly.

MR: Lastly, we have to be concerned with recording Dean's keyboards. What is currently in his arsenal?

RM: Dean plays a Yamaha Electric Grand on stage and keeps a Yamaha Grand Piano in the studio. He also has a clavinet and a Wurlitzer piano.

MR: Pianos are universally miked on the high strings and the low strings separately for a stereo effect. How do you mic the piano?

RM: I don't mic primarily for a

Vocalist Ronnie Hammond doing what he does best.

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ARS bass player Paul Goddard.

stereo effect but for a balanced sound. If I can achieve it with one mic, I'll try that first before going to multiple mics. All of the keyboards are direct except for Dean's grand piano because that gives the cleanest sound. We never run through his amps.

MR: Like everybody else, I suppose that you were first a musician and then tried to do your own recording at home. I imagine that what Studio One spends in microphones alone might use up what many semi-pros invest in their entire studio. How can the musician who is beginning to do his own recording achieve a better quality sound and special effects with the less expensive equipment? How do you recommend the novice spend what money he has?

RM: Tad and I will answer this question differently because it is basically a case where two different approaches will eventually lead to the same result. I would choose to spend available funds on the console and the tape recorder. You can almost always upgrade either unit to one with less distortion. I don't think that the microphones are the first consideration. Even now in Studio One, I still use a $70, $80 or $90 Shure mic on practically anything. The Shure SM56 can be used anywhere effectively, especially on the drums.

Tad Bush: Like everybody else, I began recording at home in my basement. One thing that people fail to realize is that the entire house can be used to achieve the same effects as a professional studio. I used every room—the bathroom for echo, the hardwood floor of my living room supplied a great "live" sound and I hooked cabinets up in the back yard for ambience. Why do you think people sing in showers? A tiled stall sounds terrific! One of the best "digital delays" I ever used was achieved by placing an amp at one end of a long hallway and the microphone at the other end.

I think that with two good mics, you can accomplish everything that you need to do. Dollar for dollar, the Neumann is best. I highly recommend the U87 and the KM84. Tape recorders and boards are all fairly standardized in the same price ranges and there are none that I particularly prefer.

Secondly, the dollars should be spent on monitors. The engineer should concentrate on the mediums he is working with. By that I mean that from instrument to microphone is one medium, so the mic is important. From mic through special effects onto tape is another medium, so the tape machine is important. And from the tape played through the speakers is critical, so speakers should be fine. So, I start with good mics, and then improve the recorders and the speakers.

MR: Buddy, will the "live" album serve as a reference point from which the band will now depart in a new direction?

Buddy Buie: Not in the sense of style and structure, but lyrically I have a desire to turn out autobiographies about life on the road as we did in "A Rock and Roll Alternative." For years we were turning out music that the critics liked but the public didn't buy. With "So Into You," we knew that the critics would hate its blatant commercial come-on but we needed a hit to stay alive and the public ate it up. Now that we are dealing from a position of strength, I would like to accomplish something along the ideas of a social commentary—to write something that will be as important as Dylan's "Blowing In the Wind."

But I will tell you this, in conclusion, that the Atlanta Rhythm Section "live" album will be the final proof that these six men are what I firmly believe to be the best musicians in the world—and their best is yet to come.

Dean Daughtry at the keyboards.

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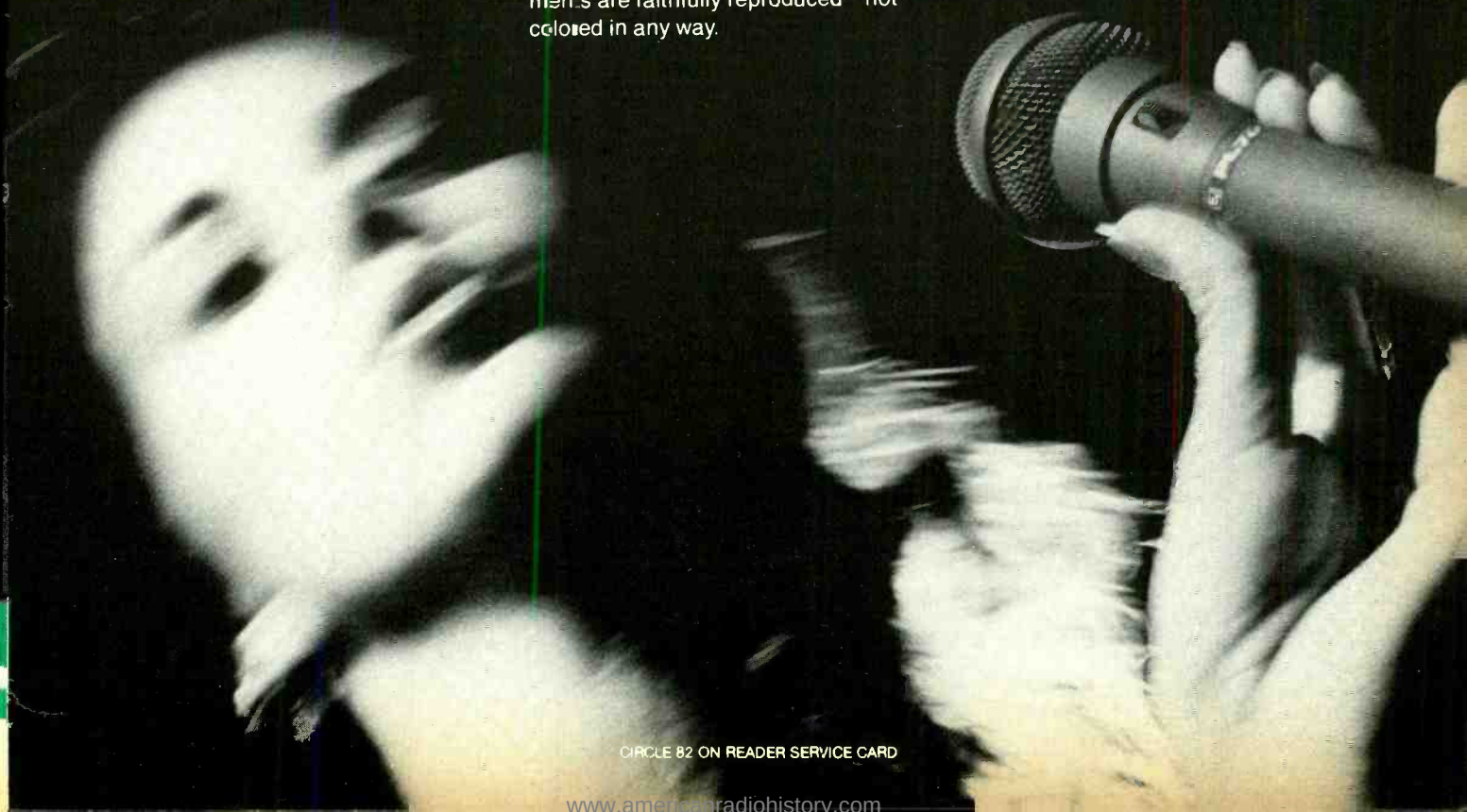

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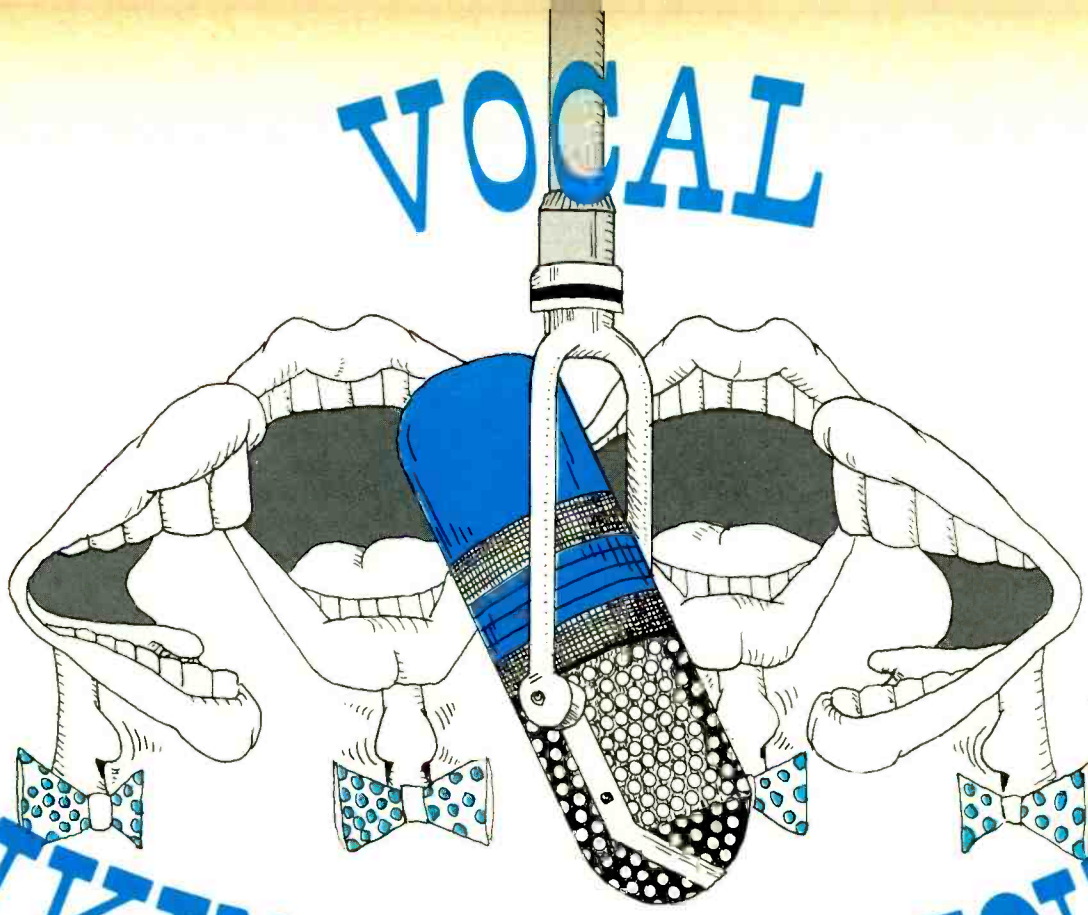

By Bruce Swedien

Recording the human voice has been of special interest to me since the beginning of my recording career. My early years in the business were spent in my home town of Minneapolis, Minnesota recording the fine church and college choirs of that area. This valuable experience has stuck with me and been a big help.

While the human voice is quite limited in frequency range, its sibilant sounds (the high, hissing sound present in "S," "T" and "F," mainly the "S" sound) extend well into the high-frequency spectrum. The subtle yet extreme shading of dynamics (range of soft volume to high volume level) and great variation in timbre (sound color, i.e., a scratchy, harsh voice versus a mellow, easy-to-listen-to voice) that is possible with the human voice is equal to or exceeds any musical sound source.

Different Approaches

Recording vocals for any type of music requires a good deal of thought and preparation. Whether it be a single solo voice or a choir of eighty voices or a back-up chorus of five singers there are many things to consider. First off, the *type* of music to be recorded is most important. Pop, jazz, rhythm and blues, country or classical, they all require a different approach. The biggest difference would be in recording classical music. I would never mic the vocalist in a classical recording as close as we do in pop recording (see Fig. 1). Second, the vocal effect is important to consider. In other words, in a group vocal, is a choral effect desired with a large massive sound, or should it be a warm intimate vocal sound? Occasionally a mixture of the two can be very musically pleasing.

Choral Sound (Fig. 2)—This sound is achieved by using as few mics as possible. The singers are placed well back from the mics. This vocal recording technique places most of the sound mixing responsibility on the room acoustics and the vocalists. Obviously this recording approach requires an excellent studio or room with good acoustics. This technique coupled with really good singers and a fine room will give a result that is not merely satisfying but a thrilling musical experience.

Close-miked Vocal Group Sound—This approach requires several mics and places most of the sound mixing responsibilities on the engineer. It also removes most of the acoustical support from the sound. If using this technique it would probably be best to divide the miking up by voice quality and then harmony parts in the vocal arrangement. As a rule of thumb you can figure four or five singers will require two mics, ten singers five mics. The singers work from six inches or less to two feet or more from the mics. With excellent singers the result is very pleasing.

Some Suggestions

In choosing a microphone and recording technique for a "solo" or "lead" vocal in a pop or rock vocal recording, the most important thing to consider is the vocal timbre of the artist. Timbre is the sound characteristic of the voice—i.e., is it soft and breathy

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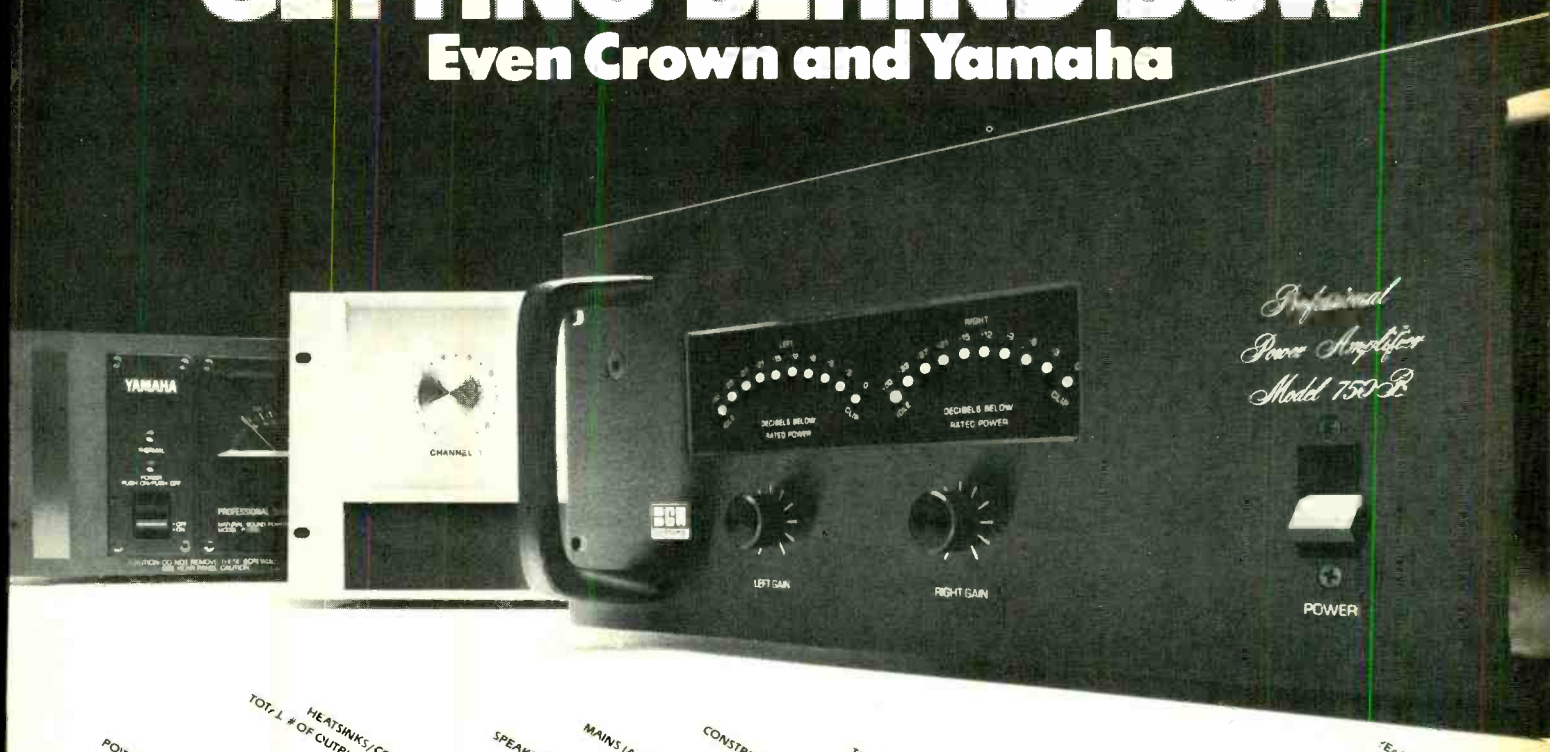

	POWER* @ 8 OHMS	@ 4 OHMS	TOTAL # OF OUTPUT TRANSISTORS	HEATSINKS/COOLING SYSTEM	SPEAKER PROTECTION	MAINS (AC) PROTECTION	CONSTRUCTION DESIGN	TURN-ON DELAY	CIRCUITRY	T.I.M.	PRICE*	YEAR INTRODUCED
BGW 750 B/C	225 Watts/ch	360 Watts/ch	20	Forced air cooling for 2 massive removable modules	Active arc-interrupting circuitry	Front panel magnetic circuit breaker	Modular all Teflon wiring	Relay operated transient delay circuitry	Full complimentary	0.02%	$ 999 — Model 750C $1099 — Model 750B	1978
CROWN DC300A	155 Watts/ch	NO FTC RATING	16	Passive airflow only	None provided	Rear panel fuse only	Hard-wired, non-modular	None	Quasi-complimentary	Not specified*	$ 919	1974
YAMAHA P2200	200 Watts/ch	NO FTC RATING	12	Passive airflow only	None provided	Rear panel fuse only	Hard-wired, non-modular	None	Full complimentary	Not specified*	$1095	1976

Here they are — The big guns of professional amplification: The respected Crown DC300A, The cosmetically impressive Yamaha P2200, And BGW's new, no-nonsense 750B/C.

Top-of-the-line professional power amplifiers from the industry's most respected manufacturers. All boasting impressive reputations. All costing about $1,000.

The table reveals the specifications.* You decide which one is best.

THE RELIABILITY FACTOR

Above all else, professional musicians and audio engineers want to know two things about their power amplifiers: How dependably they function under extreme conditions, and how well they interface with other components.

BGW's new 750 Series amplifiers have taken the lead in both areas. Twenty (20) output transistors as opposed to Crown's 16 and Yamaha's 12 provide a Safe Operating Area unmatched by either the DC300A or the P2200. While both Crown and Yamaha rely on passive "convection" cooling, the extensive heat sinks on BGW's pro amps are cooled by forced air for reliable, continuous performance even on the hottest outdoor concert stages. Unique new arc-interrupting circuitry protects speakers — not just the amplifiers themselves — from catastrophic DC offset.

Like all BGW amplifiers, the 750B and C feature modular construction and front-panel circuit-breakers rather than hard wiring and cumbersome rear-panel fuses. The result: Maintenance is easier both onstage and in the studio — when time and tempers can be very short.

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Now that audible Harmonic and Intermodulation Distortion have been all but eliminated from professional power amplifiers, Transient Intermodulation Distortion (TIM) has become important. Neither Crown nor Yamaha specifies TIM levels whereas TIM specs for BGW's 750's Series are published with the greatest of pride. The 750B and C consequently produce clearer, warmer, and more open sound.

Pros will also appreciate another BGW exclusive: A delay circuit that eliminates all transient "thumps" when the 750B and C are activated. Neither Crown nor Yamaha has anything like it.

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This is where BGW really leaves the competition behind. While the Crown DC300A and the Yamaha P2200 are rated at 155 and 200 watts, respectively, BGW's 750B/C delivers a full 225 watts per channel into 8 ohms,** leaving the competition behind entirely at 4 ohms, with a whopping 360 watts. Only BGW has FTC rated 4 ohm power specifications.

Both the DC300A and the P2200 are good power amplifiers by conventional standards. But real recording pros don't deal with convention.

They get behind BGW.

Because the competition already is.

*Based on manufacturers' published specifications and prices available 7/1/78.

**BGW 750B/C FTC Specification: 225 watts minimum sine wave continuous average power output per channel with both channels driving 8 ohm loads over a power band from 20Hz to 20kHz. The maximum Total Harmonic Distortion at any power level from 250 milliwatts to 225 watts shall be no more than 0.1%.

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or is it loud and penetrating. Your choice of microphone should be made on the basis of the vocal quality of the artist, nothing else. There are no set rules so some experimentation is usually in order. What may seem to be an obvious choice may not work well. Equalization is definitely not the answer, though a small amount of EQ might be beneficial.

Here are some suggestions:

Well rounded sound, good voice—

Telefunken 251
Neumann U-87
Neumann U-67

Good voice, not too sibilant—

Telefunken U-47
Telefunken 251
Neumann U-67

Soft, quiet voice with little projection—

Telefunken U-47
Telefunken 251
Neumann U-67

Thin weak voice—

RCA 44BX

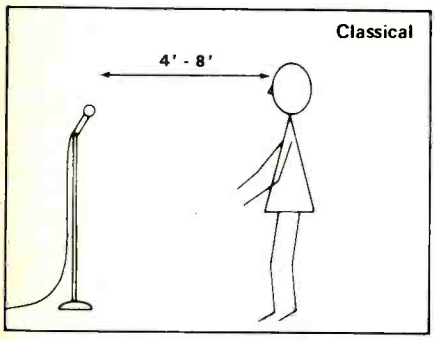
Loud, brassy with good projection—

Shure SM7
RCA 44BX

Good voice but too sibilant—

Shure SM7
RCA 44BX
Neumann U-87
(with windscreen)

This list could go on and on but these indications should give you an idea or two.



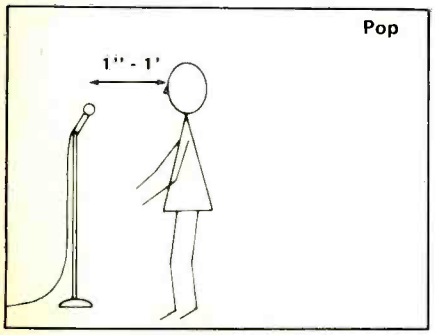
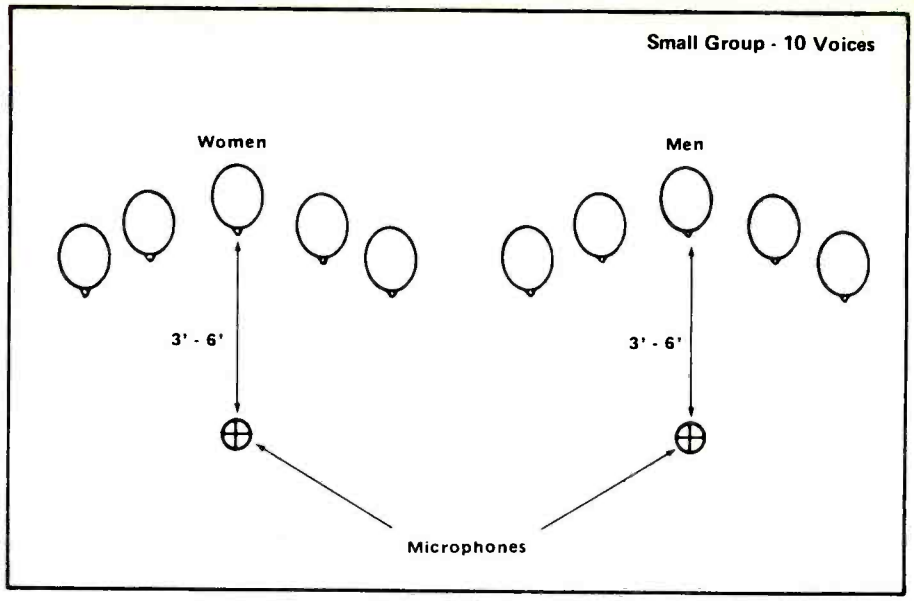


Fig. 1



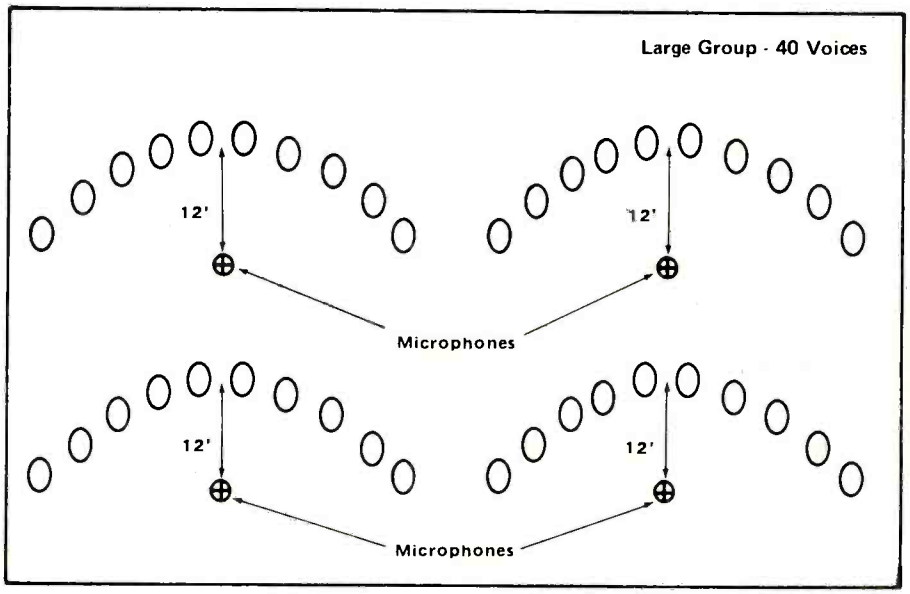


Fig. 2

Supportive Stacking

Stacking or "doubling" a lead vocal is helpful. Frequently I will change the tape speed of the master recorder slightly during the recording of the "stack." When this is combined with the original it seems to add a bit of sonority (a full, rich quality) to the lead vocal that makes it more interesting.

When mixing a "stack" or "double" of a lead vocal, keep the stack at less level in the mix than the basic lead vocal track. This serves to add support to the vocal without making it appear an obvious trick.

The final medium of the recording is important to consider when preparing for a vocal recording. Whether the eventual product is to be monaural or stereo should influence your vocal miking technique. If it is a complex vocal arrangement with few singers and a lot of harmony and inter-acting parts, you will probably need more mics than if it is a simple mono recording with basically unison background vocal parts.

