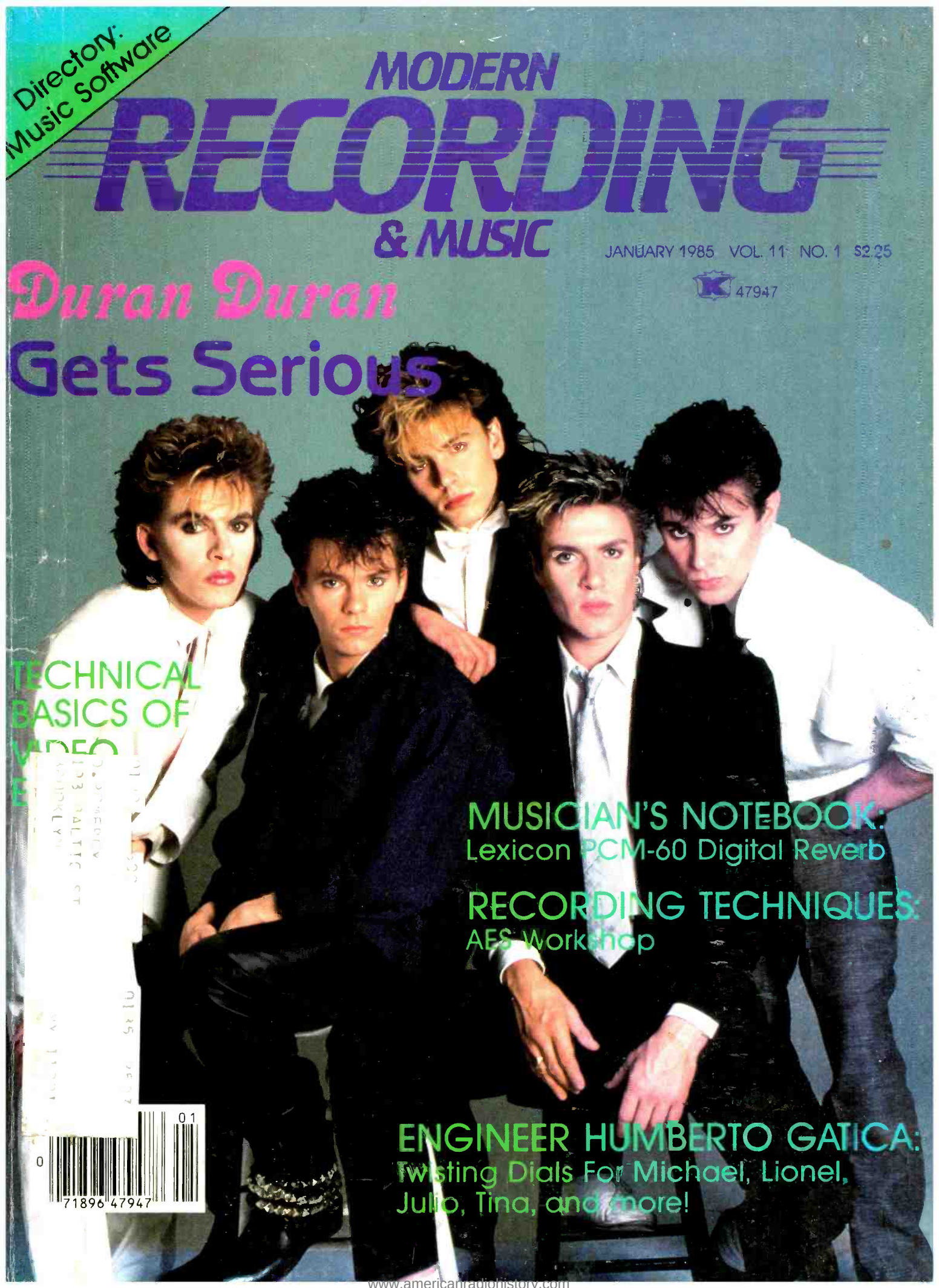
Directory: Music Software

MODERN RECORDING & MUSIC

JANUARY 1985 VOL. 11 NO. 1 $2.25

47947

Duran Duran Gets Serious



TECHNICAL BASICS OF VIDEO

MUSICIAN'S NOTEBOOK:
Lexicon PCM-60 Digital Reverb

RECORDING TECHNIQUES:
AES Workshop

ENGINEER HUMBERTO GATICA:
Twisting Dials For Michael, Lionel, Julio, Tina, and more!