If the final product is a stereophonic recording medium such as a phonograph record, try to preserve as much natural stereo sound as possible and then keep this audio information as close to the original sound as possible right through to the final mix.

Here is an example of how to record a vocal group of five singers. Use two high-quality, good condition, large capsule condenser microphones such

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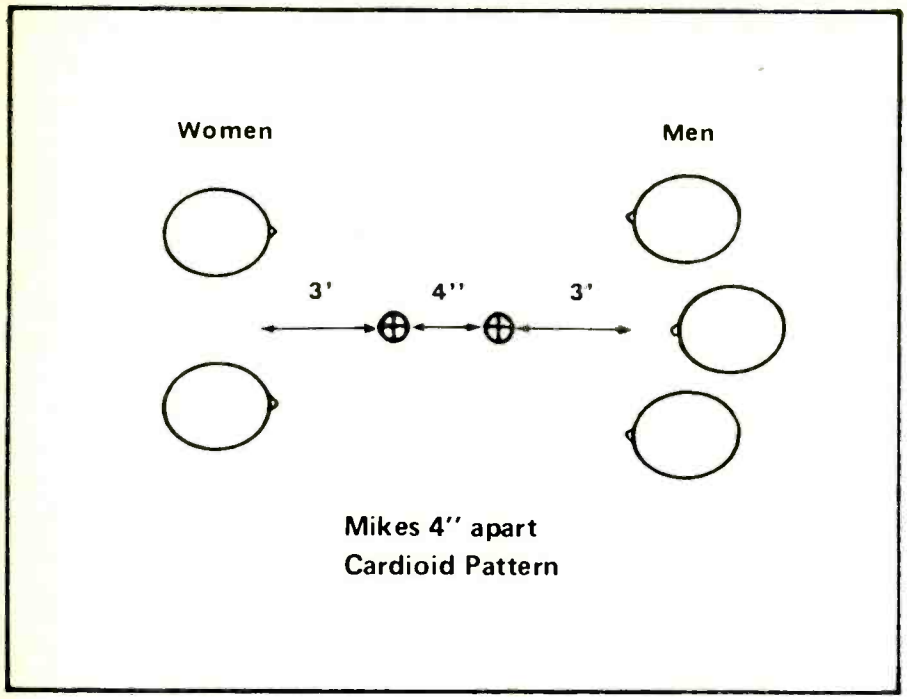

Fig. 3

as the Neumann U-87 or similar. The singers are positioned facing each other separating the men and women (see Fig. 3). The mics are placed close together, back to back about four inches apart. This method of keeping the mics close together allows some mixing of sound to occur acoustically. We would record a basic vocal track using two channels of the multi-track tape, one mic on each track. We would then ask the singers to step back from the mics about three feet or so and record a "stack" or double the original part. This also would be recorded in stereo on two channels of the multi-track. By having the singers step back from the mics during this vocal pass you are forced to raise the volume of the two mics, thus giving an even greater mixture on the two mics plus adding more acoustical support to the sound. Finally, mix these four tracks in the final mix in the same proportion on the same side of the stereo spectrum as they occurred during the performance.

[In some recordings I hear today of vocal groups, I hear the stereo tracks flopped over or reversed in the final mix in an effort to get a mixture or "wall of sound," or whatever. The problem with this, to my ear, is that the acoustics also mix in reverse order; this is not a natural, musical sound. Very often I hear a lot of monaural tracks merely panned either left or right. All this really creates is left and right mono and has nothing to do with the support of music.]

The additional effort and planning required to preserve real stereo and the acoustical support it provides is well worth it.

What Type of Music?

When recording a solo or lead vocal it is also very important to consider the type of music to be performed. Generally speaking, jazz and classical music may be treated in a similar way. Never use a close-mic solo vocal technique in either jazz or classical. In actuality, a classical solo vocal recording always demands an even more conservative approach than a jazz vocal.

The type of music to be recorded will frequently dictate whether or not the lead vocal must be recorded at the same time as the orchestra. When all the musicians and singers are recorded at the same time this is usually referred to as a "straightahead" session. Most often, on a straightahead session, the lead singer is placed in a vocal booth. This is a small satellite studio that affords good isolation of sound but allows the singer or singers to see the musicians and hear them on headphones or a small speaker.

You can also record the lead vocalist while he or she is in the studio with the musicians. To accomplish this use a group of "gobos" or isolation flats to screen off some of the sound from the vocal mic. This type of recording requires a musical arranger who is very aware of the problems particular to this style of recording.

Most often in pop music the rhythm tracks are recorded first, then the vocals and then the rest of the orchestra. This technique allows the engineer a great opportunity to experiment with different sounds. The pop music field is wide open to our imagination as far as mic technique goes. This is one thing that has always made it very exciting for an engineer.

Itinerant Microphones

For vocal recording I carry all my own microphones. This really gets to be a problem when traveling from studio to studio and city to city, but it is the only way one can rely on the end product. I use several specially-made Anvil cases with the microphones carefully fitted inside in foam padding.

Part of my collection of mics includes two Telefunken U-47 tube-type mics. I purchased these mics new in 1951 for $390 each. I have been offered many times that for them, but of course couldn't part with them for any amount of money. This old mic has a slight peak in its frequency response at around 7000 Hz which gives it a "natural" presence. It also has a slight peak in the low end around 100 Hz. This gives it a warm, rich sound. The high-frequency peak in this mic, with some vocalists, can cause severe problems when the recording gets to the disc mastering or film optical transfer stage. It is easy to end up with a recording that sounds wonderful on magnetic tape, but is impossible to transfer to disc or film. With certain voices, however, this mic sounds absolutely delicious.

I also have two Telefunken 251 condenser mics. This mic has a beautiful mellow quality, but yet possesses an amazing degree of clarity in vocal recording. It is not overly sibilant and is often my number one choice for solo vocals. I also have two RCA 44BX ribbon mics which were purchased new in the early fifties and they still look and sound as good as the day I got them. The 44 is a large, heavy, mellow-sounding old mic with a great deal of proximity effect. This is very useful in reinforcing the low register of a vocalist's range if that is necessary. I have these mics carefully packed away because on two distinct occasions my wife tried to make lamps out of them.

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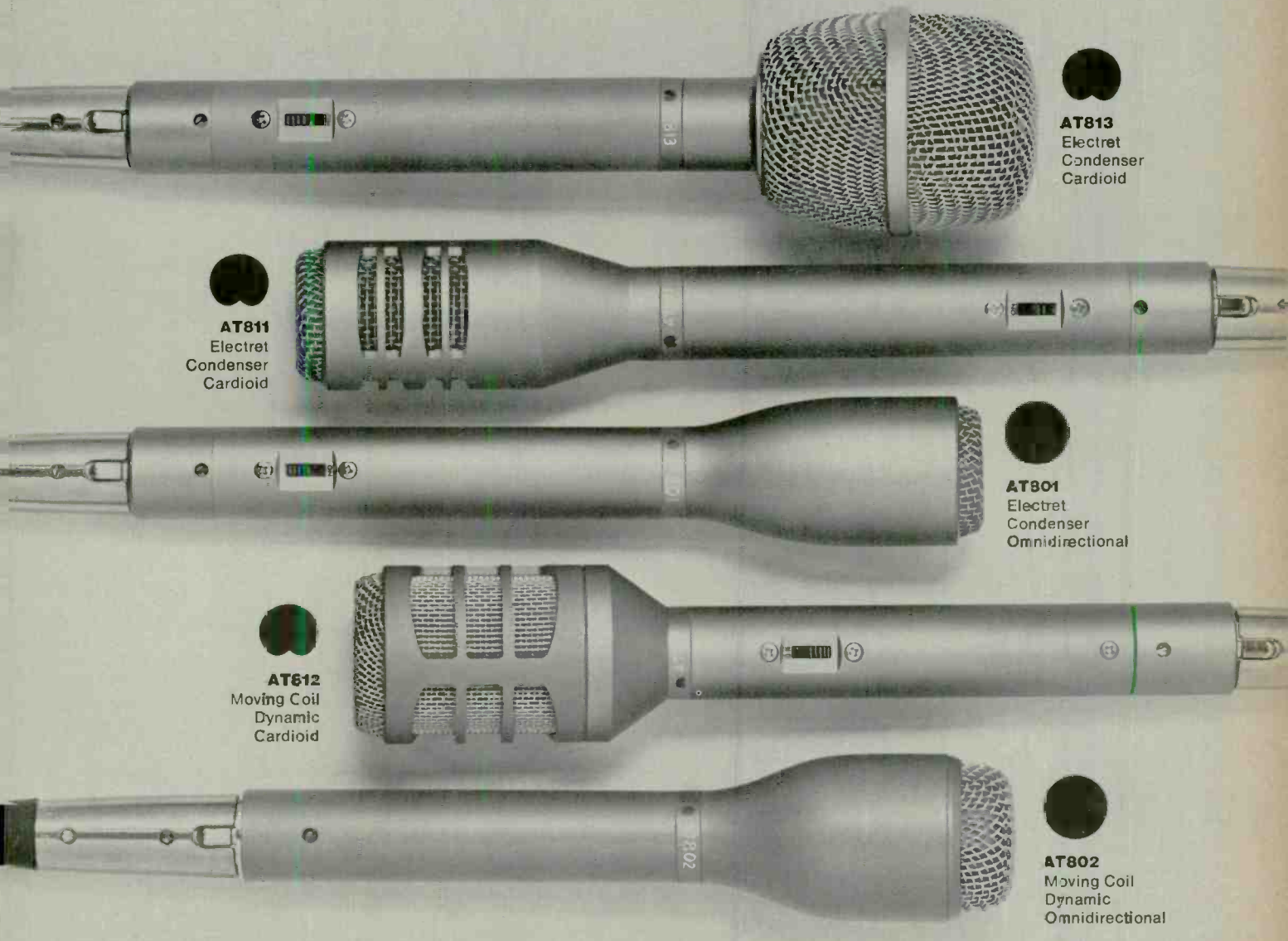

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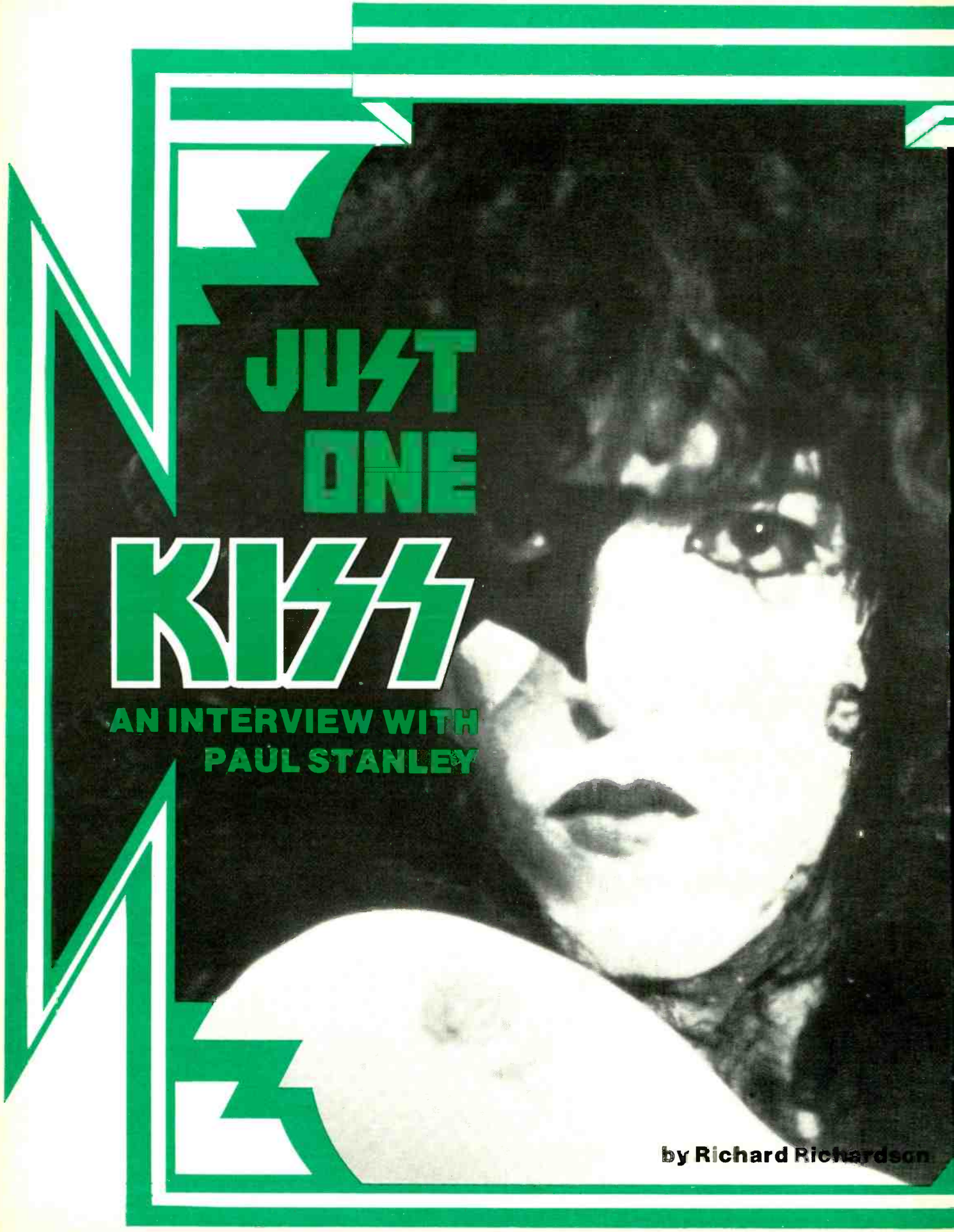


JUST ONE KISS

AN INTERVIEW WITH PAUL STANLEY

by Richard Richardson

The following is an interview with Paul Stanley, guitar player and vocalist with Kiss, who at the time of this writing [August '78] was recording his first solo effort at Village Recorders in Los Angeles. Paul was using the studio that was just completed especially for Fleetwood Mac's next album. It is a stunning room, comfortable and elegant with a Neve-Necam console and Studer 24-track machines. Paul was interviewed over the course of two nights with his producer-engineer, Jeff Glixman who, among other works, has produced the Kansas albums [ultimately, four tunes were to be produced by Glixman and five by Stanley himself as a result of a friendly parting of artist and producer].

MR: What were your reasons for recording a solo album?

PS: It gave me a chance to express myself more completely. After eight or nine albums [with Kiss], people come to expect a certain sound from a band. It seemed like a good idea for each of us to go his own way for an album without having to compromise. Kiss is a democracy, and because of this, you never really attain the sound you had in your own head. There is a lot more give and take in a band situation, whereas in a solo album, it's my concept and that is the one that comes out. With the band, you have to consider everyone else's creative involvement and their tastes; while when one does a solo album, one can do it one's own way. It is me one hundred percent rather than as part of a unit.

MR: Is everyone else in Kiss recording a solo album?

PS: Yes. The solo albums are to give the individual members of Kiss some fresh air. The musical tastes of the group members are much more varied than it might seem. The solo projects provide a healthy breather. It gives us all a little more room to express ourselves and to see what we are capable of individually. Ultimately, when we get back together, the band will be that much stronger because we'll have had a chance to do it on our own.

MR: The solo projects do not spell an end to Kiss?

PS: No. The band is definitely not falling apart. Everybody is just fulfilling his own dream. We concentrated a lot of work into a small amount of time. We needed a break. It makes everyone feel happy creatively. It's a challenge to play with new people. When you're used to playing with the same people it becomes predictable. We are lucky to be strong enough individually that we can have a market for our solo albums. The solos can only enhance the group effort. We will be doing a Kiss album around February [1979] and a tour next summer.

MR: How long have you been doing the album?

PS: I started back in N.Y. just cutting demos, and a lot of them came out really good. Then I got together with Jeff Glixman as I needed someone to feed off of . . . to bounce ideas off.

MR: Why Jeff?

PS: Because we had the same roots. A lot of rock and roll and English music. I had heard the albums he did with Kansas and they were great. Then we met each other, listened to one another's tapes and decided that we could work together.

MR: What was your approach to this album?

PS: I laid the tracks as I was inspired. I did it this way for spontaneity. We tried to knock the songs off as quickly as possible to keep the tracks as fresh and spontaneous as possible. Basically, we would rehearse each song for a couple of hours and then record it usually on the first take. Tempo was our main consideration in having the songs feel right.

MR: Is there anything particularly unique about the way you recorded this album?

PS: The album is unique from the point of view that it has been the result of a collaboration between several engineers. David Lewis engineered at Electric Lady in New York. Paul Grupp engineered at the Record Plant in L.A., with Barbara Isaacs and Peter Lewis seconding. It has been a family affair. Everybody has been heavily involved in the album. It's been very cohesive. In fact, we will be doing some mixes around the clock with both Jeff and Paul (Grupp) engineering [final album mixes were done by Stanley and engineer Mike Stone].

MR: What are you doing in terms of overdubbing . . . strings and horns, and the like?

PS: I think a lot of times many overdubs are unnecessary. They are token parts. I find that there are a limitless amount of things that can be done with guitar so I tend to stay away from other instruments.

MR: What about the personnel on this album?

PS: I didn't want to use studio cats;

they're hired hands. It's too impersonal. After my session they might go and do a MacDonald's commercial. I like working fast. It's harder and more time consuming to tell someone what you want when you're capable of playing it yourself.

The guitar player is Bob Kulick with Meatloaf. On bass were Steve Buslow also with Meatloaf and Eric Nelson who's with Flo and Eddie. On drums were Richie Fontana from N.Y.; Piper drummer Craig Crantz; and Carmine Appice. Carmine had previous commitments to work with Rod Stewart so he was only able to work on one song "Take Me Away." Doug Katsonous played piano on "Hold Me Touch Me." Three singers from a New York group called Rouge sang backgrounds on "Move On," and Pepy De Castro from The Blues Magoos sang background on "Ain't Quite Right" as well as "Hold Me Touch Me." Steve Lacy played guitar on "Love In Chains." The song by song lineup is as follows:

"Wouldn't You Like To Know Me?"

Fontana ..... Drums
Kulick ..... Guitar
Buslow ..... Bass
Stanley ..... Guitars and Vocals

"You Belong To Me Tonight"

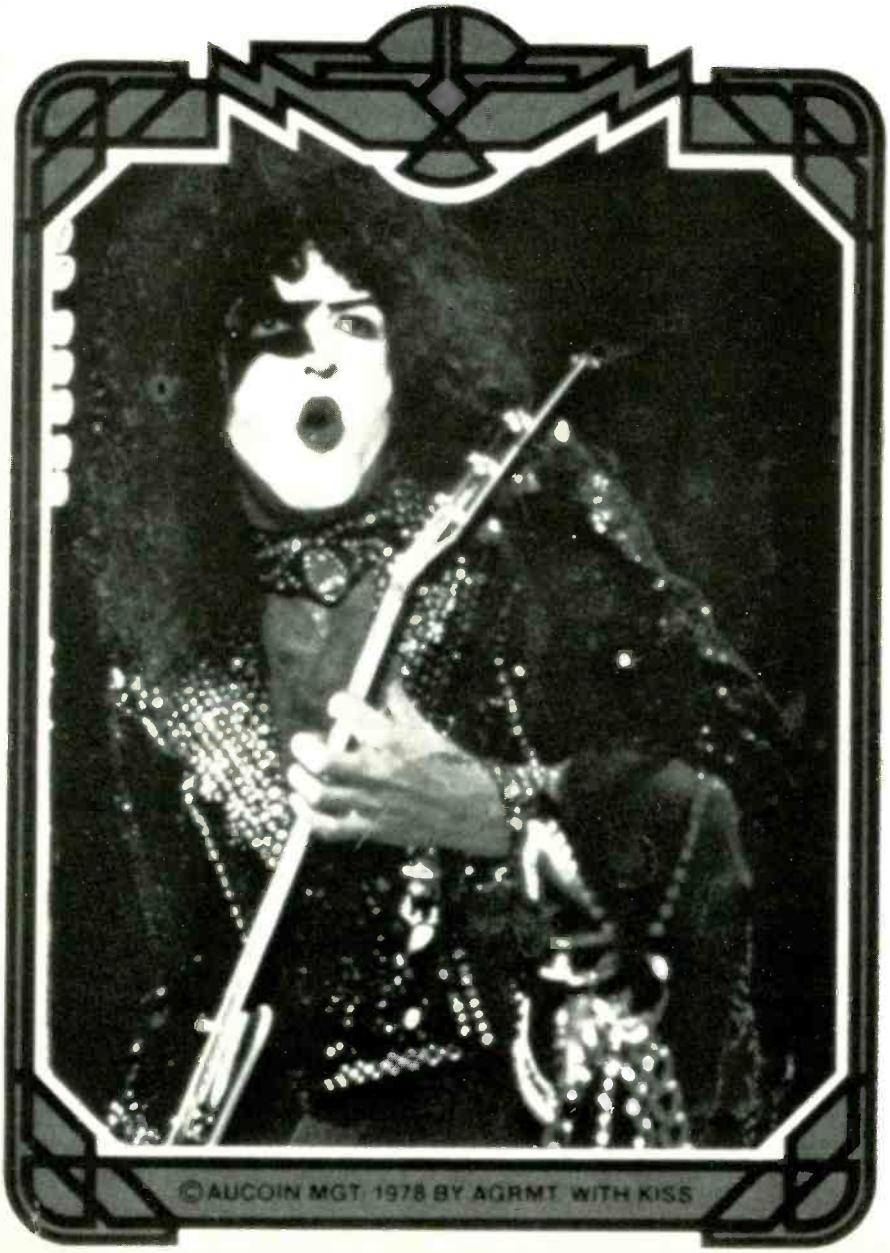
Same Lineup

"Move On"

Same Lineup
Background Vocals ..... Rouge

"Ain't Quite Right"

Same Lineup
Background Vocals ..... Pepy DeCastro and Paul Stanley



"Love In Chains"

Stanley ..... Guitars and Vocals
Kulick ..... Guitar
Lacy ..... Guitar
Nelson ..... Bass
Crantz ..... Drums

"Hold Me Touch Me"

Stanley ..... Guitars and Vocals
Nelson ..... Bass
Crantz ..... Drums
Katsonous ..... Piano and Background Vocals
DeCastro .... Background Vocals

"It's Alright"

Stanley ..... Guitars and Vocals
Kulick ..... Guitars
Nelson ..... Bass
Crantz ..... Drums

"Take Me Away"

Stanley ..... Guitars, Vocals and E Bows
Kulick ..... Guitars
Buslow ..... Bass
Appice ..... Drums

MR: Where did you record the tracks?

PS: We recorded four tracks at Electric Lady Studios in New York because I have recorded there for seven years, and it is my favorite studio. We recorded three tracks out here at the Record Plant [L.A.]. We're mixing at Village because Jeff especially wants to work with the Necam. Originally, I came out to L.A. to work with Carmine (Appice) but there was a conflict in schedules. Carmine was committed to working on the Rod Stewart album. We then found out about the Neve-Necam and Studers at Village and decided to work here. We had originally planned to mix at Air Studios in London.

MR: What about the equipment and techniques used in recording this album?

Jeff Glixman: In general, I like to stay away from EQ when I'm recording tracks. I also avoid compressors and limiters while tracking. I like as much flexibility as possible for the mix so that I don't get locked into a situation. I record most sounds "straight-ahead" without a lot of technical effects. Usually, I mic the following way: for drums I use the Sennheiser 441 on the kick, a Shure 57 on the snare, a Sennheiser 421 on the toms and a pair of AKG 414s for overheads. (The overheads are placed under the cymbals

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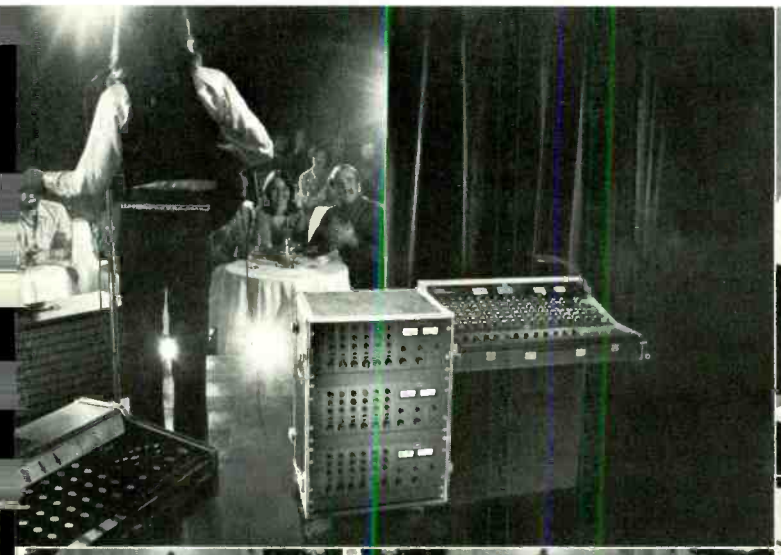

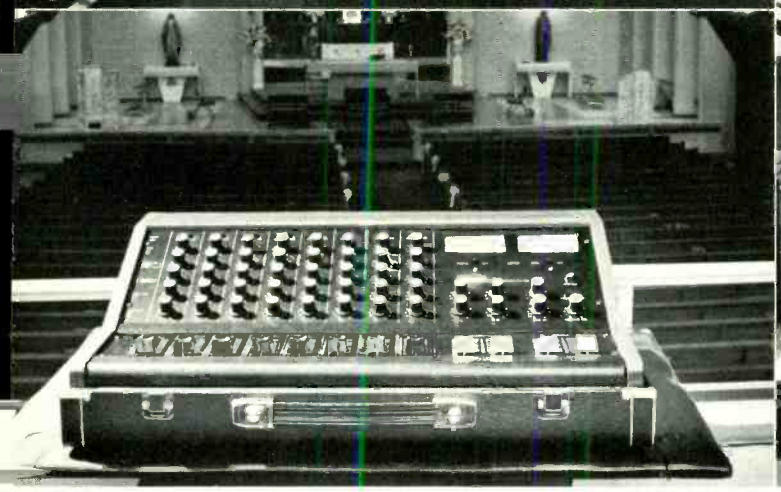

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*PM-170 uses unbalanced inputs, ideal as a keyboard mixer.

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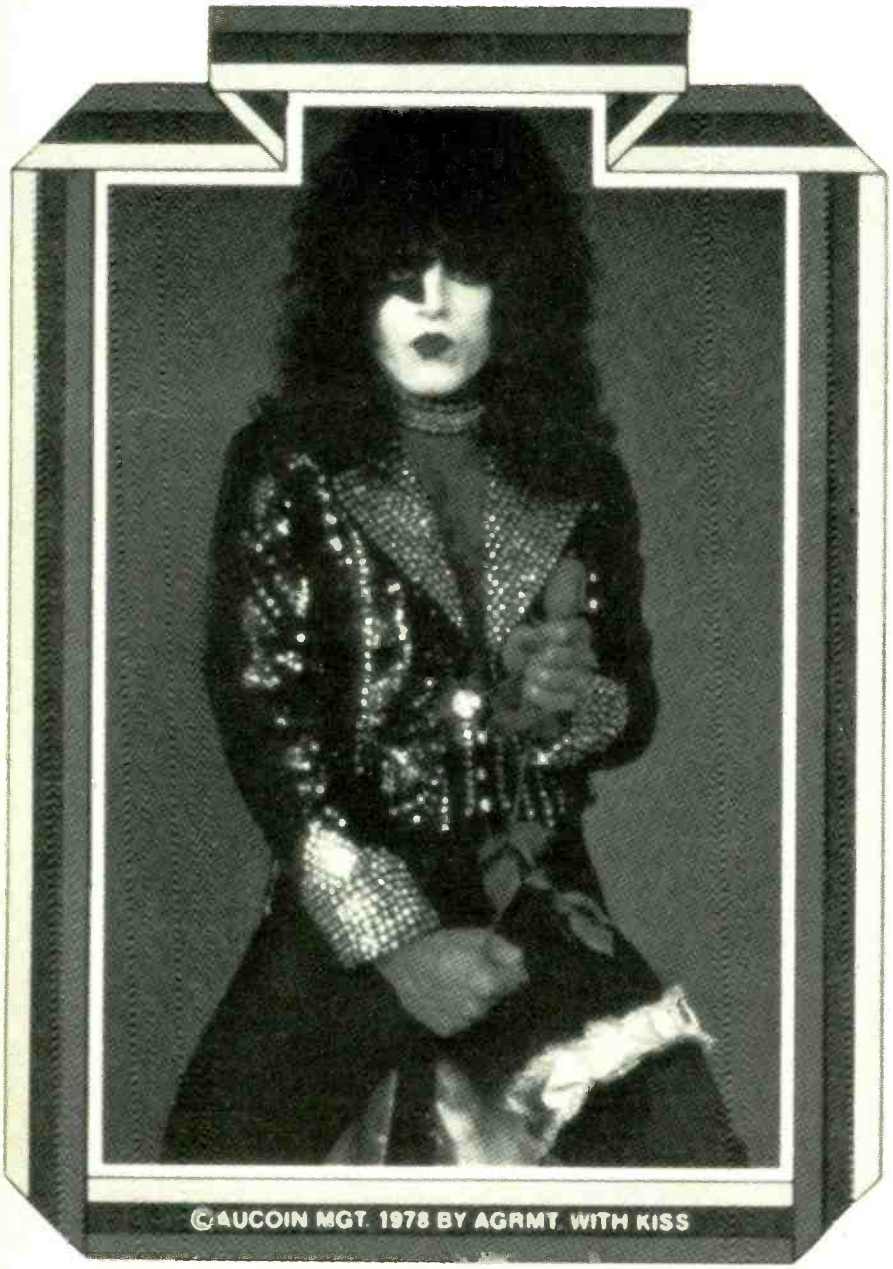
and above the toms and are usually out of phase giving very little low end.) I run the bass through an amp; I don't like taking the bass direct. I often use a Shure 57 for bass. For electric guitar, I place one microphone next to the grillcloth and another about six feet back. Normally, a 57 or a Sennheiser 441. However, as a rule, I don't use room miking. On acoustic guitars, I use either a KM84, AKG 452 or a U-87. For vocals, I use a Neumann 49, 87 or [Sennheiser] 441. On piano, either a U-87 or a Sennheiser 421.



MR: Paul, what kind of instruments did you use on this album?

PS: I used a Japanese-made Ibanez Les Paul as my main axe played through a Marshall (single cabinet). On "It's Alright" I used a Gallien-Krueger amp. I also used a 1958 Gibson "Flying V" as well as an old Gibson Sunburst. For an effect, I used a Guild acoustic with only five strings, and these were from a twelve string. This set-up gave a harpsichord-like sound. Another effect was achieved with the use of an E Bow [a hand-held electronic "bow" made by Heet Sound Products and distributed by Morley] with the electrics. The E Bow sets up a magnetic force around the strings creating continuous notes, pure tones—until stopped by the player.

MR: How much do you concern yourself with technology?

PS: Basically, I've never had that much interest in technology. When I'm recording an album I am bursting with musical ideas. So I'd rather work with someone I feel confident in and leave the technical responsibilities to them. I believe that everybody should do what they do best, that there should be a division of labor. At present, I'm not as concerned with how it's done as with how it sounds. When I get into producing other groups, I will devote more time to learning about technology. But for now, I have to devote all of my time to creating the music.

MR: What is your approach to vocals?

PS: I have a strong voice that takes a while to warm up. Ideally, I prefer to sing for three or four hours. I keep pushing harder and harder to get my voice higher and higher. I don't get hoarse, rather my voice seems to get stronger. The same thing is true when I'm on the road. I feel that my voice starts getting much better about halfway through a tour.

Jeff Glixman: Paul has one of the most incredible voices I have ever heard. Most singers would be hoarse at the point where Paul is just starting to feel right about his vocal sound. He has great determination. In fact, he writes songs in keys that are very high for his voice just so he will have to push to reach the notes.

MR: Do you [Paul] have any special tricks for vocals?

PS: Yes. Years ago, Bob Ezrin, the producer, had me climb up a ladder and sing down on the microphone. In this way, you actually get above the note and sing down on it. I've been told the same thing by vocal teachers . . . get above the note and sign down on it. On this album, I have stood on a box for some of the vocals. I always try for a high screechy voice. I have since I started singing.

MR: How do you compare working "live" with working in the studio?

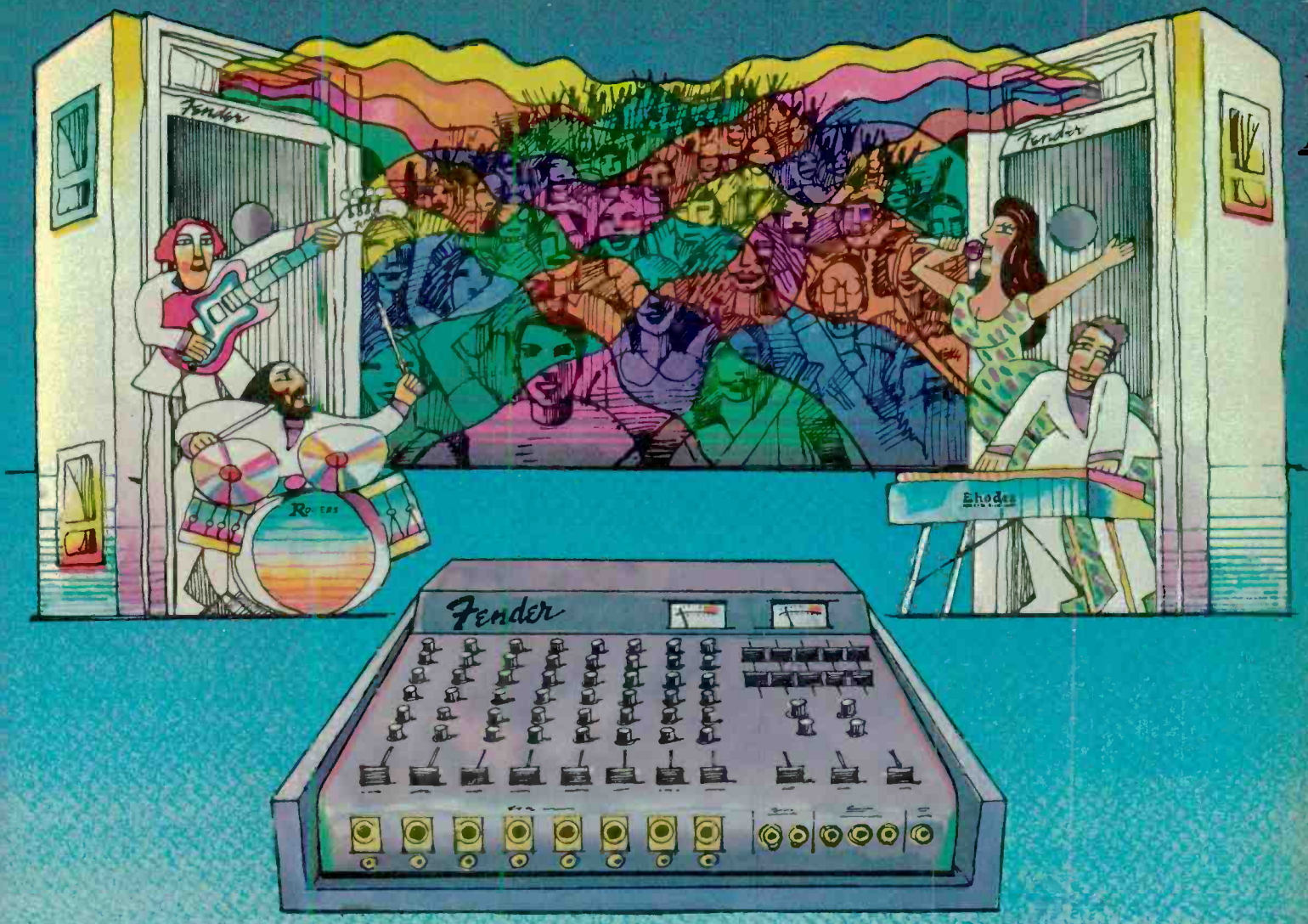
PS: I believe that an artist should be able to reproduce much of what is done in the studio on stage for the fans. You can't separate the studio and the concert hall. You should be able to project the sensation and feel of a song without having to play all of the parts that were recorded.

MR: Describe your impressions of the recording studio.

PS: I consider the studio very womb-like. It's timeless and serene.

MR: What's your general outlook on this [solo] project?

PS: I have to be totally satisfied with this record because I have to live with it. I have to believe that I gave it my best shot. Records are forever. You don't want to outgrow a record after you've listened to it a couple of times. A good record grows on you. That is what I'm striving for.



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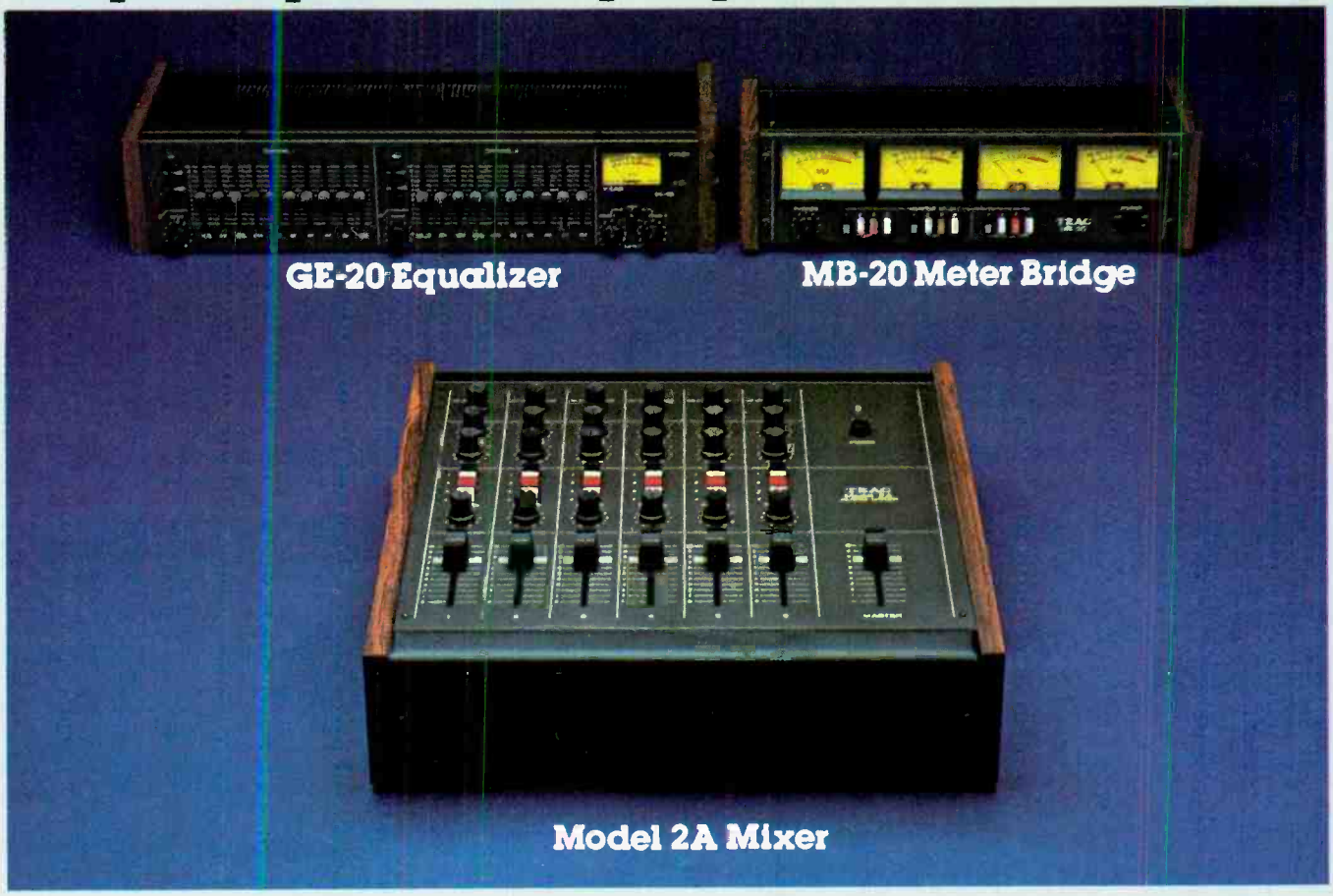

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EQUALIZE

TEAC's GE-20 Equalizer was designed for recordists, not the audiophile. Each channel has an input level control and input overload LED to guard against distortion. Two output level controls, plus a switchable output level meter, lets you monitor the signal from each channel.

While some other equalizers use wound coils, the GE-20 uses operational amplifier synthesized inductors which eliminate externally induced hum and noise no matter what EQ settings you use.

The two channels of the GE-20 are totally independent of each other and can be bypassed individually. You get ten bands of EQ per channel, one octave per band. Level controls can be set from +10 to −10dB.

As compact as it is versatile, the GE-20 can stand alone or be rack mounted.

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The TEAC Model 2A Mixer gives you control of volume, tone, blend and spatial positioning of instruments. It handles six mic or line inputs and drives four outputs.

The Model 2A Mixer is an improved version of the famous Model 2. Separate bass and treble controls have replaced hi and lo-cut filters and each channel has an independent pan control. The Model 2A also includes a master fader control, plus four Accessory Send/Receive, and four Buss-in jacks.

MONITOR

The TEAC MB-20 Meter Bridge gives monitoring flexibility to any multitrack setup, but it's ideally suited to the Model 2A Mixer. It meters up to four line level signals and has a built-in 4 x 2 monitor mixer, plus buss/tape selectors for each channel.

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Ambient Sound

BY LEN FELDMAN

Real-time Audio System Analysis

In the course of testing and evaluating the Ivie IE-30A 1/3-octave Spectrum Analyzer and Sound Level Meter for this issue of *Modern Recording,* it occurred to me that many readers may not be familiar with the function or operation of a real-time spectrum analyzer. So, rather than try to include a cursory description of the functions of this powerful type of audio analysis tool in the test report itself, I decided to devote this column to that seldom-discussed subject.

Three Types of Sound Equalization

In the world of electronic sound recording and reproduction there are essentially three types of equalization employed. What I choose to call "pure" equalization is an attempt to modify the overall record/playback response of a sound system so that sounds reaching the listener's ears are in exactly the same amplitude relationship as they might be if that listener were attending a "live" concert. This process seldom ends at the input terminals to the loudspeaker. Rather, it takes into account the acoustic characteristics of the listening room itself and even the exact position of the listener in that room. A graphic equalizer used in this connection (as in the case of an equalizer added to a high-quality home high fidelity component system) is supposed to restore "flat response" as perceived by the listener at the precise listening location.

Settings of the individual controls on a graphic equalizer used for this purpose may fall just about anywhere within the available boost or cut range of the equalizer used. For example, a room may be so dimensioned that it leads to the creation of "standing waves"—notably in the mid-bass range from 75 Hz to approximately 200 Hz or so. With a well designed equalizer, it is possible to suppress one or more of such "standing wave" resonance effects by inserting a deep notch in the overall response of the system at the appropriate frequency or frequencies.

The second type of equalization that lends itself to the use of a graphic equalizer occurs during the creative phases of musical recordings. The program material being recorded may be modified to suit individual taste of the recording engineer or the performing artists. For example, the frequencies between 2 kHz and 8 kHz may be boosted to accent vocals. By boosting a single band of frequencies, the resonance resembling that of a voice through a megaphone results. Equalizers also allow tonal balance adjustment of drums after the drums have been mixed at the recording console. Bass drum response level may be tailored by bands from 40 Hz to 100 Hz. The snare drum is affected by bands from 1.25 kHz through 2.5 kHz while cymbals are most affected by the 2.5 kHz through 16 kHz bands.

By accenting harmonics of a program source instead of its fundamental frequencies, a source may be accented without affecting similar sources having similar fundamental frequencies. In short, the second major purpose of equalization is to achieve a variety of special sonic effects that cannot normally be achieved "in nature," but that can be produced.

The third major use of an equalizer is in sound reinforcement systems, where microphones and reproducing loudspeakers are in the same general acoustic environment, as in a "live" concert. All of us are familiar with the nerve-shattering, howling feedback that occurs at a "live" performance when the mixing engineer turns up the master volume control in an effort to provide wider, louder coverage of the event. Such howling constitutes a resonance set up between a given microphone and a given loudspeaker reproducer. In effect, the overall gain of the system at some specific frequency is greater than it is at other frequencies and an equalizer can be effectively used to restore the gain at that frequency to its desired value, thereby permitting the *overall* gain of the system (and overall sound reinforcement levels) to be increased. More often than not, several such resonances will be encountered, each one showing up successively as the equalization process proceeds and overall gain is stepped up. Given enough filter bands in an associated equalizer, many of these resonant points can be "tamed" and overall amplification of the system can be increased by 10 or even 20 dB or more without seriously affecting the overall tonal balance of the system.

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How a Real-time Analyzer Helps

Generally speaking, a real-time analyzer is extremely useful in the first and last described equalization applications. In the second, "special effects" equalization procedure the final setting of the equalization controls is more a matter of artistic judgment, and the engineer's or performer's ears are the final judges. In the case of room/system equalization of a high-fidelity system or the taming of a sound reinforcement system, the goal is to achieve "flat" system response.

The Old Method

Before real-time analyzers became an economically affordable product for the professional sound engineer, equalization was a tedious hit-and-miss proposition. Take the case of microphone/speaker feedback in a sound reinforcement system. A sound technician, faced with this problem, could of course fiddle around with the equalizer band controls, successively cutting response at one or more narrow bands of frequencies until the howling sound disappeared. (Perfect pitch was helpful here.) But, since movement of each slider control has an effect on response at adjacent frequencies, the engineer had no immediate way of knowing how the elimination of one high-Q resonant effect in the system affected the rest of the response curve. A calibrated microphone, continuously variable audio signal generator, and a metering system connected to the microphone's output could, of course, be used. But that system would mean having to plot endless response curves on a point-by-point basis every time a single equalization control is altered.

Enter the Real-time Analyzer

That's where the real-time analyzer comes in. A real-time analyzer may be thought of as a series of sound-level meters. Each of these meters or indicators is driven from a filter amplifier which is responsive only to a narrow band of frequencies. An octave-by-octave real-time analyzer would be equivalent to around ten sound level meters, each responsive to center frequencies which are an octave apart. A third-octave real-time analyzer is equivalent to *thirty* sound level meters, each of which is "tuned" to a center frequency that is only 1/3 octave away from its neighbor. Psychoacousticians tell us that variations in amplitude *within* a given third-octave are hardly ever discernible by the human ear. Therefore, dividing the equalization (or real-time analyzer) bands into smaller increments than 1/3-octave would serve little purpose.

Even if a real-time analyzer is available, it would still be a tedious job to equalize an entire system if we had to use single-tone testing. Ideally, it would be nice if we had a signal which produced *all* of the audio frequencies at equal energy. The sharp filters of the real-time analyzer could then respond to all these frequencies simultaneously and we could measure or observe the *entire* response of a system continuously, and at a single glance. Such a signal source is known as "pink noise," and pink-noise signal generators are commonly used with real-time analyzers.

"Pink Noise" Signal Source

Visual display of the amplitude of each band of frequencies in the audio spectrum, as picked up by a calibrated microphone, may be in the form of bar graphs displayed on an oscilloscope or, as in the case of the Ivie IE-30A Analyzer, it may be in the form of bar graphs created by illuminated LED light indicators. In the latter case, each LED in a given band is calibrated to flash or illuminate at a predetermined amplitude level. Calibration is in decibels and may be as fine as 1 dB per indicator.

In actual use, the pink-noise signal source is applied to the input of the sound system and sound levels are raised so that they are well above the "ambient" sound level present in the location being equalized. Instantly, the level of sound at each center-frequency covered by the real-time analyzer is displayed on the analyzer, forming a visual and continuous "response curve" of thirty "plotted" points (in the case of a 1/3-octave real-time analyzer). The operator sees at a glance just where the "bumps" and "valleys" in the response curve are and, more importantly, can see the exact effect of raising or lowering a given equalizer band control setting on the equalizer associated with the sound system. Interaction between controls is instantly apparent and can be compensated for. The entire job, which previously might have taken hours, can now be performed in a matter of minutes!

Earliest forms of real-time audio analyzers were very expensive, costing as much as $10,000 or even more. Over the years, advances in technology and innovative engineering have brought the price of real-time analyzers down to the point where they are within the reach of any serious sound engineer/contractor who wants to offer truly professional equalization service.

One last thought. I have noted that the home graphic equalizer has become a popular add-on with those audiophiles who are serious about their high-fidelity component systems. Unfortunately, in many of the systems using such an equalizer that I have heard, sound quality is often poor and highly unbalanced. Given up to 12 dB of boost and cut at ten or more frequency bands, many users of equalizers end up with control settings which result in overall system response curves that are far from flat. One cannot really blame these listeners, since they have no easy way to check the results of their equalization efforts. It occurred to me that some of our readers who are already in the audio business professionally might well want to augment their incomes by offering a system analysis and equalization service to audiophiles and others involved in sound reproduction. All it would take is a real-time analyzer and a pink-noise generator. An investment in these items might well pay for itself sooner than you think.

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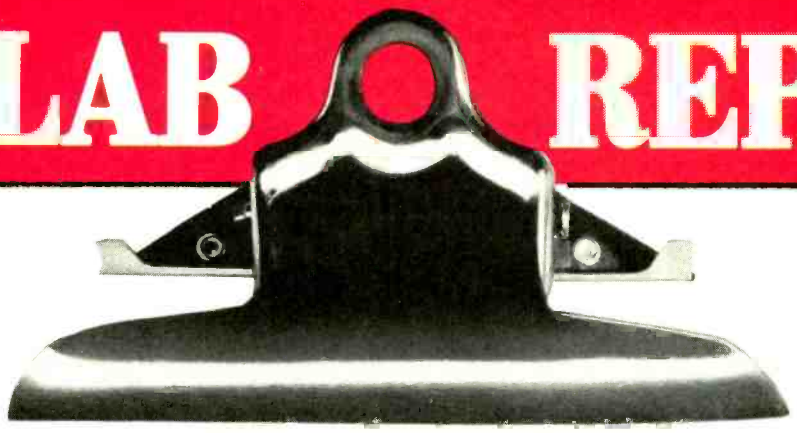


NORMAN EISENBERG AND LEN FELDMAN

Sony TC-K8B Cassette Recorder

General Description: The Sony TC-K8B is a high-quality front-loading cassette recorder that offers several innovative features of which the most prominent is a linear liquid-crystal readout system in place of conventional meters. Calibration runs from below −40 dB to +5 dB, indicating action is extremely fast and can respond to rapid musical transients more quickly and accurately than a conventional meter needle. It also has a peak-hold feature that enables "storing" the highest readings obtained in a given recording session. The "storing" may be chosen by the recordist to last until manually released, or automatically released within about two seconds' time.

As has been true of other peak-reading systems on tape recorders, Sony's calibration differs from that found on normal VU meters. In this instance, "true 0 VU" is at the −4 dB point, and Dolby calibration level is at approximately −1.5 dB on this scale. This must be kept in mind when reading the "headroom" figures derived in *MR's* tests of the recorder (see below).