0 71896 47947 01

MICRO-TECH-NOL-O-GY

A select few amplifiers on the market today will offer 1000 watts in 3.5 inches of rack space. But do not be enticed by power ratings alone, for power is not the only measure of a successful product.

The Micro-Tech™ series has been in development for over 2 years. We would not consider its introduction until we were certain the final product would match the demanding criteria of the professional tour. With rigorous testing and evaluation, both on the bench and in the field, the Micro-Tech has proven its performance value.

1000 watts of dependable power result from an exhaustive search for excellence and efficiency. CROWN's patented grounded-bridge circuitry, reversible forced-air cooling and patented ODEP (Output Device Emulator Protection) design come wrapped in a 3.5 inch chassis with 33 years of proven dependability behind it.

The precision of Micro-Technology: It was a matter of perfecting the concept before introducing the product.

crown®

1718 W. Mishawaka Rd.
Elkhart, IN 46517
(219) 294-8000

Circle 10 on Reader Service Card

MODERN RECORDING & MUSIC

JANUARY 1985
VOL. 11 NO. 1

FEATURES

Cover photo by Francisco Scavullo

Photo of Humberto Gatica (above) by Sue Gold

SOUND IDEAS

DEPARTMENTS

MODERN RECORDING & MUSIC

Letters

Modern Recording & Music (ISSN 0273-8511) is published monthly by MR&M Publishing Corp., 1120 Old Country Rd., Plainview, NY 11803. Second class postage paid at Plainview, New York, and at additional mailing offices. Subscription rates: $18 for 12 issues; $31 for 24 issues. Add $3.00 per year for subscriptions outside of U.S. Subscriptions must be paid in advance in U.S. funds. Postmaster: Send Form 3579 to MR&M Publishing Corp., 1120 Old Country Rd., Plainview, NY 11803.

Wanna Be A Star?

I have just been introduced to *Modern Recording & Music* through your July '84 issue. I was very fascinated by the information your magazine supplied. I was also very stirred by the article "So You Wanna Be A Rock 'N' Roll Star." We have just begun making recordings for our first album and wanted to know if there is any way we could obtain the series of articles. We believe that the knowledge we would gain through these articles would be very helpful to us. We would appreciate any help you could give concerning material on these articles. Again, we thoroughly are enjoying our discovery of your magazine.

—Russ Turner,
Nancy Gates
Caro, MI

Thanks. The series called "So You Wanna Be A Rock 'N' Roll Star" has run in the following issues of MR&M: *Nov. '83, Dec. '83, Jan. '84, Feb. '84, April '84, June '84, and July '84. Back issues of the magazine are available for $2.20 each, plus 65¢ shipping. If you plan to order more than one issue, please contact the circulation department at* MR&M *to arrange the most cost-efficient method of mailing.*

The address:

Modern Recording & Music
Circulation Department
1120 Old Country Road
Plainview, NY 11803

Building a Studio Style Rack

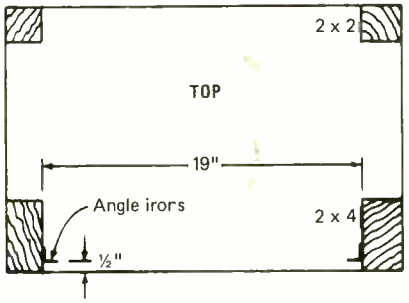
In the Talkback column of the July issue of *MR&M*, Glenn Scott wanted to know how to build studio style racks. Here is my answer.

It is possible to build a rack mount by using 2x4's or 2x2's, and right angle aluminum strips. The height of the unit can be built to the user's specifications. The width should be built to exactly 19 inches, measured from inside to inside on the front side. The aluminum right angle brackets can be screwed into the inside front strips so that the front of the aluminum strips are recessed back approximately ½ inch from the front of the unit. With the entire unit on its back, place the electronic rack mount units in the rack the way you want them and mark the aluminum strips with pencil where the screw holes should be. This is the toughest part and requires a drill bit .160 in diameter and a tap of 10/32. 10/32 is the standard in most rack mounts. Remove rack units and punch each marked spot; then drill with .160 in. diameter then tap with the 10/32 tapper.

Obviously this project does require some knowledge of carpentry and would just be a waste of time if you've never held a hammer before. If you like you can panel the outside of the unit to dress it up a little. Below is a *very* basic

diagram of a finished product. ¼-inch 10/32 screws should suffice and can be purchased at most hardware stores. Approximate total cost, using 2x4's at three feet in height, is $20-$25.