The front panel of the TC-K8B bears close study since it contains many other novel and useful features in addition to the more usual ones normally found on a modern cassette deck. At the extreme left are the power off/on button, a 3-position timer switch, a headphone and output jack with its own level control. The timer switch allows (in conjunction with an external timer) unattended timer-activated record or playback. The headphone level control operates independently of the line-output level control, and enables the deck to drive headphones of varying input sensitivity.

The cassette compartment is covered by a swing-down door with a large transparent section. To its right are the tape-index counter and reset button, a 3-position memory rewind switch and the eject button. The memory rewind feature here permits not only memory stop, but also memory play if desired.

Transport controls are grouped under the cassette compartment and cover the usual transport functions. They are solenoid-operated and logic-controlled "feather-touch" buttons that permit "fast buttoning" from and to all modes, including punch-in recording. In conjunction with the timer switch, it is possible to put the deck into "stand by" for either record or playback as activated by the timer.

The liquid-crystal readout display is located at the

upper righthand portion of the panel. To its left are three LED indicators for record mode, record mute, and pause, plus the peak-hold buttons.

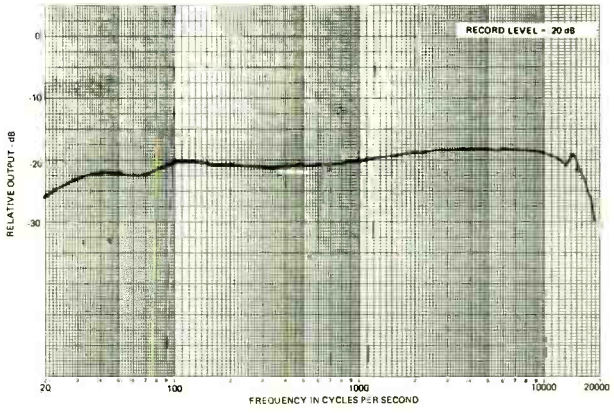
Additional electronic controls and features are arranged below the readout display. There is a three-position switch (and indicator) for the Dolby-B system (off, on and filter off). Below it is the line output level control (handles both channels simultaneously). Next to the Dolby switch is a toggle switch for the limiter. Below it is the record mute button, used for applying click-free spaces between recorded selections.

For tape selection there are separate bias and EQ switches, each with three positions. The bias switch goes through "low," "normal" and "high." The EQ switch goes through "normal," "FeCr" and "CrO_2."

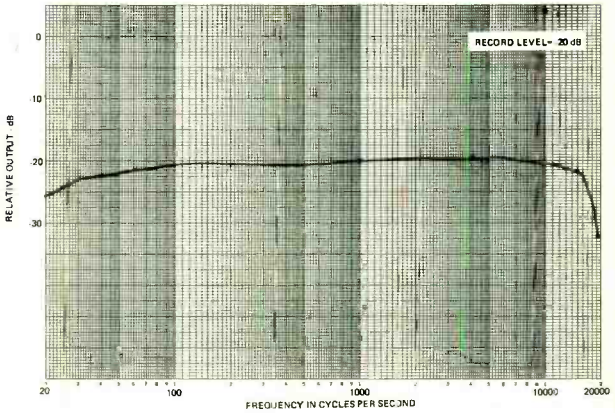
Input level controls are separate dual-concentric pairs for mic and line inputs, with individual adjustment on each channel. Line and mic inputs may be mixed. The left- and right-channel mic inputs are just below the mic level controls, while below the line level controls is a stereo input for line signals. This last jack permits quick line inputs directly to the front panel. When used, it overrides the line inputs at the rear of the deck. The three front-panel jacks (both mic inputs and the stereo line input) are standard quarter-inch phone jacks.

The rear panel contains the usual stereo pairs of line in and out phono jacks, plus an optional DIN (combined record/play) receptacle. There also is a multi-pin socket for use with an optional remote-control device. The physically separate AC line cord plugs into a 3-prong receptacle. There also is a four-position operating voltage selector (110, 120, 220 and 240 volts AC).

The Sony TC-K8B is a two-head recorder. The r/p head is a ferrite-and-ferrite type, claimed by Sony to last about 200 times longer than typical permalloy. The transport is powered by two motors, the one for capstan drive being a DC servo-controlled type that includes an integral frequency generator for reduced wow and flutter. "Advanced speed monitoring and control" is claimed to reduce wow and flutter to only 0.045 percent (see Test Results, below). The Sony TC-K8B is handled by Sony Industries of New York City, and not by Superscope.



Sony TC-K8B: Record/play response using TDK-AD C-90 tape (std).



Sony TC-K8B: Record/play response using TDK SA C-90 tape (chrome).

Test Results: All of Sony's performance specs and claims for the TC-K8B were confirmed or exceeded in *MR's* tests. Especially noteworthy was the figure we obtained for wow and flutter which, at a mere 0.032% (WRMS), is better than Sony claims and quite possibly the lowest yet found in a cassette deck. Interface measurements were all found to be "on the nose." Frequency response, while not the widest ever measured, still topped Sony's specs and—at 16 kHz and 17 kHz for normal and chrome tape respectively—were considered ample enough for the cassette format.

Regarding recording headroom: Because of the particular calibration levels used in the TC-K8B's liquid-crystal readout system, "0 VU" comes to −4 dB on the Sony. This means that the figure of +3 dB we show for 3% THD with standard tape is really a +7 VU. Similarly, the "0 dB" we show for chrome tape is actually +3 VU. These latter figures are more typical of what we usually measure on the better machines. Our S/N measurements were made with reference to the 3% record level of the particular tape being used.

In use tests, the various features and options of the TC-K8B were all checked out and found to work satisfactorily. The signal readout system was judged to be a worthy convenience, being both very quick-acting and accurate. Transport operation was flawless, not only for its extremely low wow and flutter but also for its "professional feel" thanks to the logic-control buttoning system.

General Info: Dimensions are 17 by 6¾ by 12¼ inches. Weight is 24 pounds. Price: $850.

Individual Comment by N.E.: Obviously, cassette recorders are getting a little bigger and heavier as more internal "sophistication" is built into them, and as more innovative features show up on the front panel. Regarding the latter embellishments, I have not always waxed enthusiastic over some of the features (gimmicks?) found on some recent models. In the case of this Sony deck, however, I find nothing superfluous from the standpoint of a no-nonsense cassette recorder user. There is a good reason for everything included on this machine, and it all works very much "as advertised." Whoever designed this baby had not only technical savvy but a good grasp of "human engineering." Mechanically and sonically, it appears that in the two-head cassette format, the Sony TC-K8B—to repeat an oft-used phrase—"leaves little or nothing to be desired." Someone with few or no preconceived notions about how a recorder should be made could easily get enthusiastic about this model. The more seasoned operator (who is accustomed to meters and pointers, or who may feel for instance that he does not need a "record mute" button since he is a very fast knob-twirler and can reduce recording level himself, thank you) also may be won over by this deck.

Individual Comment by L.F.: Ever since I saw the Sony liquid-crystal metering system at a press conference a year ago, I have itched to get my hands on one to check it out in the lab. Now I know for sure: It is superb. Imagine having a full 45-dB worth of dynamic range per channel, and having it indicate levels at such high speed that even the very fastest of transients (that would barely cause a VU meter's needle to flicker) are indicated accurately. The peak-hold option also merits considerable praise.

The metering system aside, this top-of-the-line cassette deck has lots more to recommend it, as described above in this report. What comes to mind especially are such features as the timer switch and the memory switch, each of which has an added use as compared to their usual counterparts on other decks. The transport action is flawless and, if the end-of-tape automatic shutoff is a bit too slow for you (I grew a bit impatient waiting for it to sense end-of-tape), you always can go into the play mode while waiting, or into just about any other mode without upsetting the logic of the system and without causing any damage to the cassette. As for uniformity of tape motion, our wow-and-flutter figures speak for themselves. I can remember when a 0.03% WRMS figure was considered superb for an open-reel deck running at 7½ ips. Other great ideas on this deck are the separate headphone level control, the front-panel line-in jack and the record-mute switch.

Lest readers get the idea that I have found the "ultimate" cassette recorder, let me add that—for its price—there were a couple of features that I missed and wish had been included. For one thing, there are no customer calibration controls for the Dolby noise-reduction system. I know that some manufacturers feel that the slight differences between tapes that would require some readjustment of Dolby calibration are not worth bothering about (as compared to the problems that might arise from incorrect use of such calibration controls), but it seems to me that anyone spending over $800 for a cassette deck as fine as this one would be wise enough (and enough of a purist) to want to carefully make sure that Dolby circuits are tracking perfectly for a particular tape.

Finally, the one obvious addition that I would have welcomed would be a true three-head configuration. Before Sony's people start sending me letters, let me quickly add that I *know* that a three-head version of a deck in this class would have to cost hundreds of dollars more than the already high price (as good cassette decks go) of the TC-K8B. Still, if Sony elects to offer such a unit in the future (one that retains all of the features of this one, but adds three-head true monitoring capability), I suspect that they will have no trouble selling it, even if its price shoots above the $1000 mark.

SONY TC-K8B CASSETTE RECORDER: Vital Statistics

PERFORMANCE CHARACTERISTIC	MANUFACTURER'S SPEC	LAB MEASUREMENT
Frequency response, std	±3 dB, 30 Hz to 13 kHz	±3 dB, 30 Hz to 16 kHz
CrO_2	±3 dB, 30 Hz to 15 kHz	±3 dB, 30 Hz to 17 kHz
S/N (without Dolby), std/CrO_2	54 dB/56 dB	55/55.5 dB (58/57 "A" wtd).
S/N (with Dolby), std/CrO_2	NA/NA	64/65 dB (66/66 "A" wtd.)
THD at 0 VU, std/CrO_2	1.3%/NA	1.1%/3.0%
Record level for 3% THD, std/CrO_2	NA/NA	+3 dB/+0 dB (see report).
Line input sensitivity	60 mV	60 mV
Mic input sensitivity	0.2 mV	0.2 mV
Line output level	0.775 V	0.775 V (for 0 VU; see report).
Headphone output level		156 mV/8 ohms
Wow and flutter (WRMS)	0.045%	0.032%
Fast-wind time, C-60	70 seconds	75 seconds
Bias frequency	105 kHz	105 kHz
Power consumption	35 watts	30 watts

CIRCLE 16 ON READER SERVICE CARD

MXR Dual Fifteen Band EQ

General Description: The "Dual Fifteen Band EQ" from MXR Innovations, Inc., is a recent addition to this firm's Professional Products Group. It is a two-channel or stereo device that provides fifteen bands of adjustable equalization on each channel. Each band, spaced at 2/3-octave intervals, offers a range of −12 to +12 dB via individual slide controls with nominal frequency centers on each channel of 25, 40, 63, 100, 160, 250, 400, 630, 1K, 1.6K, 2.5K, 4K, 6.3K, 10K and 16K. In addition to these thirty sliders there are two more, for level adjust on each channel. The front panel also has two pushbuttons, one for power off/on, the other for EQ in/out. Input and out connections at the rear are standard quarter-inch phone jacks. The AC line cord is fitted with a three-prong (grounding) plug. The front panel face is colored a bright blue, the controls are in white, and the unit is of rack-mount width.

The device does not employ discrete inductors for its filters. Instead, it uses IC-"gyrator" circuitry to simulate the "L" values for each filter stage. The slide controls are mounted directly to one of the two large circuit boards shown in Fig. 3.

Test Results: For evaluating the MXR equalizer, bench tests and use tests were conducted. The former tests just about confirmed published specs. We measured 90 dB (below 0 dBm, referenced output) for "equivalent input noise" as against the spec'd −95 dBm. However, our distortion readings were much lower than MXR's, and our response data was better than their claim. All told, the device in question shaped up very well indeed.

For studying the action of the sliders, we set the controls (as shown in Fig. 1) for an arbitrary curve, such as might result after a room has been carefully "voiced" or "tuned" using a good-quality real-time analyzer. The resultant response curve is shown in the 'scope picture shown in Fig. 2. The shape of the actual response curve shows very close conformation to the physical settings of the sliders on the front panel. The dip at 60 Hz was deliberately inserted to simulate a condition whereby it might be necessary to eliminate some 60-Hz line hum or noise.

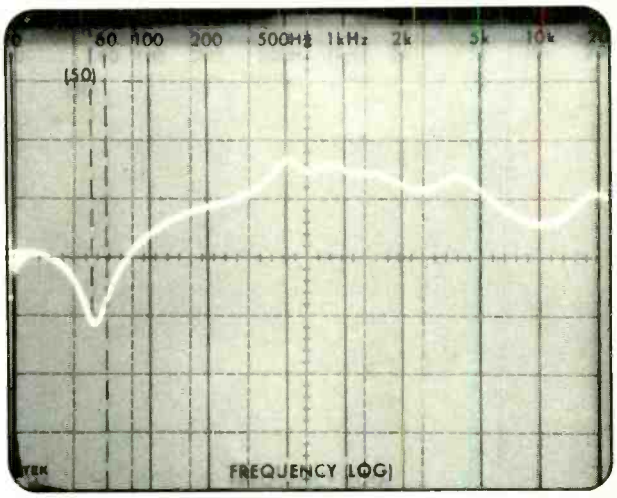


Fig. 2: MXR Dual 15-Band EQ: Response curve obtained with MXR's controls set as shown in Fig. 1. (Each vertical division equals 10 dB of amplitude.)

Fig. 4 is a composite response series (thirty fre-

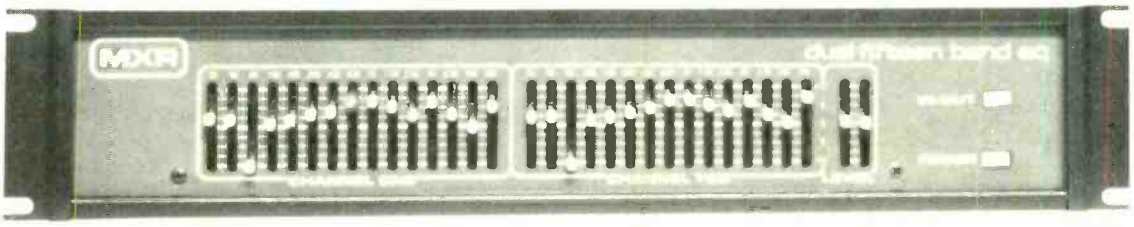


Fig. 1: MXR Dual 15-Band EQ: Front panel view.

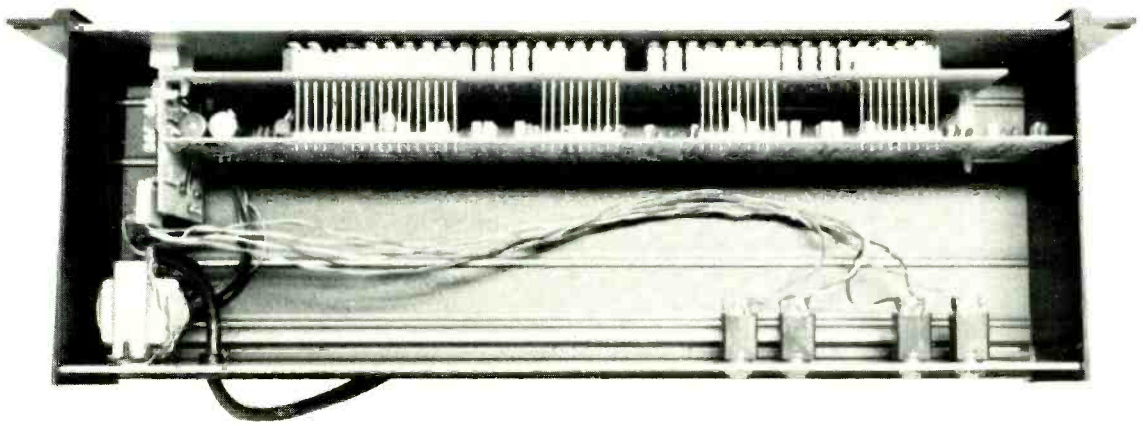


Fig. 3: MXR Dual 15-Band EQ: Internal view.

quency sweeps in all) that illustrates the maximum boost and cut range of each control (per channel) and also serves to show how evenly spaced the controls are. Finally, Fig. 5 was photographed after running three frequency sweeps. First, we plotted flat response (center curve). This was followed by curves in which all controls are set to their maximum boost settings (upper trace), and then to the maximum cut settings (lower trace). Naturally, the device would never normally be used in these modes, but we simply wanted to check the amplitude of the entire "window" within which a user could create virtually any overall response curve desired.

This is, of course, hardly the first graphic equalizer we have tested for *Modern Recording*. Having been through a number of this units, we have begun to discern a pattern of desireable attributes for such devices. Obviously, a good graphic equalizer will not add significant amounts of distortion or noise to the program signals. Center frequencies should be relatively accurate, and boost and cut amounts should be readily controllable and repeatable. The device should be able to handle high signal amplitudes relative to its position in the signal path. And finally, assuming it has an ample number of bands, it should be capable of providing as complex an overall response curve as is demanded by the acoustics of the listening environment or the requirements of the performer or of the recording engineer who uses it.

As far as we can determine, the MXR dual 15-band unit fills all these requirements very nicely. The bypass switch permits comparing equalized and flat responses. The level controls are useful for restoring average unity gain regardless of individual control settings, and in insuring against input overload—a welcome feature for any serious equalization work.

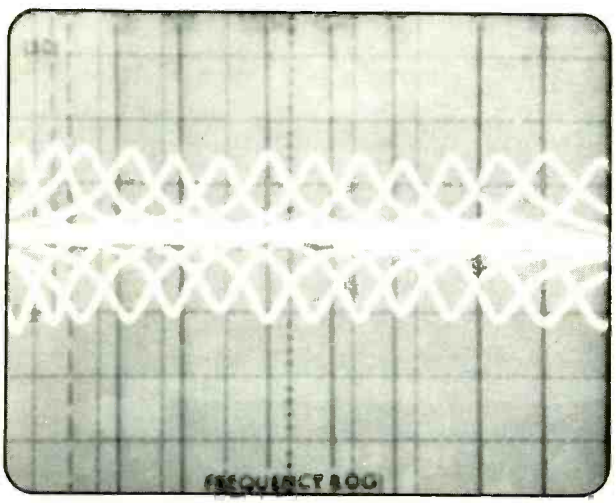


Fig. 4: MXR Dual 15-Band EQ: Range of boost and cut of each of the fifteen controls.

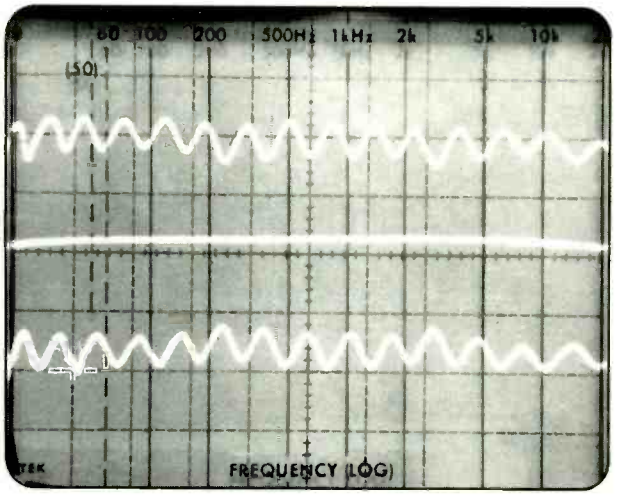


Fig. 5: MXR Dual 15-Band EQ: Response curves obtained with all controls at maximum (upper trace); center positions (center curve); and minimum (lower curve).

General Info: Dimensions are 19 inches wide (rack-mount ears); 3½ inches high; 6¼ inches deep. Price of the unit is $325.

Individual Comment by L.F.: The one criticism I might make of the device (if I *had* to make one) is the absence of a discrete detent or "notch" when the slider is set to mid-point or flat position. It takes some "eye-balling" with fifteen sliders per channel to be able to get each slider to midpoint.

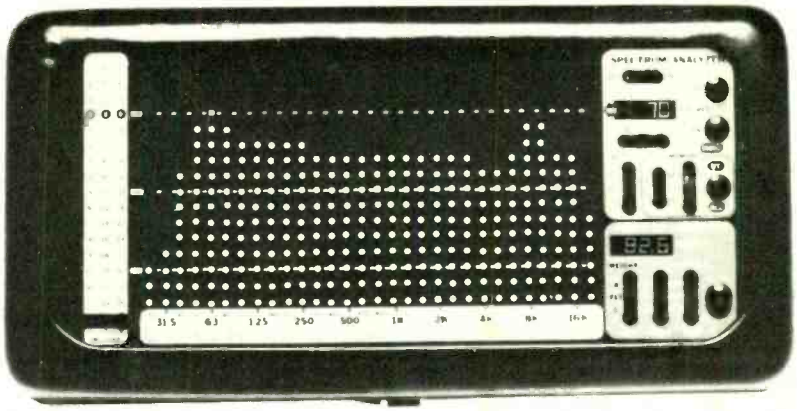
Individual Comment by N.E.: In addition to the lack of a center position detent, the device has no power-on indicator. But at its price, I think it offers more individual band EQ per dollar than any other unit I know of, and that, after all, is what's important.

MXR DUAL FIFTEEN BAND EQ: Vital Statistics

PERFORMANCE CHARACTERISTIC	MANUFACTURER'S SPEC	LAB MEASUREMENT
Channels	2	confirmed
Bands per channel	15	confirmed
Frequency centers	alternate 1/3-octave (ISO) centers	24, 40, 63, 100, 160, 250, 400, 630, 1K, 1.6K, 2.5K, 4K, 6.3K, 10K, 16K
Input impedance	40 K ohms, balanced	confirmed
Output impedance	approx. 100 ohms	90 ohms
Maximum output level	+20 dBm	+20.3 dBm
Maximum input level	+20 dBm	+20.3 dBm
Maximum slew rate	7 V/microsecond	6 V/microsecond
THD	less than 0.02% @ 0 dBm (20 Hz to 20 kHz)	0.007% @ 20 Hz 0.004% @ 1 kHz 0.0065% @ 20 kHz
IM distortion	less than 0.01% @ 0 dBm	0.007%
Frequency response (all controls flat)	−3 dB, 5 Hz to 60 kHz	−3 dB, 3.5 Hz to 109 kHz
Equivalent input noise	better than −95 dBm	90 dB below 0 dBm referenced output

CIRCLE 17 ON READER SERVICE CARD

Ivie Model IE-30A Audio Analysis System



General Description: The Model IE-30A from Ivie Electronics, Inc. is a multi-purpose audio measurement device supplied with a calibrated microphone. The system consists of a real-time analyzer, sound-level meter, preamp and display section.

The real-time analyzer provides 30 ISO bands in 1/3 octaves. One-octave operation also is provided. It may be run "flat" or with "A"' or "C" weighting factors. The metering section provides four response modes: fast, slow, impulse and peak. Operating range is from 30 dB/SPL to 149 dB/SPL. When used as an AC voltmeter, the range covers 20 dBμV to 149 dBμV.

The preamp section provides gain from -30 dB to +80 dB in steps of 10 dB each, and it has the same weighting options as the real-time analyzer section. The display section uses 480 LEDs arranged in rows across the front panel. Input connections are 6-pin XLR receptacles. Operation is by battery (with an

estimated time of up to three hours) or by AC via an adapter-charger.

The IE-30A has many uses and applications. To begin with, it is an accurately calibrated sound-level meter. Within limits, it also can be used to measure distortion down to levels well below 1 percent. It also serves as an AC voltmeter and thus is ideal for making signal-to-noise measurements on audio equipment, as well as measurements of power and/or voltage output, amplification, and other performance parameters.

The microphone, in addition to being plugged into the unit, may be used at a distance from it by means of extension cables. When used for voltage measurements, a 20/40 dB probe-attenuator substitutes for the microphone. In this application, the digital sound-level meter readout (which reads to 0.1-dB increments) becomes automatically calibrated to read in decibels relative to 1 microvolt. An extensive table found in the owner's manual (itself a comprehensive manual of nearly 70 pages) shows conversions of the "dBμV" readings into voltages.

The real-time analyzer section can be set to read octave-by-octave response, third-octave response, or weighted third-octave response. Three decay speeds of the display are available. The sound-level meter section provides fast, slow, impulse and peak characteristics, and it uses true RMS and peak detectors. Both the sound-level meter and the real-time analyzer can have "A" or "C" weighting filter inserted, or they can be set for flat response. In addition, whatever is being read by the real-time analyzer's filters (the input analogue signal, whether from a microphone or from any other audio program source) can be extracted from the preamp output located on the side of the unit. To examine the signal on an oscilloscope, it is not necessary to continuously alter the 'scope's vertical gain settings. The preamp acts as a buffer-amplifier, and as you punch in different sensitivities on the analyzer (to bring the real-time LED displays to a convenient level), those changes in gain are reflected in the preamp circuitry and yield an output which is always "on screen" in the 'scope.

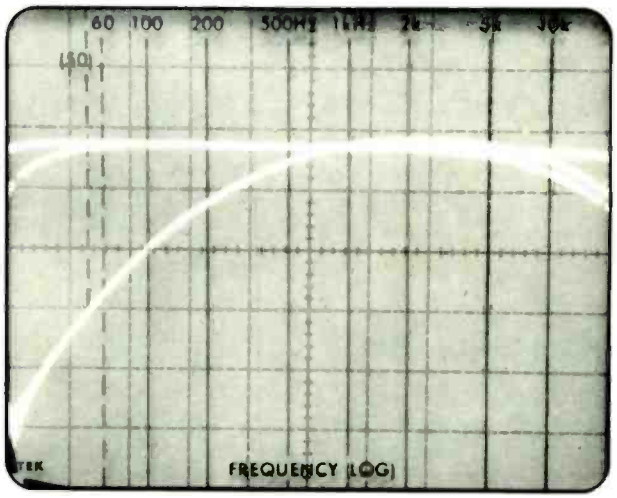


Fig. 2: Ivie IE-30A: Response of "A" and "C" weighting filters incorporated in the System.