—William Redeker
Union, NJ



Can't Forget The Motor City

I am writing in appreciation of your magazine. I feel that it's quite informative and well written. In addition, it's one of the few that keeps up and speaks on an intelligent level.

It's a shame that although Detroit is a large city, few if any of the music stores sell your magazine, because so many people want to make demos and other recordings and go about it in the wrong ways.

So this is just a reminder to keep up the good work and best wishes for your future.

PS—As a friendly request, may I suggest doing an article on producers Ken Scott, Eddy Offord and Willie Mitchell? I and other readers would appreciate the deed.

—Lucius Austin
Detroit, MI

We'd love to be more visible in Detroit. If you can supply us with a list of music stores in your area, we'll contact them. Same goes for anyone else who is having trouble finding MR&M. *Thanks for the suggestions, also; we're planning more profiles of top producers and will certainly take these gents into consideration.*

Easter Surprise

It was a surprise to see hometown boy Mitch Easter in *MR&M*. I thought that the article was positive and extremely well done. I'm glad to see that you take such notice of the smaller, up and coming artists and producers. I hope the exposure will help Mitch progress! Just keep 'em coming and I'll renew my *MR&M* subscription every time!!

—Robert Carlisle
Winston-Salem, NC

Talk Back

Changing Speed

As an owner of an 8-track Fostex demo studio in my house I would like to present the following question: How would a Fostex B-16 track machine modified to run 30 ips sound quality compare with a pro one or two inch recorder? Can the Dolby C be defeated, and if it is used at 30 ips will it still help headroom?

—Burt Teague
Connecticut

Mark Cohen, vice president of Sales and Marketing of Fostex Corp., replied.

The B-16D (direct drive capstan model) normally operates at 15 ips and by changing one jumper on the transport control board, you can change the speed to 7½ ips or 30 ips. You should also readjust the EQ settings on the r/p cards when you change the speed. At 30 ips you will have the following advantages compared to 15 ips:

1. Frequency response ±3 dB to 22 kHz (compared to 18 kHz).
2. S/N is 83 dB (compared to 80 dB, weighted, with dolby C).
3. Headroom increases about 3-4 dB.
4. Sync crosstalk improves by 5 dB!
5. Adjacent channel crosstalk remains 55 dB or better.
6. Dolby C still helps headroom at 30 ips (and is defeatable by a switch on the rear). Fostex Recorders have always had very good sync crosstalk figures. This enables you to bounce to *adjacent* tracks with more level before oscillation occurs. Our recorders out-perform a number of more expensive recorders that use larger formats in this regard. When running the B-16 at 30 ips, the sync crosstalk improves so much that you'll rarely encounter oscillation on an adjacent track bounce.

It is still wise studio practice, however, to bounce to alternate tracks.

At 15 ips, customers have reported that the sound quality of the B-16 is excellent. At 30 ips (with Dolby C) it compares to, if not surpasses, any analog tape recorder on the market at any price.

I suggest you do some A-B listening tests at one of our dealers.

Getting Punchy

In your recent article "Synchronous Technologies' 'SMPL System'" (*MR&M* June 1984) you make reference to a footswitch to punch in a TEAC 3340 described in an article from July 1980. I have a TEAC 3340—the old one, not the 3340A. The matter of getting the machine into the play mode would probably have to remain mechanical. However, would it be possible to use your footswitch to punch in once the tape is rolling? If you think that it sounds feasible let me know. I'm willing and able to open the machine up and do a little retrofitting under your guidance.

I really appreciate your articles and sound (no pun intended) advice on audio/recording topics. Thanks for your time.

—Mark E. Hobson
Blountville, TN

While I've never tried this type of approach, I don't see any reason why you couldn't parallel a remote switch with the record switch (especially if the record switch is a simple SPST type). However, running a long footswitch line could present problems; if you have trouble with hum pickup or the like, you might need to parallel the record switch with a FET switch, opto-isolator, replay, etc. and drive that from a low-voltage DC control voltage, which would be switched on and off by the footswitch. If you go for this approach, check the voltage across the record switch to make sure that it doesn't exceed the ratings of the switching device being used. If you'd like a reference circuit, check out project #15 (Electronic Footswitch) in my book *Electronic Projects For Musicians.*

—Craig Anderton

bruce bartlett

Recording Techniques

AES Recording Techniques Workshop

The latest techniques in classical music recording were covered in a workshop at the 76th Convention of the Audio Engineering Society in October.

The participants, all renowned experts in classical recording, were:

Jerry Bruck—workshop chairman and president of Posthorn Recordings, New York City. For the last 25 years, Jerry has been a freelance recording engineer for a variety of companies, with two years at New World Records. He has produced musical sound tracks for motion pictures and video productions, including shows featuring Bernstein and Beethoven. He was stereo sound consultant for the motion picture *Fame*. Now he is teaching, writing, and acting as the American distributor for Schoeps microphones.

Thomas Frost—former head of CBS masterworks, now an independent freelance producer. Thomas has recorded most of the major musical talent of our time, including the Philadelphia Orchestra and the Juilliard Quartet.

Paul Goodman—Senior Recording Engineer at the Red Seal Division of RCA Records.

Robert C. Ludwig—Vice president and chief engineer at Masterdisk Corporation, New York City. Bob has won several Grammy awards for his excellent work in record mastering.

David B. Hancock—freelance musical engineer (recording engineer/producer). David is a graduate of the Juilliard School of Music and a concert pianist. Rather than pursuing a career in music, David studied electronics and recording as an apprentice to Peter Bartok, son of the composer. For the last 30 years, David has been an independent musical engineer.

Workshop engineer Jerry Bruck, as well as the audience, raised several questions for the panelists to answer. In this article, the panelists' comments are paraphrased for clarity; there are no direct quotations.

What particular area of technical expertise has the most bearing on the success of a recording? What technical parameter—such as microphones, their placement, the console—contributes most to the working of a recording session?

Paul Goodman: The hall acoustics are the most important factor, for they dictate the microphone techniques. The hall is part of the sound of the musical instruments. Second in importance is the piece of music to be performed. Next are the microphones.

Thomas Frost: Most important is the musical work itself. I try to mate the hall with the composition; that is, to provide suitable acoustics for the

styles of music. Then I attempt to capture the exact sound of the hall.

Bob Ludwig: The performance is the most crucial ingredient. Editing is also important.

What is your basic approach to recording?

Thomas Frost: I learn the score to determine what the music should sound like, to find out what the composer wanted.

Then I ask myself, "What do I want to hear from the monitor speakers? What is the ideal sonic image?" I try to duplicate that image with recording techniques. I adapt the techniques to work with the existing playback system. In other words, I try to make two speakers sound good, to achieve a pleasing result in an average listening room.

The engineer and I discuss the recording together if possible. I tell the engineer what I want to hear from the speakers—a good balance among instruments, depth and imaging that are satisfying on two speakers. I specify the image locations of the instrumental sections.

I also decide if the mics are too close or too far from the ensemble. This is a matter of taste. Closer mic'ing adds presence, but too-close mic'ing sounds ugly. Too-distant mic'ing sounds muddy.

Incidentally, I've found that maximum realism is obtained with a dummy head recording played back over headphones.

Paul Goodman: First I listen to recordings made in the hall I'm about to record in. I study the work, the hall, and the composer's concepts.

Recording an orchestra costs up to thousands of dollars a minute, so I'll put up 18 to 20 microphones to cover myself in any situation. Not all of these mics are used, necessarily. I mic for what I'm looking for, to compensate for acoustic problems in the hall, to spot-mic soloists, and to pick up the hall acoustics. The spot mics are mixed in -6 to -8 dB below the main pickup to add articulation.

My goals in recording are to create an idealized sound at home, to preserve the sound and performance for the home listener, to get the best sound that the equipment will permit, and to satisfy the conductor and producer.

David Hancock: Every recording displays the engineer's viewpoint on what it should sound like. A good recording is what *you* like; it's hard to please everyone.

The ideal is to use as few microphones as possible to attain a good balance. If possible, I change the position of the musicians to control the balance. Multiple microphones can create phase cancellations.

Bob Ludwig: A successful recording, as heard over two speakers, sounds like what you *think* the performance sounded like live. While listening at home, you don't necessarily want to hear everything you would hear at the live performance, such as noises.

Using two microphones does not guarantee a realistic recording. I agree that dummy head recording and headphone playback sounds most realistic—especially if loudspeakers are played simultaneously so that you feel the bass in your chest.

What is the most common technical mistake made in a recording?