In addition to all this, the Ivie IE-30A has several levels of memory. For example, you can store two complete real-time displays in two available memories and then recall them for comparison with a "live" real-time display that is then being shown on the LED grid, or compare them with each other.

Despite its versatility and professionalism, the IE-30A is surprisingly compact, and it can be hand-held and battery-operated. Examination of its innards revealed a density of electronics cannily crammed "wall to wall," much of it on ten circuit boards. Each third-octave filter circuit is a three-pole type that exceeds ANSI S1.11-1966 Class III filter standards.

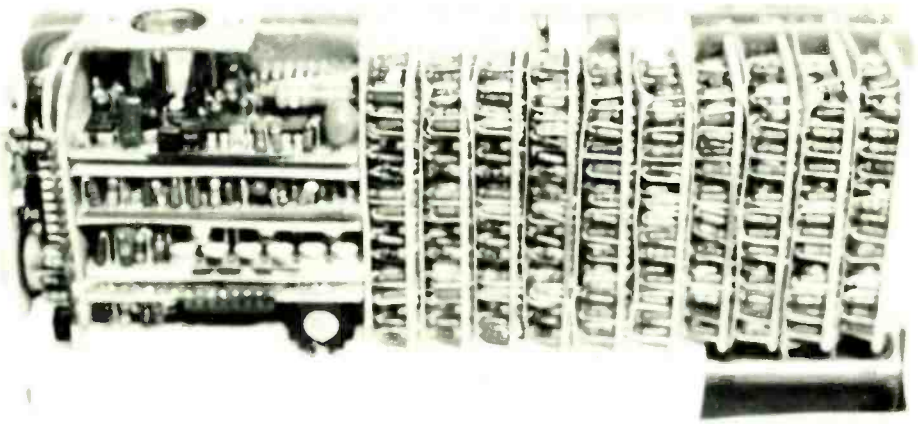


Fig. 1: Ivie IE-30A: Parts density of the unit is quite remarkable.

There are no less than thirty such filter circuits, not to mention the memory and logic circuits, and the circuitry needed to drive the LEDs, the digital readout displays and the circuitry for the two weighting filters.

Test Results: *MR's* tests easily confirmed or exceeded all the manufacturer's performance specs for the IE-30A. The device impressed *MR* as an amazing engineering achievement in a small package. In addition to some use-tests, and bench measurements, we checked the weighting-factor filter responses, as shown in the sweep-frequency 'scope photo (Fig. 2) which compares them with the flat response when the filters were switched out of the circuit.

Most of our experiments with the IE-30A dealt with room equalizing, and analysis of overall audio system response in several different rooms (the model IE-20B pink and white noise generator, also from Ivie, was used for this application). In *MR's* judgment, the IE-30A also could serve as an "indispensable" all-in-one instrument for acoustic measurements and for electrical signal adjustments in the most complex of recording studios. For example, using a recording of pink noise on tape, a technician could evaluate the entire audio band at once, in the entire tape recording/playback chain, and then could quickly make necessary adjustments. Such parameters as optimum bias, or azimuth alignment of heads, also could be checked out and accomplished quickly and reliably with the aid of this particular instrument.

General Info: Dimensions are: 8 by 3⅞ by 2⅛ inches. Weight is 2.9 pounds. Price: $2800.

Joint Comment by L.F. and N.E.: We must emphasize that the Ivie IE-30A is more than a real-time analyzer. It is, in a very real sense, something like an entire audio/acoustics laboratory that can be held in your hand. (For a detailed discussion of real-time audio analysis, see Len Feldman's Ambient Sound column elsewhere in this issue.) In view of this, not to mention the cost of a spectrum analyzer, the price of the IE-30A is hardly overwhelming. In fact, in view of its portability, and all that it does contain, the IE-30A may well be a real bargain for the professional user who can make use of its multi-application versatility.

IVIE IE-30A: Vital Statistics

PERFORMANCE CHARACTERISTIC	MANUFACTURER'S SPECIFICATION	LAB MEASUREMENT
	Real-Time Analyzer Section	
Number of Bands	1/3 octave, in 30 ISO bands (1 octave operation also provided)	Confirmed
Relative Filter Flatness	± 0.5 dB	Confirmed
Weighting Options	"A", "C" or Flat	Confirmed
Calibration Reference	dBuV (re: 1 uV)	Confirmed
Range (direct)	-6 to 149 dB (0.5 uV to 28V) (to + 174 dB, or 500V with probe)	Confirmed
	Sound Level Meter Section	
Response Modes	Fast, Slow, Impulse and Peak	Confirmed
Operating Range	30 dB/SPL to 149 dB/SPL	Confirmed
Range as AC Voltmeter	20 dBuV to 149 dBuV	Confirmed
Detectors	True rms or peak	Confirmed
Flat Filter Bandwidth	7 Hz to 35 kHz	Confirmed
	Supplied, Calibrated Microphone	
Element & Type	Electret, Omnidirectional, Pressure	Confirmed
Dynamic Range	Greater than 120 dB	Confirmed
Frequency Response	10 Hz to 20 kHz	Confirmed
	Preamplifier Section	
Gain Ranges	− 30 dB to + 80 dB in 10 dB steps	Confirmed
Weighting Options	Same as Real-time Analyzer	Confirmed
Response	20 Hz to 20 kHz, ± 0.5 dB	10 Hz to 30 kHz
Maximum Input Levels	± 100 VDC or 300 VAC	
	Display Section	
Number of LEDs	480 (in thirty bands)	Confirmed
Display Range & Resolution	15, 30 or 45 dB in 1, 2 or 3 dB increments	Confirmed

On Choosing a Mixer

By Jim Ford and Brian Roth

Although each part stands on its own, this month's "Report" may be considered a continuation of the "Hands-On Report" which appeared in the June 1978 issue ("On Choosing a Mixer," p. 72). The items covered were: number and type of inputs and outputs; hi and low impedance; use of transformers; cue, reverb, and stage monitor outputs; and monitor section for multi-track recording. If the reader is not familiar with these parts and how they are connected and used, then he or she should refer to the first article in order to better understand this section.

Each section is designed to help you to better select a mixer which fits your needs. The reader would do well to keep this issue and the June '78 issue mentioned for future reference.

There will be upcoming articles on deciphering mixers' performance specs and also what other additional features to look for when buying.

Equalization

One subject that is always of great importance when purchasing a new mixer is what kind of equalizer does the unit have. Nearly every mixer available has equalization, and the wide variety of types can be confusing. It is easy to understand that equalization will be a significant feature to consider when making the final decision of which mixer to purchase. Unfortunately,

the equalizer is one of the most over used and misunderstood electrical devices in the sound industry.

When the soundman asks his local pro-audio dealer about equalization, he will probably be smothered in a seemingly endless trail of products, types and uses. To illustrate the point, here is a list of many terms and phrases used to describe equalizers: equalizer, E.Q., filter, tone control, frequency, treble, bass, midrange, bright, dull, shrill, boomy, muddy, thin, rumble, cut and boost, attenuate, gain, passive, active, inductors (dirty word?), graphic, 2/3-, 1/2-, 1/3-, 1/10-octave, narrow notch, anti-feedback (we particularly love that one), combining, non-combining, parametric, quasi-

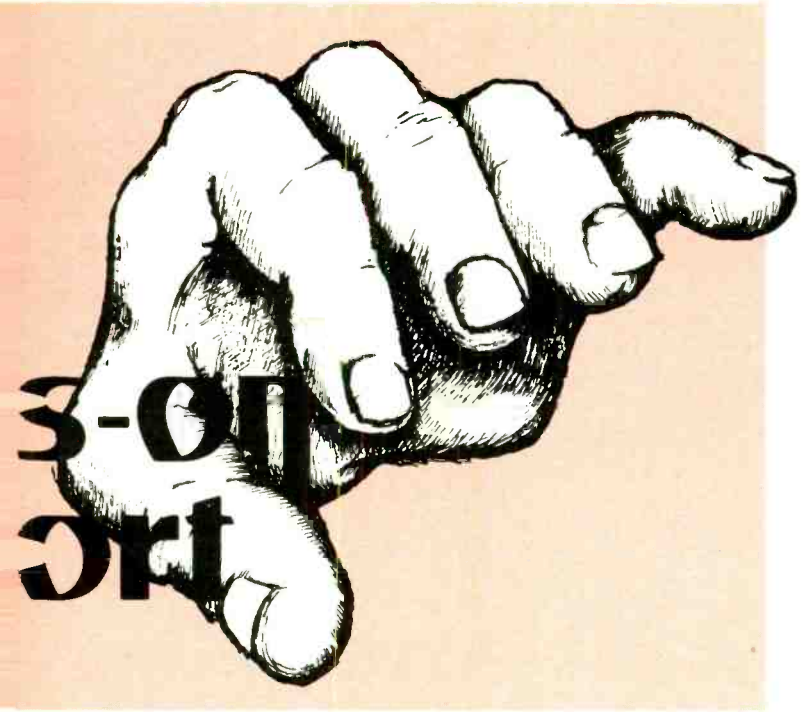
parametric, peaking, shelving, high/low/band pass, high Q, low Q, bandwidth, 6/12/18/24 dB per octave, 3 dB down point, ½ power point, room mode, standing wave, pink/white noise, real time, SPL, Bessel/Chebyshev/Butterworth alignment, Baxandall, single/two/three pole, ringing, overshoot, phase shift, gyrators, dip filter, state variable, minimum group delay, maximally, flat, elliptical/Cauer!

If this list isn't long enough, and if you're not totally astounded by the mass of confusing information about equalizers and their use, consider the following:

a) "Don't worry about how the mics sound, we'll equalize them in the mix."

b) "The sound system sounds terrible! That's alright, I'll get a 1/3-octave equalizer and make it sound great."

Both of these statements are based on the belief that no matter what the problem is, there is an equalizer that will magically solve it. Of course, this isn't true, and it is the result of too many people talking about



equalizers they don't completely understand.

There is one other problem that occurs in the local rock & roll store and pro-audio store. An equalizer is a piece of auxilliary equipment that isn't very expensive, but is very exciting to play with. Just think of all the things that "magic box" can do. In no time at all, the salesman will have you believing that an equalizer is the answer to all your problems.

The point is, if you already have a P.A. system or a recording system, then the equalizer is one of the easiest things to sell a customer—even if he doesn't need it. So beware!

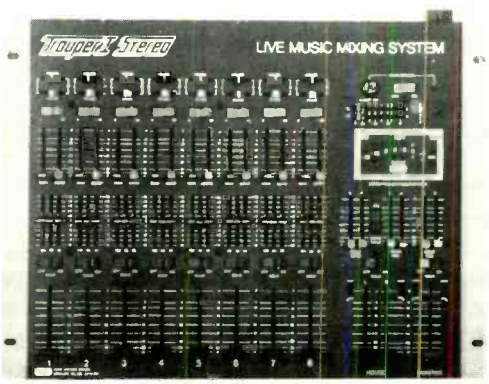
How the Equalizer Works

Despite all the complicated terms, an "equalizer" is a fancy name for a "tone control." Your car radio has an equalizer which is a simple bass and treble control. If your ears do not like the sound, then you change it until it sounds right. If you want more bass, turn it up. If it sounds too bright, then turn down the treble. Everybody that drives a car uses an equalizer almost daily, so it can't be *too* complicated. In general, an equalizer is a kind of volume control that only works on a certain portion of the music. As the bass control is turned, it raises or lowers the volume of the bass frequencies without affecting the rest of the sound. The treble control affects only the high frequencies, and the mid affects only the midrange (this is a slight simplification). By adjusting the volume of these groups of frequencies (low, mid, high) the sound can be controlled until the best balance is achieved by the soundman. Please note that this balance is a personal preference and each soundman will make the tone adjustments to his own liking. Equalizers on recording and P.A. mixers can be simple tone controls but are usually more complicated. They still work in the same fashion, however. They offer more flexibility such as selection of multiple frequency bands, greater amounts of volume change, and choice of the shape of the bands of frequencies being boosted or cut. This gives the soundman the ability to more closely choose the frequencies he wants to alter.

The first rule of using an equalizer is: Don't use it until you are absolutely sure it is the only device that will solve the problem. In general, the equalizer is a last resort. Any system—sound or recording—should be designed and built correctly first. If a system is improperly designed and built, then an equalizer will probably not solve the problem. For example, don't buy the cheapest microphone and speakers and then spend a $1,000 on an equalizer. Spend your money on the best speakers, microphones and amplifiers. Design the system correctly and build it observing all of the rules for speaker placement, phasing, efficiency, power handling, etc. Remember that many professional sound and recording systems need no equalization or a minimum of equalization.

Although most all equalizers are designed using the same electrical concepts, there are several categories and uses that need to be understood. One use of an equalizer is for changing the tone of a sound. It is a "tone control" and will change the amount of bass, mid, and treble as it is adjusted by the soundman. This type of equalizer is what is needed to change the overall tonal balance and sound of a mic, tape track, stereo mix, etc. The engineer might want to make several vocal mics sound the same, remove the boomy bass sound from a rhythm guitar, or add some brightness to a string section. This type of equalizer is usually what is found and needed on most small P.A. mixers and recording consoles. This type of equalizer is generally of the shelving or peaking variety and is extremely simple to operate.

Recently, a unit called a "parametric equalizer" has become very popular. This unit allows more flexibility and precise control over the selection of frequency, the amount of boost and cut, and the shape of the band of frequencies being boost or cut. The flexibility of the "parametric equalizer" has been needed by the sound industry for many years and is applauded by all recording engineers. It makes the delicate balance of tone much easier to achieve, although for the inexper-

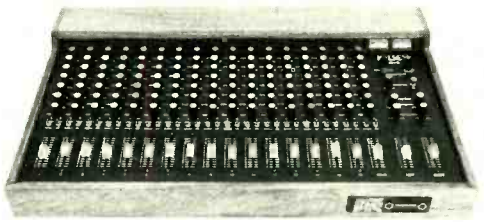


ienced soundman this flexibility most often allows him to get carried away with "knob-twisting" and results in a less than pleasing, artificial, electronic, over-equalized sound. And in case you didn't get the message, that means it doesn't sound natural and musical, and that's bad! The "golden ear" recording engineers with experience (and gold records) will first set up the band and tune the instruments correctly; second, choose the right mics and position them correctly; third, check the overall balance and blend; fourth, listen and think about the final product (a hit record); and fifth, equalize, if considered necessary.

A second type of equalizer is called a "graphic equalizer." Its basic use is not as a tone control as explained above. Although it will work and can be used to change tone, it is clumsy to use in this application. The graphic equalizer's most important use is in the interfacing of a sound system with a room. Now this may seem strange, but it is a fact that the sound system produces a sound, the room modifies the sound (like a giant music box), and the listener (you) hears the result of the interaction. Due to the parameters of a room such as size, wall surfaces and type of construction, certain frequencies of the sound produced by the speakers will resonate longer than other frequencies, or in other words, certain frequencies will be absorbed and die out quicker than other frequencies. The fre-

quencies that resonate will tend to be louder than the frequencies that die out, and it is this problem that makes every room sound different with the same sound system. The graphic equalizer is used to lower the louder frequencies until the best smooth frequency response is made.

A graphic equalizer divides all the audio frequencies into small groups (bands of frequencies). Each band of frequencies is controlled by a volume control which is most often a "slider." By moving the slider up, the volume of a band of frequencies is increased, and by moving the slider down, the volume is decreased. By this method, each band of frequencies may be increased or decreased as needed. As you look at the front of the equalizer, the position of the sliders will give a "graphic" picture of the equalization performed by the unit. Now graphics are used with sound systems in concert halls, arenas, meeting rooms, recording studio control rooms, etc. Occasionally, it is used to help control feedback in a sound system, however, the results are minimal—so do not rush out and buy a graphic and think you can make feedback go away. In situtations where, a) part of the building is vibrating;



b) there are echos or concentrations of echos; or c) there are exceedingly long reverberation times, an equalizer will not solve the problem.

Also, how do you correctly adjust a graphic equalizer? Do you just guess and start pushing some sliders up and some sliders down? We have seen too many rock bands that didn't have the slightest idea of what their sound system was doing before or after fooling with a graphic. In order to properly adjust a graphic equalizer, a sizable amount of acoustical test equipment is needed (noise source, real-time analyzer, SPL meter, etc.) A minimum of several years of experience with many sound systems and rooms is also beneficial so that the readings from the test equipment can be correctly evaluated.

Following are our general recommendations concerning equalizers for small recording and P.A. mixers:

a) Each input of the mixer should have a simple shelving/peaking equalizer—not a graphic.

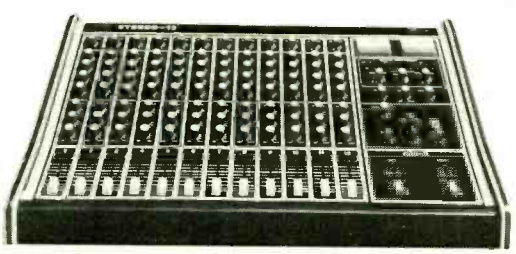
b) The outputs on a recording mixer do not need equalizers. P.A. mixers may have EQ on the outputs which can be useful to change the tone. Most graphics on low cost P.A. mixers are "sales gimmicks" and, in our opinion, not of high quality and of limited usefulness.

c) Parametrics are great, but don't get carried away with high Q, high boost on a P.A. system or recording sessions.

d) Don't buy a graphic equalizer unless you have the proper test equipment available and know how to interpret the measurements and make any necessary adjustments.

e) The best equalization technique is to use no equalization at all!

We started this article with the idea that we would discuss E.Q., solo buses, pre and post sends, etc. However, after getting on our soapbox about equalization, we've run out of column space. Fortunately, as we mentioned at the beginning of this piece, there will be upcoming feature articles (where we'll have some room to really get on our soapbox!) where we'll finish up explaining the other important points of how to purchase a mixing console.



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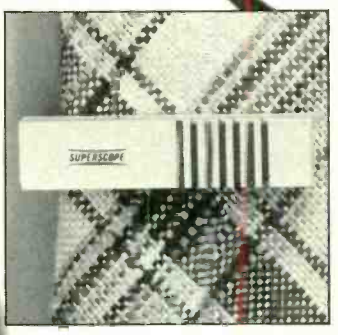

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POPULAR

BOB DYLAN: *Street Legal.* [Don DeVito, producer; Biff Dawes, engineer; recorded at Rundown Studios, Santa Monica, Ca.] Columbia JC 35453.

Performance: **Eloquently nebulous**
Recording: **Good**

Oh, for the life of an artiste. To live with the Muse in nymphomaniacal consort, to have a rostrum for your thought streams, to turn the inspiration of mild neuroses into mansions, jewels and Rolls Royces.

This is Dylan's most bluesy album since *Highway 61 Revisited*. Some of the blues motifs explored here have been untouched since then; yet on "New Pony" and "We Better Talk This Over," the rhythm is still forceful, the lead guitar (not Dylan's, but that of session musician Billy Cross) is biting.

Glad to say the formula used here works well. Over-instrumentation is eschewed in favor of a more direct approach. The two most effective cuts, "Changing Of The Guards" and "No Time To Think," are, despite their flirtation with cryptic lyrics, quite listenable due to their reliance on uncharacteristically strong horn lines. Not a familiar backdrop for Dylan's work, these measures and instrumentation harken more to the sound associated with Springsteen.

Street Legal has its moments of verbal prolificacy (what Dylan record doesn't?) yet, when taken as a package is enjoyable, if not enlightening. R.S.

THE HOLLIES: *A Crazy Steal.* [The Hollies, Alan Parsons, producers; Rhett Davies, engineer; recorded at Basing St. Studios in London, and by Parsons at The Manor, Oxfordshire, England; dates unlisted.] Epic JE 35334.

Performance: **More calculated than crazy**
Recording: **Sssssss**

This ex-supergroup from England could easily become The Lettermen of

Photo by Ken Regan

BOB DYLAN: Turning an artiste's neuroses into pure gold

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the Seventies, receding hairlines and all. Once capable of such infectious ditties as "Bus Stop" and "Look Through Any Window," The Hollies started downhill a decade ago when Graham Nash split to try his luck as one third of the concisely named group known as Crosby, Stills & Nash.

Actually, the group's leader has always been Allan Clarke, a singer who has struggled against and/or with the tide in recent times, and is still in The Hollies' saddle here. Unfortunately for The Hollies, Clarke's solo career has suddenly jelled with *I Wasn't Born Yesterday,* his new solo disc for Atlantic, and few of Allan's creative energies seem left over for this group effort.

The harmonica intro to "Writing On The Wall" is an immediate throwback to, and imitation of, the Graham Nash harp sound of yesteryear. So are the persistent vocal harmonies on this better than average, slightly countrified opener. Clarke follows with one of his better spotlight numbers, "What Am I Gonna Do," but it soon becomes obvious that The Hollies are playing their best cards early. *A Crazy Steal* begins its headfirst slide into second with "Let It Pour," an electronically-altered soft rocker that should have had more made of it. Conversely, "Hello To Romance," probably calculated as a Top Forty sleeper, is a pop stereotype that chokes on overtampering. Orchestral filler and standardized sax riffs crop up just often enough to spoil the better tunes. "Burn Out" is a lame attempt at five-part Springsteen realism.

MORish, easy-listening attitudes continue on side two. "Amnesty" is a strong ballad with well-crafted vocals, but the opening acappella segment points up a recurring sound problem—distorted, slurred sibilant voices. Cymbals are muddy on other cuts and the overproduction of "Feet On The Ground" has a levelling effect. A single guest production job by Alan Parsons on "Boulder to Birmingham" comes off cleaner, but despite an excellent lead vocal, the tune is utterly typical.

That's the real problem with *A Crazy Steal.* The Hollies still sing quite well together and alone, but there is little or no personality evident in the writing. Some cuts show promise, then promptly slip towards anonymity. If you're a die-hard Hollies aficionado, sample the rather tasty Allan Clarke solo platter as an alternative to this one. R.H.

CARLY SIMON: *Boys in the Trees.* [Arif Mardin, producer; recorded and mixed by Lew Hahn; Bobby Warner, engineer; Mike O'Reilly, Tom Heid, Bill Dooley, Ollie Cotton, assistant engineers; recorded at Atlantic Studios, New York, N.Y.] Elektra 6E-128.

Performance: **Assured and full-bodied.**
Recording: **Sophisticated**

For her seventh album, Carly Simon has hitched her remarkable vocal instrument to the wagon of producing talent Arif Mardin, and the result may be the best showcase for her brand of music so far. Rather than coming out with a splashy, overblown choral and orchestral work, the two have teamed up for subtly orchestrated material that for the most part gives Ms. Simon the opportunity to really sing.

This is not to say that the album is all production. The material here is as consistently interesting as that on my own personal favorite, *No Secrets,* and Simon herself has contributed eight of the album's ten tracks.

Simon remains one of this day's most intelligent songwriters, and she has

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CARLY SIMON: Subtle sensuality

branched out to explore new musical styles of her own as well as those of others in this release. Her spirited, humorous, calypso-styled "De Bat (Fly in Me Face)" is matched with some intensely personal statements such as "In a Small Moment" and "Boys in the Trees." An uptempo song such as Boudleaux Bryant's "Devoted to You" (the hit by the Everly Brothers) contrasts nicely with her own "Haunting."

Ms. Simon also is surrounded by some pretty fair musicians. Husband James Taylor plays guitar and sings in the background on several tracks. One of rock's best drummers, Steve Gadd, is here for nearly all the numbers, and guitarist Eric Gale, the Brecker Brothers, Hamish Stuart and Onnie McIntyre of the Average White Band, Joe Farrell and David Sanborn also make appearances. The songwriting also credits Taylor ("One Man Woman"); Simon, Taylor and Mardin ("Tranquillo (Melt My Heart)"); Simon and Michael McDonald, now of the Doobie Brothers ("You Belong to Me") and Simon and long-time collaborator Jacob Brackman ("For Old Time's Sake").

On "You Belong to Me" and "Tranquillo" in particular, Ms. Simon's voice seems so vulnerable that even overdubbing does not counter the "little-girl" quality of the sound. The arrangements for these two are considerably more pop-oriented than the arrangements on the other songs.

But that mood contrasts nicely with her voice in "One Man Woman," in which she growls and snarls her way through an angry lyric about "feeling like a one-man woman/living in a two-time town." (C 1978, Country Road Music Inc.).

And she never lets herself be submerged by the splendid vocal charts Taylor has written for "De Bat." She has delivered a wide-eyed, yet knowing, sound for this one, affecting a Caribbean accent without resorting to unnecessary parody or satire.

"Boys in the Trees" does not flaunt Ms. Simon's sexuality in the same way that some of her earlier albums did. But the more restrained nature of the production, the intelligence and sophistication of the material, and the self-assured projection of her voice in a variety of musical settings, has replaced the earlier sexuality with a more subtle sensuality. It's been nearly two years since the last batch of new Carly Simon material, and this product demonstrates that the wait has been well worth it. S.R.

ROLLING STONES: *Some Girls.* [Mick Jagger, Keith Richards, producers; Chris Kimsey, engineer; recorded at E.M.I. Studios, Paris, France and on the Rolling Stones Mobile.] Rolling Stones COC 39108.

Performance: **Basic rock**
Recording: **Functional**

It's no secret that one of the tunes on this album, "Miss You," is the biggest Stones single since 1971's "Tumbling Dice," or perhaps even since "Honky Tonk Women," waxed two years earlier than that. The latest smash has a good deal of the production attributes (some would not be so kind) as many of today's chart-smashing disco hits—octave-climbing bass progressions, reliance on drum high hat, etc. There is, however, the matter of the lyrical content, full of conceptual brilliance, as the singer declares his love for the stray female through a series of narratives about walking through the city, talking to himself, and people thinking he's crazy.

There's really no other truly classic Stones material here, save the gloomy urban neurosis of "Shattered." "When The Whip Comes Down" is brimming with intensity—the theatrical kind seen in performance, not the painful expressiveness of true artistic catharsis. "Some Girls" is also bitterly sarcastic, finding Mick slinging jibes at the sexual proclivities of black women. It's done in jest of course, but one who has both a thin skin for such matters plus previous inexperience with Stones material might not think so at first listen.

All tracks are original, save for a

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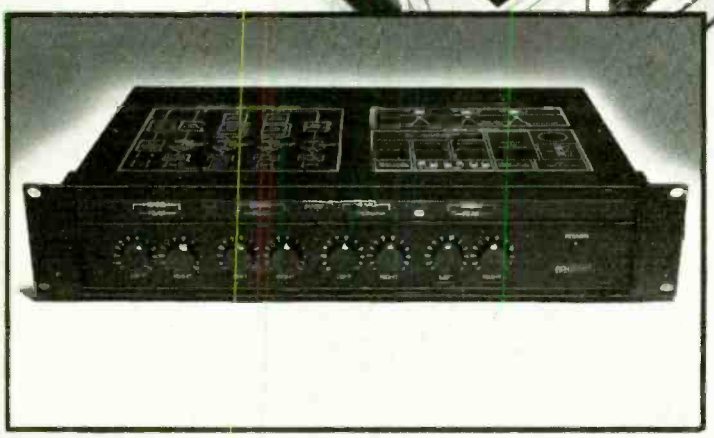

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ROLLING STONES: No true artistic catharsis present on this outing

rather limp cover of the Temptations' classic "Just My Imagination." The original found a sweet, plaintive vocal, not the scowling little boy trying too-hard-to-be-tender rendition here.

Above all this, however, is a band who still has its moments. After fifteen years, even sporadic quality such as this is not easily attained. R.S.

ALAN PARSONS PROJECT: *Pyramid.* [Alan Parsons, producer; Alan Parsons, Pat Stapely, Chris Blair, engineers; recorded at Abbey Road, London, England] Arista AB 4180.

Performance: **Excellent**

Recording: **Excellent**

Without a doubt, the emergence of Parsons initiates a new era of contemporary music, for he has applied concepts and techniques from the past, developed a cohesiveness lacking in most artists in the present, and has merged artist and recording studio as no one has before him and thereby created the criteria for the future. He engineered The Beatles' *Abbey Road* as well as several of Paul McCartney's solo ventures. His association with the Hollies resulted in "The Air That I Breathe," "Another Night" and many others. His breakthrough came with the monumental Pink Floyd album *Dark Side Of The Moon*. I contend that it is monumental due to Parsons' contributions. A simple comparison of their work prior and post will bear witness to this.

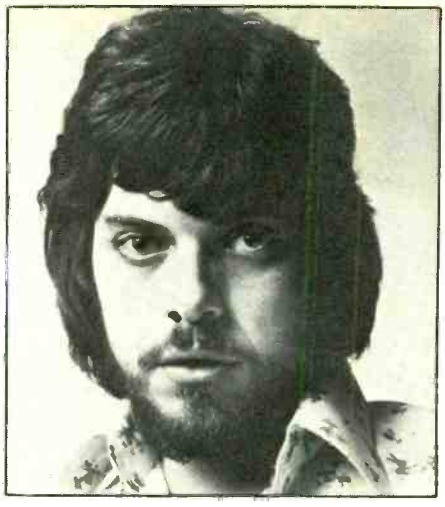
Only two other entities approach the level of comprehension Parsons has for creative studio use. 10CC and Queen are on the same track but have been surpassed by Parsons for the following reasons. 10CC is the first and only *group* to fulfill the recording process needs "in house," so to speak, doing the writing, performing, engineering, producing, mixing and mastering themselves. With the departure of half the group, a post-Beatles syndrome now exists where separate is not equal. Queen, who have made the usual artistic move for independence by assuming the duties of producer, rely upon a gimmick such as stretch vocals for their sound. They also achieve one of, if not *the* best drum sounds on record. Both ideas they inherited from former producer Roy Thomas Baker. With that as their sole claim to studio genius, Queen obviously have resigned themselves to walking in the shadow of Alan Parsons' genius.

Parsons, co-songwriter Eric Woolfson and arranger Andrew Powell create an incomparable team. A leading engineer and producer, his ability to combine the two make Parsons a category unto himself. Woolfson seems to be the stabilizing force in Parsons' songwriting, working in a one-two combination reminiscent of the early Lennon-McCartney collaborations. Andrew Powell, who occasionally displays a debt to the legendary Michel Le Grand, is by far and away the most capable arranger to emerge

since the aforementioned Le Grand. Together, the three have broken a most formidable barrier in that their material is both commercially acceptable as well as being among the most sophisticated music in regard to production and content in rock.

The approach is strictly studio session: no group; individual singers/musicians regardless of international reputation are used most sparingly for optimum effect, with each of the three projects to date being concept albums. With the exception of Parsons, Woolfson and Powell, no one working on the album knows anything more than the one piece on which he's working. The finished product is as much a surprise to them as it is to the consumer.

Pyramid, his third work completed this way, is proof that Alan Parsons will be around for years and will serve to both educate and raise the consciousness level of studio engineering. It deals with a theme of imagery and power that has constantly re-emerged in Parsons' career. The pyramid symbol appeared on the cover of both Pink Floyd's *Dark Side Of The Moon* as well as Ambrosia's *Somewhere I've Never Been Before*. With the international awareness the King Tut Exhibit has created, *Pyramid* is a masterful work that deals with the historical perspective of the theme without degrading it by trying to draw a commercial tie-in. As always, Parsons lives on that fine line of distinction whereby taste and quality have the final say. *Pyramid* is an exemplary work. Statements made here of the genius apparent in his work only begin to qualify his significance to the world of modern recording. G.P.



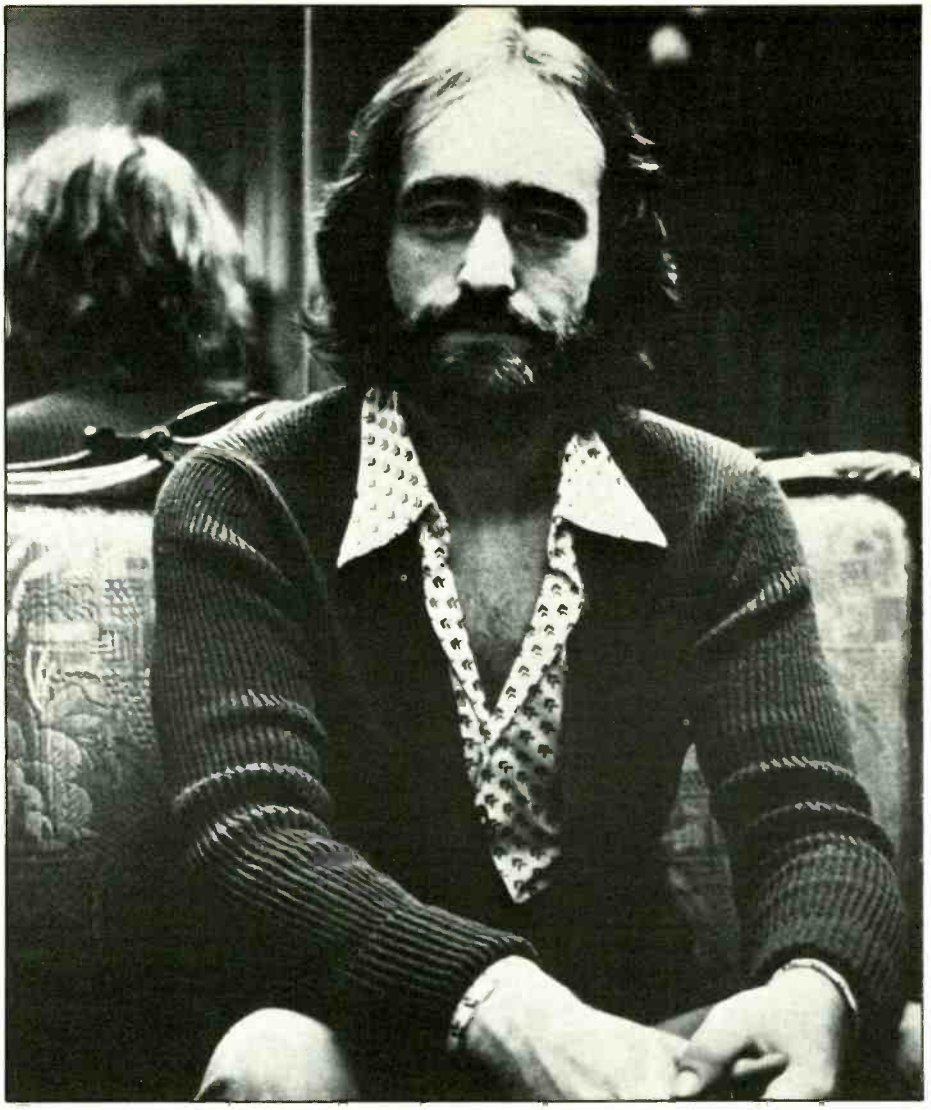
ALAN PARSONS: Genius apparent

DAVE MASON: ***Mariposa de Oro.*** [Dave Mason, Ron Nevison, producers. Ron Nevison, engineer; recorded at the Record Plant, Los Angeles; the Record Plant Mobile, Los Angeles, and Villa Mariposa, Malibu, Ca.; mixed at Criteria Studios, Miami, Fl.] Columbia JC 35285.

Performance: **Déja Vu**
Recording: **Drycleaned**

Doesn't Dave Mason ever get tired of hearing himself recycle the same songs with different titles? Don't his fans? Apparently they do, because *Mariposa de Oro* disappeared from the Top 100 only ten weeks after it entered, dropping some fifty points in the last two weeks. Not exactly what you'd call lasting impact.

It's not that Dave Mason makes bad records, either. *Mariposa* is a whistle-clean AOR production, but therein lies most of the record's problems. There is nothing here to grab onto—the music is as disposable as used Kleenex—and the feeling is that Mason was more involved with getting a tan on the Malibu beach than he was with making this record. Structurally, there's nothing here that wasn't already done eight years ago on



DAVE MASON: The time is right for a more contemporary approach

Mason's first solo effort, *Alone Together*, and done with more conviction. Unfortunately, Mason never moved beyond those original concepts and *Mariposa* is just the latest attempt to sharpen those fine points which have long since dulled. Eight years is stretching a good thing just a bit too far.

As an electric guitarist, Mason has become most pedestrian. Even the hands of the best engineers will not turn an uninspired solo into a revelation. If Mason could have applied the production values of this recording to a more contemporary musical approach, there's no telling what he might have come up with. But unfortunately, the knob and dial twisters in the recording booth couldn't hide the fact that Dave Mason is running short of ideas.

Thankfully, Mason's repetitious, patent solos are kept to a reasonable minimum. Instead, the accent is on the acoustic and 12-string work of Mason and cohort Jerry Williams, whose role on the LP is nearly equal to Mason's. All in all, though, there is too much guitar with not enough space to balance their meanderings, the result being that any individual prowess by either guitarist is buried in the crowded mix and the droning on of the tired material.

Not surprisingly, the one breath of fresh air which seeps through the muck turns out to be an acappella version of "Warm and Tender Love," a minor R&B hit for Percy Sledge in the mid-60s. Mason and Williams, joined by Stephen Stills and Mike Finnigan, execute an impeccably flawless four-part, gospel-tinged harmony, and luckily for them, they had the sense to choose an R&B number that withstands the whitewashing. "Warm and Tender Love" neatly segues into another 60s pop R&B chestnut, Goffin-King's "Will You Still Love Me Tomorrow." Although the transition is the most moving moment of the record, its impact is lost in the standardized rendition of the song.

1979

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Dave Mason, on *Mariposa,* shows himself to be an extremely conventional, take-no-chances rocker who happens to have locked into a guaranteed formula and will most likely stick with it until forced to evolve. If the short chart life of this LP is any indication, that time is quickly inching up on Dave Mason.

J.T.

LES DUDEK: ***Ghost Town Parade.*** [Bruce Botnick, producer; Andy Johns, engineer; recorded at The Record Plant, Los Angeles; Davlen Studios, Universal City; and on the Record Plant Mobile, Los Angeles, Ca.] Columbia JC 35088.

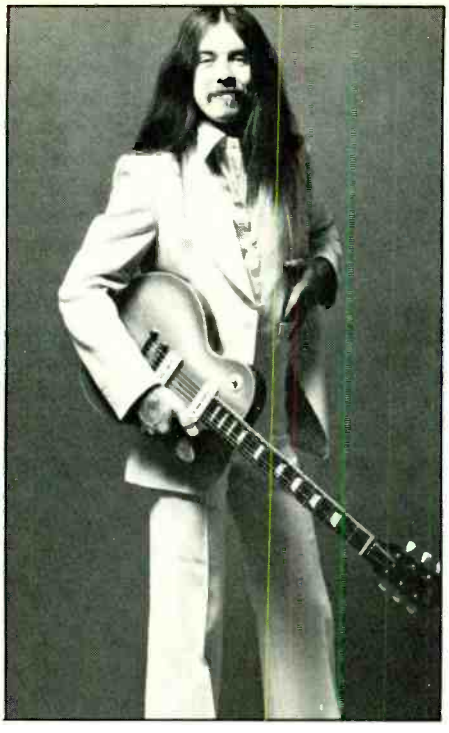
Performance: **Motivated and encouraging**
Recording: **Brilliant**

Les Dudek is one guy who sure is full of surprises—at least on *Ghost Town Parade* he is. Just when I had him pegged as being the latest contender for the honorary Duane Allman crown, out he comes with this most inspired collection of rock stylings ranging from salsa to country, from reggae to blues.

Underlying this entire project are some obvious remnants of the outdated Allmanesque southern boogie approach, but Dudek successfully integrates those snatches of sound into his overall framework, making for one varied, yet subtly driving collection of material. Dudek and producer Bruce Botnick weave bits and pieces of existing rock modes together, creating a unique pastiche which defies any singular classification. Accordingly, a tempered pop-rocker such as "Falling Out," which owes more to the Doobies or Pablo Cruise than it does to "Whipping Post," becomes a showcase for a Dudek slide guitar foray.

Botnick and engineer Andy Johns are undoubtedly major forces in the maturation and diversification in Dudek's sound. Earlier Dudek recordings, as well as his work with Boz Scaggs, gave some indication of his potential, but on the whole the product did not match the promise of the artist.

Now, apparently having gotten past the need to exercise his ego via guitar strings, Dudek, along with the detail-minded ears of his producer and engineer, has fashioned an all-around album, rather than just another recording of ace axemanship. Having recorded a consistently appealing record here, Dudek's credibility as a whole musician emerges clearly for the first time.



LES DUDEK: Going into extra innings

The opening cut, "Central Park," combines a meaty, Santana-like guitar and Latin dance pacing with a steadily churning percussion section, while "Gonna Move" is an uptempo cross between mainstream country and those southern boogie 'n' blues undertones, which maintains a solid and uncluttered wall of action throughout.

What best characterizes *Ghost Town Parade* is the consistently fine arrangements. Only on intermittent occasions does the movement slacken, and then only to provide some balance of tempo and flavor. What's especially commendable is the lack of excesses in a musical area which is almost always drowning in them. Dudek may be the dark horse to take the southern rock ballgame into extra innings, by virtue of his willingness to extend its boundaries past the Mason-Dixon line.

Musicians and studio personnel have united in an experiment in flexibility in a supposedly progressive niche of rock that has in recent years become regressive. By applying both sound taste and vital dynamics, and adding to that an ear for aesthetics, Dudek and Company have emerged with a lively, yet amazingly understated synthesis of contemporary musical styles and recording studio common sense. J.T.

MOODY BLUES: *Octave.* [Tony Clarke, producer; Garry Ladinsky; Chris Brunt; Richard Kaplan, Peter Carison and Dennis Hansen, engineers; studio unlisted.] London PS 708.

Performance: **Tiresome and tedious**
Recording: **Asleep at the board**

I had a friend who tried to reconcile with his ex-wife. He took her to the beach for a weekend of tide and titillation, only to have this reunion crumble into a hopelessly noncommunicative affair of stumbled awkwardness.

Get the point? The Moodies had been "estranged" for nearly six years. After an initial flirtation with British power pop, their seven albums were a prescription pad of New Age bromides—astral travel, astrology charts, paeans to wine and acid, hymns to innocent yet lustful love. Yet late in 1972, the creative well ran dry, and the sextet scattered into the four winds.

Their legacy, while dated now, served well as an aphrodisiac elixir. The combination of aura-soaked, major chord mellotron fills, crystal clear mixes and dainty yet manly vocals, provided a fit

MOODY BLUES: A forced reunion is creating mood music for a new generation

backdrop for play at many an off-campus waterbed tête-à-tête.

Now comes a forced reunion, dictated more by the petulant blush of the balance sheet than a burning compulsion to trip-out the newest generation of mystic minds. The fact is that the six members have issued a work that is at once nebulous, dense and stupefyingly tiresome to the listener.

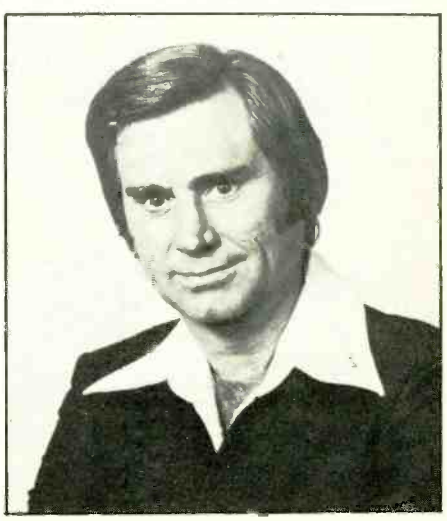
There is simply nothing memorable here. Producer Tony Clarke, in an effort at maestrodom, has occluded an already muddy scenario by including extra strings and horns all over the place. True, there are some pleasant moments—the between-lines brass thrusts of "Steppin' In A Slide Zone," and the harmonica-punctuation of "Had To Fall In Love," which suffers, however, from malignant McQuenitis.

Glad to report that the vocal unities are still strong, however empty their message. Yet when both flair and substance are missing, it is perhaps more generous not to listen too closely. R.S.

GEORGE JONES: *Bartender's Blues.* [Billy Sherill, producer; Lou Bradley, Ron Reynolds, engineers; recorded at CBS Recording Studios, Nashville, Tn.] Epic KE 35414.

Performance: **Poor choice of material**
Recording: **Appropriate**

Do you know what *real* country music is? Sadly, I must admit that many of my colleagues and contemporaries don't. It is shameful that for the vast majority of the contemporary populace, the hokey



GEORGE JONES: The real thing

pablum of Gram Parsons and Poco is as close to honky-tonk music as they'll ever tread.

Make no mistake about it; George Jones is no crossover country artist. The greatest living avatar of the barroom lament, working-class, brew-fueled love tunes and ordinary-Joe allegory, his fairly thick Texas accent, standard country instrumentation, and fortunate lack of willingness to bring in rock or other diluting elements leave him with a following that is as hard-core as the matters he discusses.

This Jones issue joins uncountable dozens of others in a distinguished heritage. If one must fret, however, the point could be made that his pain-wracked, expressively somber voice, which employs some of the same syllabic accents as blues singers, is here employed in deliverance of a disproportionate number of love songs. This man's timbre was meant to sing of pain, cheating, hurt, and all those things yet, outside of the brilliantly sardonic "When Your Phone Don't Ring, It'll Be Me," most of the lyrical content revolves around cutesy, sophomoric homilies dedicated to the bright side of love.

Bartender's Blues should not be your George Jones primer. Yes, this is real country music, but only the sunny side of the street. R.S.

JAZZ

FREDDIE HUBBARD: *Super Blue.* [Dale Oehler, producer; Don Puluse, engineer; recorded at CBS Recording Studios, New York, N.Y.; dates unlisted.] Columbia JC 35437.

Performance: **Reassuring**
Recording: **Sturdy, even warm**

Freddie Hubbard has spent much of the Seventies making one of the more pathetic attempts at crossover jazz. Add a little funk, play a little less horn, simplify, simplify, simplify. For a musician blessed more with skill than imagination, this has been the wrong track for Freddie to take.

But Hubbard's participation in Herbie Hancock's straight jazz revival (as the trumpet substitute for Miles Davis in the V.S.O.P. Quintet) seems to have rekindled Freddie's flame for the moment. "Super Blue" starts off just like it says—super blue, with the leader's horn suspended over a balladic intro. Soon the tune snaps into an old-style funk pace, mildly upbeat à la Horace Silver, with fairly tough soloing from Hubbard and very strong support from electric pianist Kenny Barron, one of the very best mainstream keyboard players around. In fact, the leader's choice of sidemen is first rate throughout—George Benson playing more on the cool, Latin "To Her Ladyship" than he does on his own albums; Joe Henderson laid back and innovatively boppish on "Take It To The Ozone." Drummer Jack DeJohnette frames this latter piece with blistering drum spots that lead into and out of a catchy, Hubbard-written melody head. A very fine cut.

Hubert Laws is featured on side two. "The Gospel Truth" is appropriately titled, invoking an almost humorous Southern Baptist aura with bluesy acoustic piano and organ. Laws' flute is marvelous on "The Surest Things Can Change," as are Henderson's tenor and the eloquent bass of Ron Carter. The LP finishes on an upbeat note, the hustling "Theme For Kareem," written for one of

FREDDIE HUBBARD: Crossover jazz was the wrong track for him to take

Southern California's biggest—or should we say tallest—jazz buffs. All in all, the sound is crisp, the tunes have appeal, and Freddie Hubbard has come back with a substantial, well-balanced effort. R.H.

MAX KAMINSKY: *When Summer Is Gone.* [Hank O'Neal, producer; Fred Miller, engineer; recorded November 2nd and 3rd, 1977 at Downtown Sound, New York N.Y.] Chiaroscuro CR 176.

Performance: **Maxie plays it pretty**
Recording: **Crisp and cool as a summer salad**

We all knew Max Kaminsky as the powerhouse leader in a Dixieland ensemble but few of us have ever heard the quiet side of Maxie before. Nobody since Bobby Hackett (and maybe not even him) ever played lush ballads with more tenderness or a more vibrant tone than Max. Yet Kaminsky was sadly neglected as a leader in both the 78 and LP eras. That's all the more reason to cherish this set of lovely old show tunes and such from Chiaroscuro.

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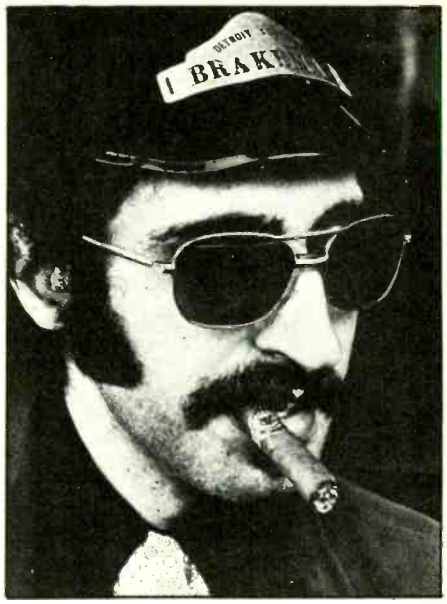
old standards. After the tenth cut, almost as an afterthought, Hank O'Neal suggested a jam piece which turned out to be the old standard twelve-bar blues after which Max inquired "is that what you wanted?" Apparently it was, because that's what they called the last cut on the album. For what it is, it's a good blues romp but for me, at least, it destroys the mood of the rest of the album which is about as far away from a blues romp as anything one might imagine. It's a bunch of pretty tunes, mostly from the pen of Noel Coward (including "Poor Little Rich Girl" and such other long-forgotten nuggets as "Blame It On My Youth"). Ballad play ers like Max are usually frustrated singers. Having heard Maxie's vocal on "Butter And Egg Man" one unforgettable night at Storyville, I can attest to this in his case. Even if I hadn't, his version of "From Here To Eternity" shows the great influence that Frank Sinatra's rendition of the lyric has had on Max's interpretation of this too-neglected pop song.

There is another singer on this album as well. Mary Eiland does a couple of superb vocals, especially on "Blame It On My Youth," and is every bit as impressive as she was previously on Gil Goldstein's album (Chiaroscuro). I hope Hank O'Neal will give us a whole album of Mary Eiland's vocals someday.

The band, consisting of John Bunch on piano, Bucky Pizzarelli on guitar, George Duvivier on bass and Ron Traxler on drums, accompanies the soloist quite capably. George Massao sketched out some nice arrangements and Fred Miller obliged with good, balanced sound. Unfortunately, Traxler has not yet learned the trick of playing a bit harder during Bucky Pizzarelli's single string guitar solos so the beat tends to lag when Bucky stops playing rhythm to do his solo number. Otherwise there's no complaints and all in all, it's pretty close to perfect. J.K.

LEON REDBONE: *Double Time.* [Joel Dorn, producer; Hal Willner, assoc. producer; Bob Liftin, engineer; recorded at Regent Sound Studios, New York, N.Y.] Warner Brothers BS 2871.

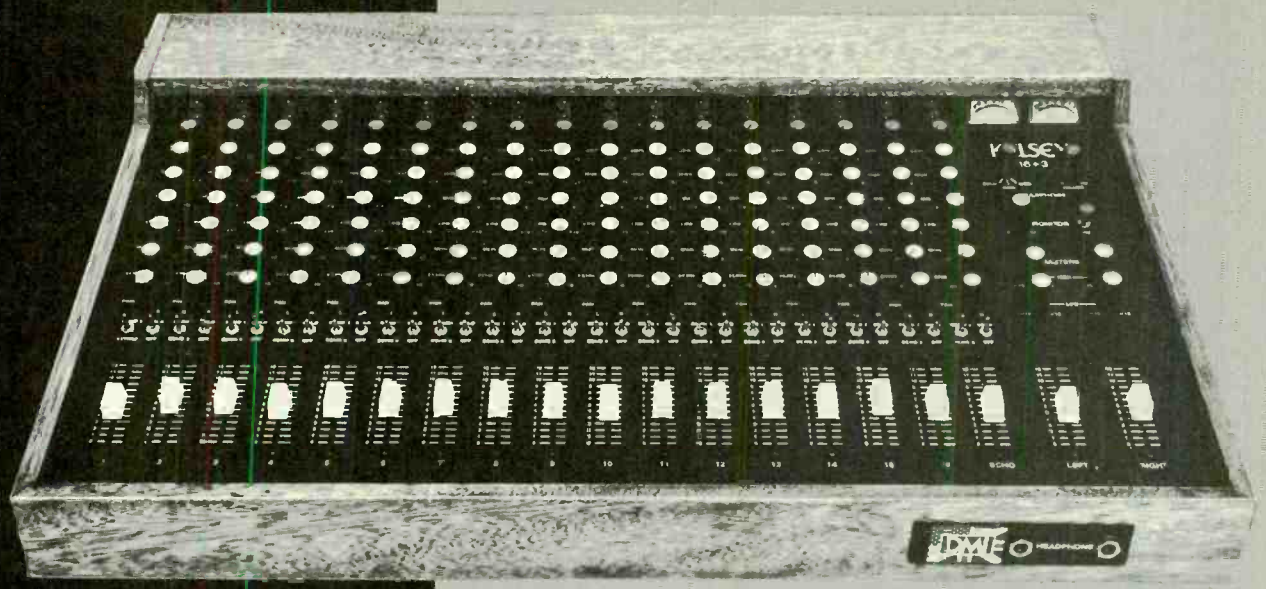
Performance: **In the folk/jazz/blues tradition**



LEON REDBONE: In the tradition of....

Recording: **The star's in front all the time**

Leon Redbone is not everybody's cup of tea. He sings a miscellany of jazz numbers, blues tunes and vaudeville items in a style that shows a debt to Al



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miles' choice and the flowering of charlie mariano

By Nat Hentoff

In 1968, the word went out that Miles Davis had heard a 22-year-old bassist in a London club and, on the basis of that one evening, hired him. When Dave Holland arrived in the States soon after, the reason for Miles' decisive enthusiasm was amply clear. Holland not only had prodigious technique but he was also a *melodic* improviser of seemingly ceaseless inventiveness. And there was his sound—vibrantly full and yet also capable of the most subtle, precise shadings and inflections.

Holland left Miles in 1971 and since has followed his variegated curiosities—working with Chick Corea, Sam Rivers, Anthony Braxton, Bonnie Raitt, Betty Carter, and even taking part in some hot country jamming on the Flying Fish label. Now, in his first solo album for ECM (currently distributed by Warner Brothers), Holland has set new improvising standards for himself while also challenging every top-ranking bassist in jazz.

The set is titled *Emerald Tears*, and while most of the pieces are by Holland, there are also numbers by Miles Davis and Anthony Braxton. The playing (on acoustic bass) is brilliantly cohesive. This is not just virtuosity. Every track tells a story; and Holland is alternately dramatic, reflective, lyrical, aggressive and tender. It's a set that can be heard many, many times without fully exhausting all the surprises of its dynamics and of the harmonic, rhythmic and melodic daring of the conception. The recorded sound, as is characteristic of ECM releases, is a model of full-dimensional clarity. Indeed, this issue sets a new standard for engineering a solo bass recital.

Another bassist on ECM, Eberhard Weber, specializes in creating dream-like ensemble moods. Or, as a German critic put it, his albums are about "colors, movements, figures, wish fantasies." In *Colours/Silent Feet*, Weber's own romantic but disciplined playing is fused with the piano and synthesizer of Rainer Brüninghaus, John Marshall's drums, and the soprano and flutes of Charlie Mariano. The latter, who first emerged in the late '40s as a fiercely swinging Bird-like alto saxophonist has traveled through much of the world in the past decade. His playing now reflects his liberation from standard jazz practices—a stretching out of ideas and colors that encompass some of the sounds of his journeys. Yet the jazz "cry" is still there, and Mariano vitalizes this session which, but for his contributions, might have been a good deal more passively ruminative. As it is, however, this is continually haunting, compelling music.

The sound is vivid, yet spacious, and the cover painting—by Maja Weber, the leader's wife—is both exotically evocative in itself and also a most apt extension of this somewhat otherwordly music. I expect this idyllic scene will be mounted on the walls and the minds of not a few jazz dreamers.

DAVE HOLLAND: *Emerald Tears.* [Manfred Eicher, producer; Jan Erik Kongshaug, engineer.] ECM 1-1109.

EBERHARD WEBER: *Colours/Silent Feet.* [Manfred Eicher, producer; Martin Wieland, engineer.] ECM-1-1107.

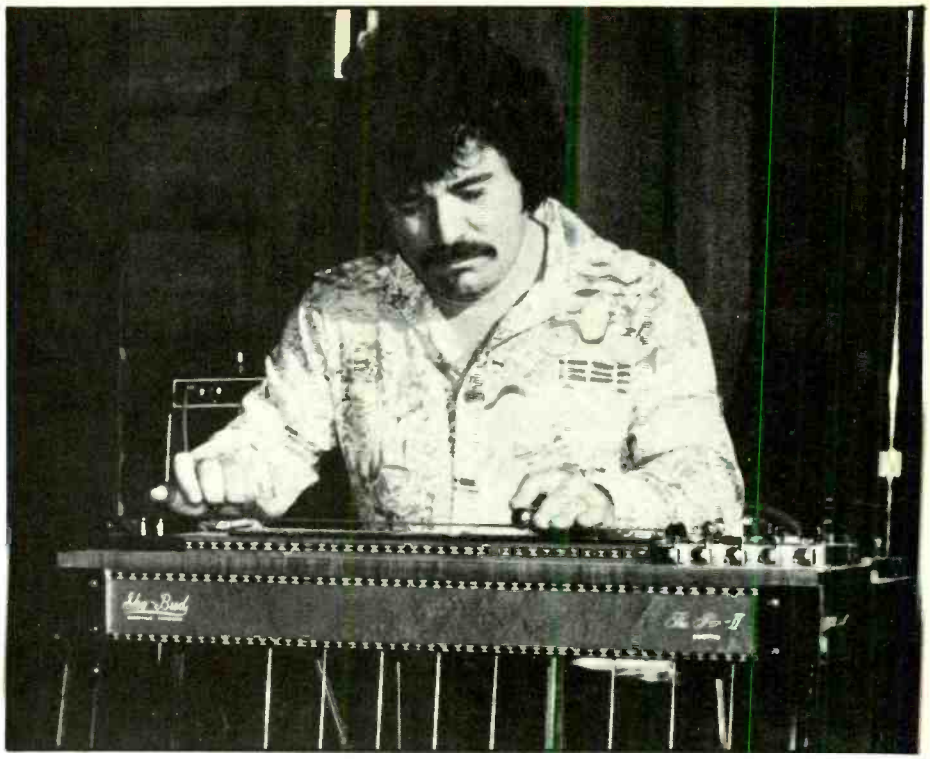
Jolson as well as Jimmy Rodgers, Leadbelly and Jelly Roll Morton. This means that, like both Rodgers and Leadbelly, Redbone has no qualms about dropping a beat or a whole measure here and there and making time irregular. Apparently it's planned well enough that he can pull it off without losing the band in the process (or did Redbone tape his parts first and the band lay down their tracks later to conform to what he had done?). It also means that, like Leadbelly and Louis Armstrong and Jolson, if he doesn't remember all the words he'll just break into a bit of scatting (such as on "Nobody's Sweetheart"). As unconvenventional as Leon Redbone is, there's a tradition to his rule breaking. If Leadbelly, Rodgers, Jolson and Armstrong could do it—why not? Well, it could be the fact that Leadbelly, Rodgers, Jolson and Armstrong were such giants that they could "get away with this or anything else."

Whether or not Redbone goes down in history with those greats who inspired him only time will tell—but meanwhile he turns out pleasant records and if I get annoyed with his jocular treatment of "The Sheik of Araby," I can revel in the luxuriousness of his "Melancholy Baby." Possibly the best sides are those where he makes maximum use of his accompaniment. There's a fine Dixieland ensemble by Ed Polcer and the gang from Condon's on "Diddy Wa Diddie" and Bob Greene gets positively featured on a remake of Jelly Roll Morton's General recording of "Winin' Boy Blues." Otherwise the instrumental accompanists are kept well to the background and that's my only real complaint about the record. Why waste a fine jazz soloist like Yusef Lateef by placing him where he can barely be heard? (Take my word for it he's there in back of Redbone on Jimmy Rodger's "Mississippi River Blues.") J.K.

DOUG JERNIGAN AND BUCKY PIZZARELLI: *Doug & Bucky.* [Robert Hoban, Bruce Kaplan, producers; recorded at Soundtrack Studios, Nashville, Tenn.; no engineer listed.] Flying Fish FF 043.

Performance: **Unusual and unusually excellent**
Recording: **Clear, clean and simple**

This record is not quite what one would expect from a guitar duo, especially a duo combining pedal steel guitar and seven-string electro-acoustic guitar. You can forget the steel guitar/



DOUG JERNIGAN: Playing in the bebop idiom

Spanish guitar duets of Leon MacAuliffe and the Spanish guitar player from Bob Wills' Texas Playboys. This is a whole different bag. Only rarely does Doug Jernigan give in to the chordal approach of the steel guitar made so

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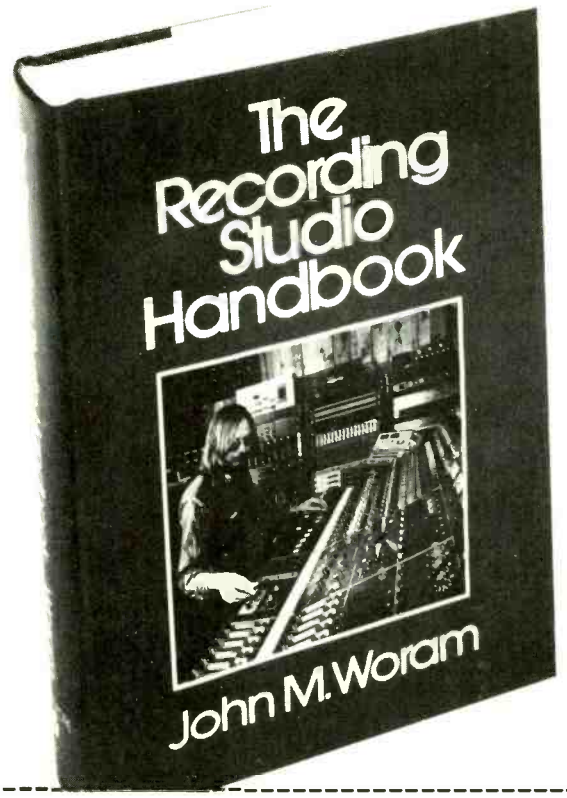

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John Woram is the former Eastern vice president of the Audio Engineering Society, and was a recording engineer at RCA and Chief Engineer at Vanguard Recording Society. He is now president of Woram Audio Associates.

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BUCKY PIZZARELLI: Sensitive

popular by Alvino Rey. He plays mostly single string solos in the bebop idiom. If I had to cite a player for comparison it wouldn't be a guitarist at all but a saxophonist like Phil Woods or Charlie Parker. Contrasting Jernigan's linear playing is the chordal style of Bucky Pizzarelli, a jazz guitarist straight out of the roots of George Van Eps and Carl Kress with the musical tastes of Django Reinhardt and Les Paul thrown in for good measure.

There are solo features for Bucky Pizzarelli unaccompanied on such tunes as "End Of A Love Affair" and "Slow Burning." There are steel features for Jernigan with Bucky playing bass-line accompaniment on that seven-string monster of his on "Talk Of The Town" or unaccompanied on "Shenandoah," which in spite of its maudlin quality has some interesting chord voicings but if I'm allowed a favorite it would be "Sweet Lorraine." Bucky starts the track off at a good clip (a shade faster than either Jimmie Noone or Nat King Cole did on their recordings of the tune) but it works and it moves along nicely to Jernigan's lower-middle register solo with Bucky's sensitive comping behind him. The reverse is true of "Honeysuckle Rose" which Doug plays straight before taking off into a bop chorus, single string. Bucky follows with a chorus in four-string chords up the neck of the guitar. Then there's a chorus of trading fours followed by the real climax of the arrangements—dual improvisations, Jernigan playing single lines, Bucky playing chords, and at least one critic losing his cool in the sheer ecstacy and energy of it all. J.K.

THE LUV YOU MADLY ORCHESTRA: ***Luv You Madly.*** [Stepehen James, producer; Lou Gonzalez, engineer; recorded at Music Farm Sound Studios, New York, N.Y.] Salsoul SA 8507.

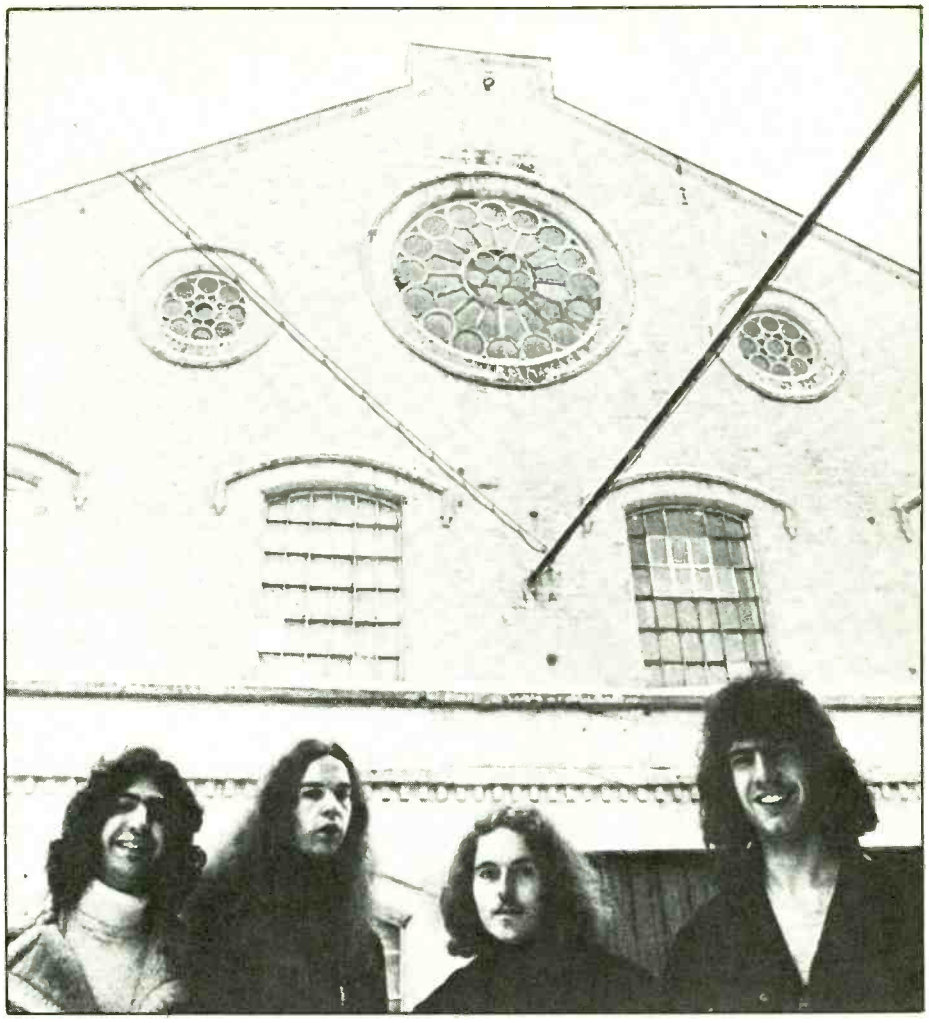
Performance: **In with the latest disco dancers**
Recording: **Startling**

I have it on the authority of my younger friends who enjoy going to discos and dancing to loud music that the Salsoul Orchestra is one of the better purveyors of music to do the Latin hustle to. I have it on my own ears' authority that these are good musicians and singers who are able to communicate the music of Duke Ellington to a generation who might otherwise grow up in ignorance of such beautiful numbers as "I Let A Song Go Out Of My Heart" and "Mood Indigo." Along with a lot of other songs by Duke Ellington and at least one each by Billy Strayhorn ("Take The A Train") and Juan Tizol ("Caravan"), these Ellington classics make up the "In The Beginning" medley that uses up the first eight minutes of this LP. From that point on the music tends to get a bit obscure. Tunes like "Moon Maiden," "Soda Fountain Rag" and "Fleurette Africaine" never became the household staples that "Satin Doll" did but that doesn't take away from their beauty. I, for one, am glad to hear the obscure Ellington for a change rather than the same old medley rehash we've been getting in tributes ever since his passing in 1974.

A listing of the band includes some of New York's finest studio players, including Ken Werner on keyboards and Max Polikoff on violin. There were some important names behind the scenes too. The liner notes were written by Ruth Ellington (Duke's sister) and the original idea and producing were done by her son Stepehen James, so it's all very authentic indeed.

The sound seems tailor-made for the discos. The lows zoom and the highs shriek in that souped-up manner that the dancers seem to prefer. Somewhere in that first medley there's a striking and thrilling gong solo that just shivers up the spine it's so real—maybe a bit too real for living room comfort.

I don't know what Duke would have thought of an album of his tunes being done disco style by the Salsoul Orchestra. He probably would have liked it.



PAT METHENY GROUP: Hypnotizing but never self-indulgent

Duke enjoyed many different kinds of music, as long as it was well played, and since the kids have to have something to dance to—why not Ellington? J.K.

PAT METHENY GROUP: ***Pat Metheny Group.*** [Manfred Eicher, producer; Jan Erik Kongshaug, engineer, recorded at Talent Studio, Oslo, Norway.] ECM 1-1114.

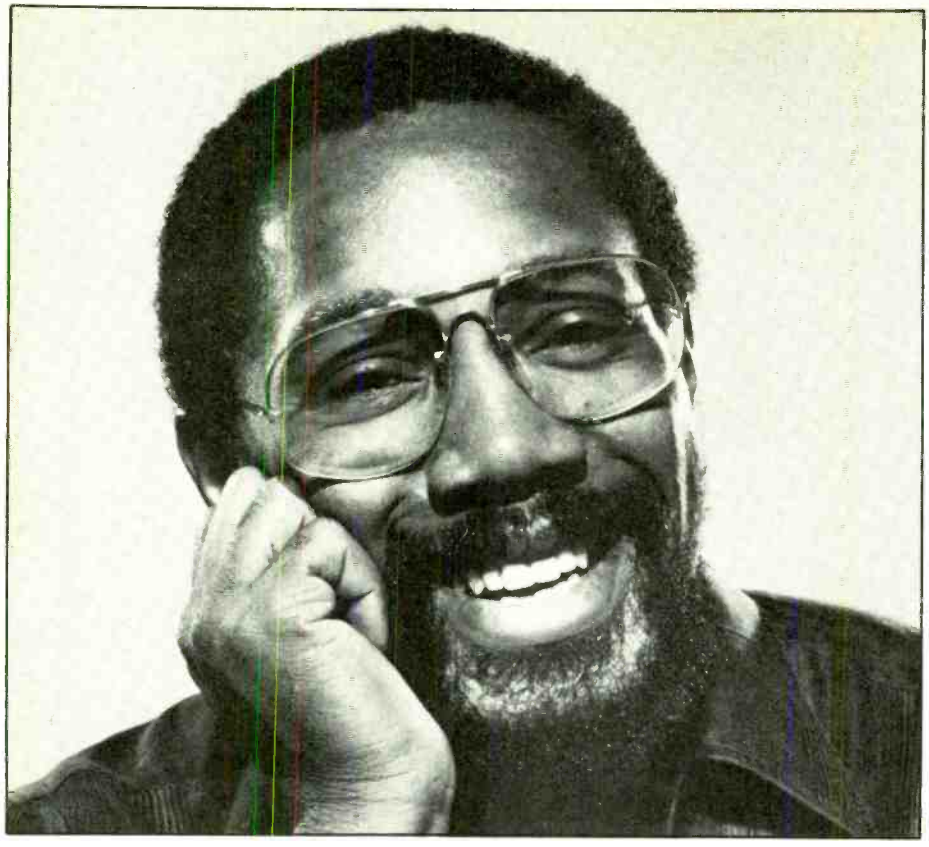
Performance: **Stunningly brilliant**
Recording, **Ditto**

If you are growing weary of all this formulaic junk passing for jazz-rock nowadays, this record will serve as a fresh delight. The playing is of the arranged, yet improvisatory vein; the four members of the group are all as good on their respective instruments as anyone could possibly expect them to be, the production is tasty, the individual performances virtuosic, the combined effect hypnotizing and (despite the technical wizardry) never self-indulgent.

Eichner's ECM sessions have always utilized a combination of space, silence, and etherealness to produce a kind of dreamland. This, Metheny's second album with his present quartet, is no exception to the rule.

John Klemmer's work notwithstanding, beauty need not be either lush, Fender Rhodes-bounding tripe nor spiritualistic, New Age buffoonery, but the true ideal thing. Metheny is one of the most vital new guitarists on the jazz scene. Lyle Mays, a quietly-tuned pianist with one thirty-two bar pass, routinely reduces Keith Emerson's solos to their rightful classification as showy finger ticklings. The rhythm section is never too busy, yet noticeable. They take chances, but don't trip over themselves doing it.

One could have done without the machine-gun bop present in the opening sections of "Lonejack," yet the rest of this album is full of motifs ranging from classical ("Aprilwind") to adventurous with elegant blues-based structures. This work demonstrates that there may just be hope for fusion music yet. R.S.



BILLY COBHAM: Playing within safe, comfortable parameters

BILLY COBHAM: ***Alivemutnerforya.*** [Billy Cobham, Alphonso Johnson, Steve Khan and Tom Scott, producers; Don Puluse, engineer; recorded "live" in unlisted cities; no dates listed.] Columbia JC 35349.

Performance: **All-star with the usual trappings**
Recording: **On wheels, but adequate**

Billy Cobham shares top billing with Alphonso Johnson (bass), Tom Scott (reeds), and Steve Khan (guitar) on this *Alivemutherforya,* adding savvy Mark Soskin on keyboards. The leaders, of course, have fusion jazz and pop studio credits coming out of their ears, yet all have suffered from creeping critical disfavor or, at best, indifference for some time now. Many feel that Cobham has refused to challenge himself in the days since his pioneering work with the Mahavishnu Orchestra, denying an opportunity to alter and advance jazz-rock at its gut level. And Tom Scott, despite gobs of genuine talent, has been slapped with that debilitating "commercial" tag—after all, he *did* propagate that standardized tenor sax lick that laquers every other Los Angeles session single these days.

Alivemutherforya does, once again, find these musicians playing well within the comfortable parameters of their sizeable abilities. Nobody pushes the limits—tunes are "best of" picks from past solo glories. But I must say, these guys have avoided the "spotlight hype" that undermines many a superstar jam. They have done their homework on each other's charts and play surprisingly well as a unit. Cobham's drumwork is rarely up front (he does deserve at least one showcase), but Billy proves consistently crisp and tasty in support, pumping life into "Anteres—The Star" and an otherwise merely pleasant Scott ballad called "Shadows." The saxophonist takes an extensive Lyricon solo (an electronic, synthesized reed instrument) on "Anteres," but it falls short of revelation; the Lyricon has yet to be fully utilized in modern jazz. Scott's best work comes on his catchy "Spindrift" from the old L.A. Express days. Here the soprano wails its way to the crowd's delight and Soskin's Spanish piano riff spices up the finale. Khan's "Some Punk Funk" is not as banal as it sounds, but its direction is strictly goodtime boogie guitar.

Johnson has occasionally shown himself to be an imaginative writer and his "Bahama Mama," previously featured

by the CBS All-Stars at Montreux, is a melodic gem roughed up intriguingly by an infectious Caribbean beat. Al's fretless electric bass solo has a celebratory kalimba quality, while guitar and drums build zippy, near-reggae polyrhythms behind it. Cymbals become slightly blurred near the song's end, and sound clarity is damaged on the full tilt "On A Magic Carpet Ride," the last cut on the album. But, aside from a moderate loss of separation at high volume levels, the engineering is pretty decent considering the endless "live" variables. *Alivemutherforya* comes off rather effectively—the kind of fusion that rock fans swallow whole and even jazz buffs can tolerate. R.H.

PAUL WINTER: *Common Ground.* [Paul Winter, Oscar Castro-Neves, David Greene, producers; David Greene, Dixon Van Winkle, principal engineers; Chris Brown, Perry Cheatham, Tom Arrison and 11 others, assistant engineers; recorded at Village Barn, Meanderland, "Somewhere in New England," with the Fedco Audio Labs truck.] A&M SP 4698.
Performance: **Tasteful, beautiful, even inspiring**
Recording: **Splendidly clean.**

The more I listen to this album, the more I like it. This is an exquisite effort by one of modern music's most intelligent and gifted craftsmen. The eleven tracks adhere closely to a theme of community and communion with nature, and the blend of voice and instrument—along with recordings of the voices of the whale, fish eagle and wolf—is a marvelous experience.

Not only is the material remarkable for its consistent quality, but the recording itself is superb. While some of the material was recorded in a studio setting, most was recorded in a barn in New England, where a large group of musicians had assembled for the purpose of sharing music. The resulting mix, unmarred by jet noises or anything else extraneous, has just the right sound—that of a small, tightly-knit ensemble, with each player heard, and with little, if any, evidence of muddying or slurring effects.

What will separate this album from other small-ensemble jazz recordings is the quality and diversity of the material. For even without the unusual addition of "songs" from the wolf, whale and eagle, the music stands on its own as being enormously pleasing.

The source of the music is as interesting as the presentation—African Guinea provided "Minuit," which sounds much like a childhood round; Brazil provided the title track, consisting of an insistent Latin rhythm behind a duet by Winter on soprano sax and Paul McCandless (a member of the Paul Winter Consort) on oboe; Zimbabwe provided "Ancient Voices," a chant-like melody with English lyrics featuring a variety of percussive instruments and a unique shift from African to Western jazz rhythm.

Two "native" compositions are "Icarus" by Ralph Towner, which became the theme used by the Winter Consort, and "Lay Down Your Burden" by Susan Osborn and Colleen Crangle. The former is given a bright, brisk bossa nova tempo and features good instrumental work by Winter, McCandless, David Darling on cello, Castro-Neves on guitar and Steve Gadd on drums. The latter features Ms. Osborn's soaring, gorgeous voice to carry a simple melody line.

The tracks that feature the animals are the most interesting of the album, of course, and Winter has done a superb job of blending the animal calls in with music from man-made instruments. Man's music, in fact, mirrors and complements the music of the animals, in-

stead of the other way around.

"Eagle" uses a recording given by Marlin Perkins as the starting point for a duet with McCandless on oboe. The similarity of the eagle's call with the oboe's tone is striking. "Ocean Dream" features the call of the humpback whale over a melody line sung by Winter and a synthesizer tone in a lower register that provides a constant throughout the song. "Wolf Eyes" uses the plaintive call of the timber wolf as the basis for a somber duet between Winter's alto sax and Warren Bernhardt's piano. Winter also plays a duet with a wolf, recorded "live" at the North American Predatory Animal Center in California. "Trilogy" combines the calls of the wolf, whale and eagle as the foundation for a song that Winter says is written in the key of D-flat, because when all the animals' cries were played together the resultant tone was D-flat.

Winter's artistry is a constant factor throughout the album, but he is by no means the only star. McCandless on oboe, Darling on cello, Gadd on drums, Castro-Neves on guitars and organ, Gary King on bass and Laudir de Oliveira on a variety of Latin American and African percussive devices are splendid players, and the singing by Winter, Jim Scott, Susan Osborn and Janet Johnson is just about perfect.

This is one of the best albums of the 1978 summer and could be one of the best of the year. S.R.

GATO BARBIERI: *Tropico.* [David Rubinson, producer; Michelle Barbieri, associate producer; Fred Catero and David Rubinson, engineers; Chris Minto and Cheryl Ward, asst. engineers; recorded in May, 1978 at the Automatt, San Francisco, Ca.] A&M 4710.

Performance: **Hot as the tropical sun**
Recording: **The A&M sound formula**

Long before he became a media sensation with his score for the film *Last Tango In Paris,* Gato Barbieri was one heck of a great, hot, jazz saxophone stylist. His style has always been musical, bordering on the lyrical, with firm roots in the tempo and temper of his native Argentina. An example of the way Barbieri has always blended his roots with jazz shows in "She Is Michelle" which opens side two of this recording and for me, at least, says more than the disco-based "Poinciana" that opens side one. "Poinciana," like so much of this recording, is an attempt at a hit and Gato's had his share of hits before. He's trying awfully hard for another one here, and not just with "Poinciana" but also Ralph MacDonald's "Where Is The Love?"

I don't know if it was planned this way, but the cut that will probably cause the most comment is Barbieri's version of Ravel's "Bolero." It's not such a novelty—Django Reinhardt recorded Ravel's "Bolero" in 1937, as did Benny Goodman with an Eddie Sauter arrangement in 1939. Actually, Ravel's piece lends itself well to jazz interpretation. It was composed in 1927 as a ballet for Ida Rubinstein. Barbieri captures faithfully the composer's intention of a long crescendo from a barely audible beginning to an ear-splitting climax. However, Barbieri, or more accurately David Rubinson functioning as arranger, accelerates the crescendo into a brief introduction rather than continuing the growth throughout the piece as Ravel intended. From there on, it's primarily Gato blowing on the theme as the orchestra more or less vamps behind him.

As far as sound is concerned, A & M hasn't changed their formula much since their early days so if you know A & M you can pretty well guess what this will sound like. It's a big sound, a Hollywood sound, a bit harsh but it's rather fitting of the music here. J.K.

THE ATLANTIC FAMILY LIVE AT MONTREUX: *Various artists.* [Arif Mardin, producer; Herbie Mann, executive producer; Gene Paul, recording engineer; recorded "live" at the 11th Montreux International Festival, July 1977.] Atlantic SD 2-3000.

Performance: **Raucous, but with "soul"**
Recording: **Bright**

MONTREUX SUMMIT, VOL. II: *Various artists.* [Jay Chattaway, producer; Joe Jorgensen, associate producer; Bob James, executive producer; David Richards, Joe Jorgensen, Doug Epstein, engineers; recorded "live" at the 11th Montreux International Festival, July 1977.] Columbia JG 35090.

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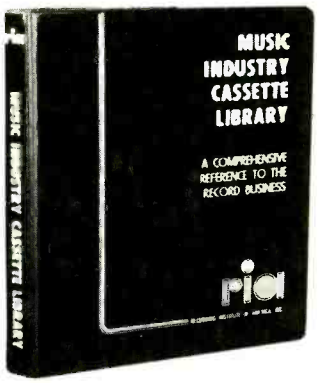

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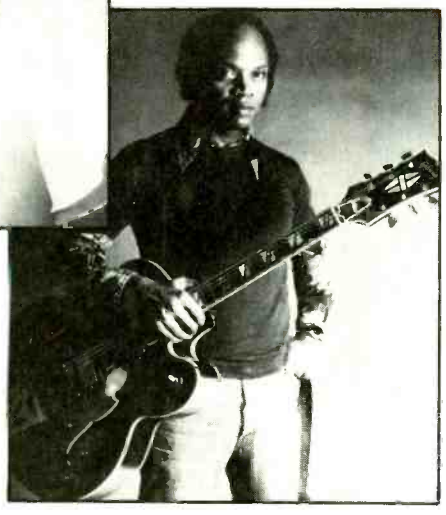

ERIC GALE

MAYNARD FERGUSON

The Columbia Family: Inventive

Performance: **Skilled, energetic, often inspired**
Recording: **Brighter**

Your own definition of what "jazz" is may determine which of these two albums you like better. If jazz is a close relation to, and direct outgrowth of, black rhythm and blues, then the Atlantic recording will hold your interest. If, on the other hand, you view jazz as something different, a more experimental blend of improvisational music, then the Columbia recording would be more to your liking.

My own preference rests with the Columbia recording, for a variety of reasons. First, the players assembled for the sessions recorded for Columbia presented a greater variety of musical material, with more individual flair and talent shown than by the players assembled for the Atlantic sessions. Second, the material on the record better meets my own (admittedly biased) definition of what jazz is, or should be. Third, the Columbia players did not fall into the trap of having one musical style dominate all the tracks that were recorded, as the Atlantic players did.

The third point is what caused a parting of the ways between the Atlantic recording and me. The Atlantic family was dominated by the style of instrumental playing that the Average White Band has made famous, so that all the songs, whether they are written by Klaus Doldinger of Passport, or David "Fathead" Newman or Brazilian Ary Barroso, tend to sound as if they are AWB productions.

The album has only six songs (spread over two records and about 73 minutes of playing time), and except for Bernard Ighner's "Everything Must Change," a soulful ballad, all are uptempo, bright, splashy songs cut from the same mold as the album's finale, Average White Band's "Pick Up the Pieces."

The sound is one that blends a basic jazz band approach with the percussive and rhythmic approach of R&B—in this case, horns playing in tight, quick ensemble against a steady drum and percussion beat, subtle rhythm guitar chords and an often irregular bass line. Frequent solos, particularly by saxes and flutes, are played.

The drawback of this style is a tendency to emphasize rhythm over melody, and this is one of the problems with the Atlantic album that the Columbia album does not share. The advantage here, of course, is its "danceability," for

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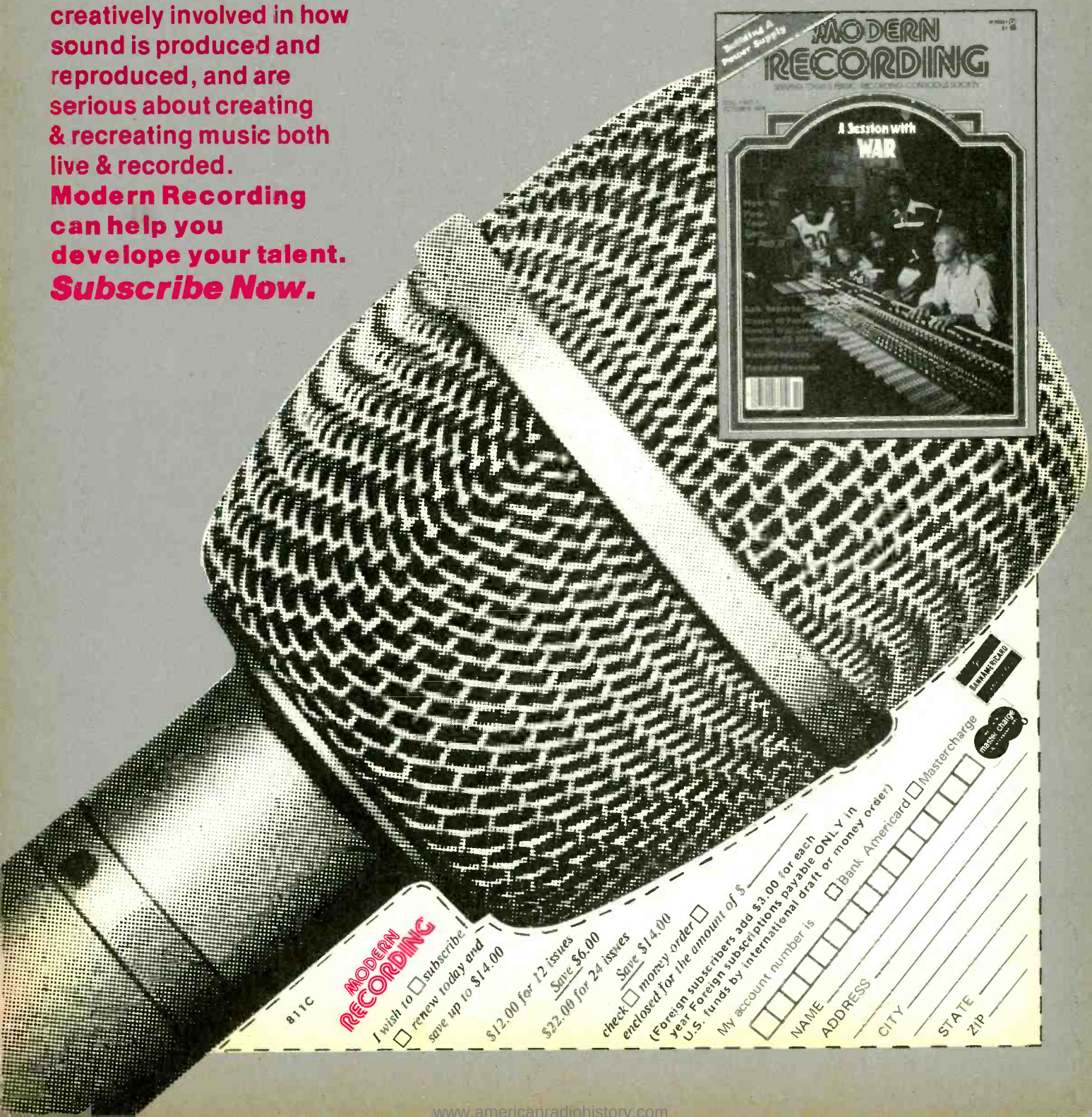


the Columbia album certainly is not one to dance to.

The Columbia album (two discs and about 60 minutes of playing time) is one to listen to, however, and it makes for much better listening than the Atlantic release. The players on the Columbia sessions did not forget R&B entirely, and the "Kanon for Flutes" by Tys Van Leer starts with a deceptively slow and beautiful duet between him and Bob Militello before breaking for hot R&B. The lead flute solo in the main body of the piece is better than anything Herbie Mann does on the Atlantic album.

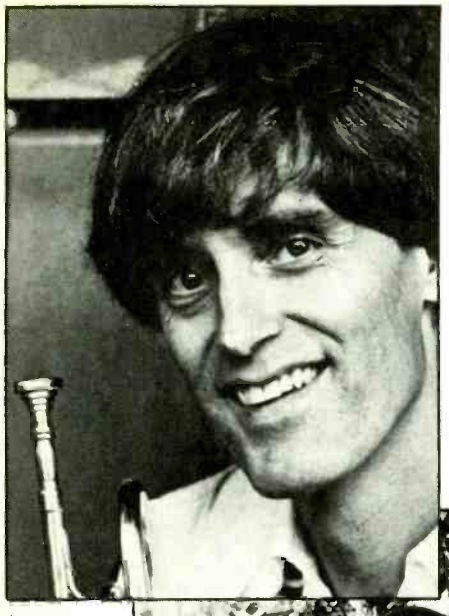
Those into jazz improvisation will take to "Two-part Invention" featuring Bob James on piano and Hubert Laws on flute, a 10-minute piece that mixes fast and slow flights of imagination.

The sound of massed brasses in the Columbia recording is brighter and fuller than in the Atlantic recording, and the solo passages occasionally have a more spontaneous sound than those performed by the members of the Atlantic family.

No one could go wrong picking either album just for the personnel involved. The Atlantic family consists of the Average White Band, the Brecker Brothers, Richard Tee (of Stuff), Don Ellis, Herbie Mann, Sonny Fortune, David Newman, Klaus Doldinger, Joe Farrell and Ben E. King (on the vocal portion of "Everything Must Change," among others). Tee's keyboard solo during "Bahia," Mann's flute solo in "McEwan's Export" and the trumpet and sax solos in "Pick Up the Pieces" are particularly good.

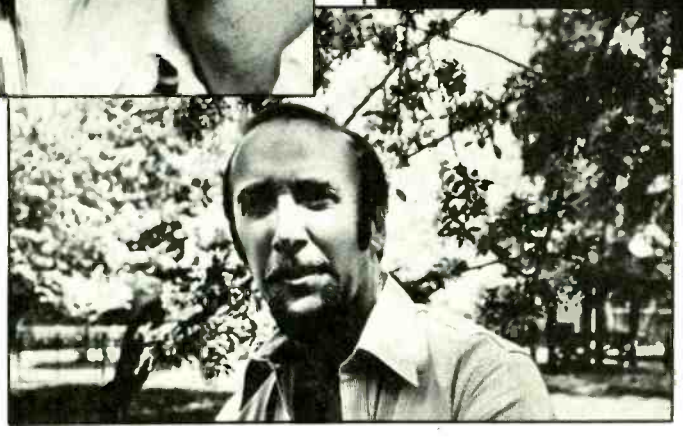
The Columbia family includes two "elder" jazz statesmen, Stan Getz and Maynard Ferguson, and also features Hubert Laws, Tys Van Leer, Bobbi Humphrey, George Duke, Billy Cobham, Steve Khan, Eric Gale, Bob James, Woody Shaw, Ralph McDonald and Janne Schaffer. Outstanding performances are turned in by Laws, Humphrey, James, Dexter Gordon (on sax in Shaw's "Moontrane"), Schaffer, Khan (on his own "Rites of Darkness"), and by Eric Gale, Bob James and Stan Getz on "Night Crawler."

The recordings of the two albums are pretty evenly matched. Because of the variety of material performed by the Columbia artists and the relative sameness of the material on the Atlantic release, the sound of the *Montreux Summit* album seems brighter, crisper. The audience response to the artists also seems to be more emphasized in the Columbia recording.



JOE FARRELL

DON ELLIS



HERBIE MANN

The Atlantic Family: Danceable

The 1977 festival has produced some fine records. Columbia released Vol. I of *Montreux Summit* late last year, and this year also has seen the release of splendid albums by Don Ellis and his 22-piece orchestra (Atlantic), pianist Don Pullen (Atlantic) and the New Brubeck Quartet (Tomato). *Atlantic Family* and *Montreux Summit, Vol. II* are worthy examples of the music that swirled about Switzerland last summer. S.R.

CLASSICAL

SATIE: *Gymnopedies I & II;* FAURÉ: *Pavane, Op. 50;* RAVEL: *Introduction and Allegro for Harp, Flute, Clarinet and Strings; Le Tombeau de Couperin; Pavane pour une infante défunte.* National Philharmonic Orchestra, Charles Gerhardt cond. [Kenneth Wilkinson, producer and engineer.] RCA ARL 1-2783.

Performances: **Rhythmic**
Recordings: **Bright and clean**

Yes, this is the same Charles Gerhardt who conducts RCA's wonderful "Classic Film Scores" series. He's hardly a newcomer to this music, however, for he produced many classical recordings for *Reader's Digest* in tandem with RCA—many excellent performances (by Horenstein, Munch, Kempe, Reiner, etc.), all lavished with some of the best sound of the Sixties. Many have recently turned up on the budget Quintessence label. But on to the disc at hand.

Gerhardt has selected works by Satie, Fauré and Ravel, spanning the years 1887 to 1919, and entitled the album "The French Touch." The repertoire is wisely chosen, opening with Debussy's orchestration of the first and third (mislabeled by RCA as I and II on the jacket and record label; Colin Butler's notes are correct) of Satie's androgynous *Gymnopedies*. Gerhardt keeps this strange music moving while still retaining its languorous lilt. Fauré's *Pavane* also benefits from Gerhardt's refusal to moon over the luscious melodic content and humid atmosphere of the piece.

Unlike the Satie and Fauré pieces, Ravel's *Introduction and Allegro* and *Le Tombeau de Couperin* are sharply etched—rhythmically, harmonically and emotionally. The touch is still French, but the contours and hues are bright and unambiguous. Gerhardt once again refuses to dawdle: It's not that his tempos are fast, but that he insists upon such naturally sprung rhythms that the music never drags. The second movement *Forlane* in *Tombeau* is a case in point, rendered here with balletic grace and pungent wit. My only reservation is the leaden ritard on the final cadence of the work. Sonics are particularly noteworthy, for I have never before heard the woodwind lines in *Tombeau* register so clearly. Some may feel the balance to be a trifle close, but the clarity and playing of oboe and clarinet, especially, banish any serious doubt or disapproval.

With Ravel's *Pavane pour une infante défunte,* the disc closes in the somber, uncertain mood of the opening. Gerhardt's reading is competitive with the best available versions of this heavily recorded work.

A lovely disc, eminently suitable for late-night atmosphere. S.C.

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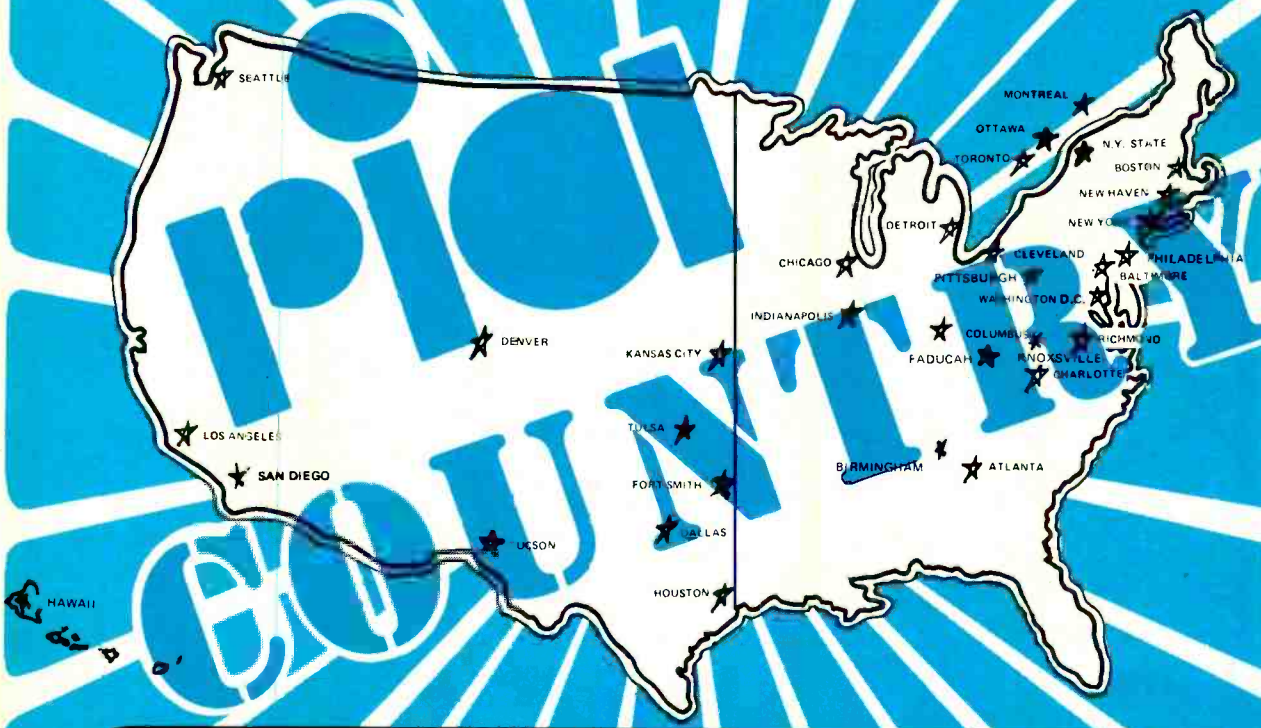

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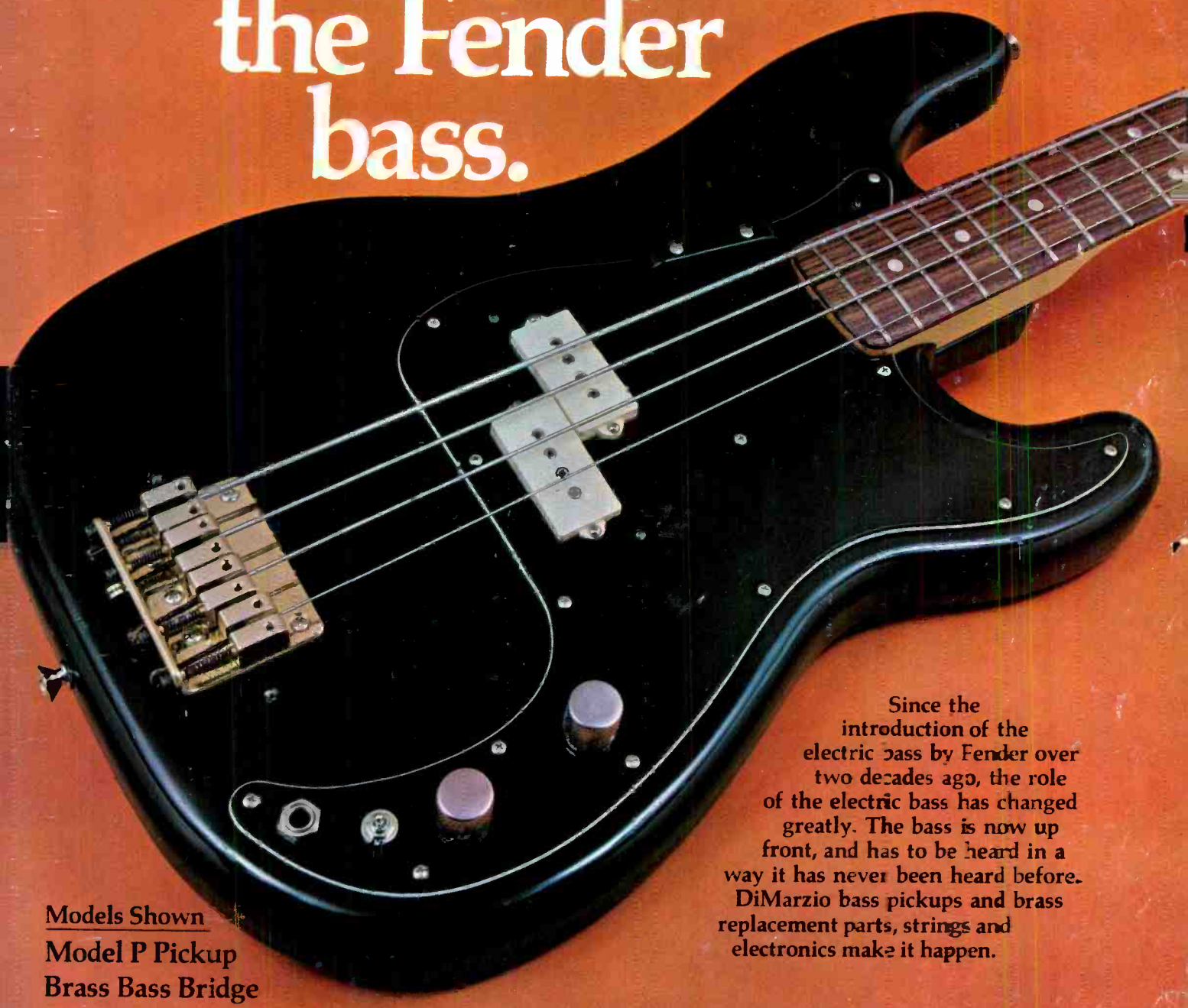

Since the introduction of the electric bass by Fender over two decades ago, the role of the electric bass has changed greatly. The bass is now up front, and has to be heard in a way it has never been heard before. DiMarzio bass pickups and brass replacement parts, strings and electronics make it happen.

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CIRCLE 103 ON READER SERVICE CARD

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