Bob Ludwig: If the microphones are spaced too far apart, they produce low-frequency phase differences between channels. This results in excessive vertical modulation of

the record groove, which can cause groove echo.

In general, the engineer should never do anything technically that takes away from the performance. The objective is to reflect the performance as best you can, rather than just making a sonically perfect recording.

David Hancock: I think a common error is to have *no* phase differences between channels. This destroys depth.

To create interchannel phase differences, I usually place two bidirectional microphones (Fisher ribbons) six feet apart. This is a bad technique if omnidirectional mics are used, for the following reasons: If an 80 Hz sound wave arrives from the side of the microphone pair, it will be reproduced out-of-phase between channels. With bidirectional mics, however, sounds from the side are rejected, so the out-of-phase problem is not serious.

David Hancock: In the recent past, I've heard many records with a poor balance, such as a weak string section made too loud electronically. Often the strings are grotesquely amplified.

Jerry Bruck (comments taken from a previous conversation with the author): In most halls you are fighting the environment. Ambient noise, slap echo, and flutter echo are recurrent problems. Even recording in churches can be inconvenient, requiring frequent breaks for church functions.

Some engineers assume that if a particular microphone technique has theoretical advantages, it must produce good-sounding recordings. This is a dangerous assumption. You have to try it out and listen, because you don't always know the explanation for what you're hearing.

Engineers should know more about their microphones—particularly the off-axis response. This parameter is especially important in coincident or near-coincident techniques, in which much of the sound arrives off-axis to the microphones. These techniques demand microphones having uniform response vs. angle, or uniform polar patterns vs. frequency.

Any comments on editing?

David Hancock: Musicians want to correct every error, but this can be self-defeating. Different takes might be played differently, so that the edited tape doesn't sound like a continuity.

Some editing-out of mistakes is necessary, because repetitive listening makes "clinkers" unbearable. Unfortunately, edited recordings make the public expect flawless performances.

Jerry Bruck: Editing has influenced live performances, in that artists take less chances. They try to match their edited-to-perfection recorded performances. Many performers don't try for a *musical* recording, just a *note-perfect* recording.

Thomas Frost: In editing, you must be careful in choosing between "the right notes" and "the most musical performance." Usually, the producer or editor choose the best take—not the artist. Consequently, the chosen edits may not reflect the artist's preferences.

Paul Goodman: Recently there's a trend for the artist to choose the preferred takes.

Can you comment on the relative importance of sound quality vs. musical performance?

Paul Goodman and Bob Ludwig: The musical performance is definitely more important than the sound.

Jerry Bruck: We can't deny that sound sells records—especially with CDs and audiophile discs. There is an unacknowledged plot for engineers and producers to depend on sound quality to enhance the record. We try to make a sensational-sounding recording and hope it will make the musical work more enjoyable.

Paul Goodman: Most current records have better sound *and* better performance. This leads to long-term sales.

Thomas Frost: With popular-music recordings, the record buyer can audition records on the radio before purchasing them. But with classical recordings, record buyers usually can't hear in advance what they're buying. The tragedy is that you cannot use your own judgement when buying a recording. You can only rely on the sales hype on the record jacket. And some sales hype is based only on the sound quality of the record! ("Only two microphones used..." "No microphones used...")

Incidentally, there is no such thing as a "definitive" recording! There are only different interpretations. I wish record reviewers would stop

First, you have to hear *yourself!*

Now Journey depends on new ATM63 dynamic microphones for full control of their monitor and live concert sound. With better rejection of not just off-axis sound, but everything else on stage.

Even with a stack of Marshalls up close, the monitor mix is cleaner, with better separation than ever before.

Find out what Journey's Steve Perry, Jonathan Cain, Neal Schon, Ross Valory, and Steve Smith heard on stage...and why monitor mixer Chris Tervit and producer/live mixer Kevin Elson insist on the ATM63. Now at leading music and sound specialists.

The ATM63

chosen by JOURNEY because...

When you sound right to yourself, you sound great to everyone!

audio-technica®

Audio-Technica U.S., Inc., 1221 Commerce Dr. Stow, OH 44224 • (216) 686-2600

Circle 17 on Reader Service Card

using that word. It's just a buzz-word used to sell records.

Bob Ludwig: Today there is a way to hear classical recordings before buying them. Since compact discs don't wear out with repeated playing, record stores should be able to play them for customers before purchase.

It's been said that the home listener usually hears the recording better at home than the engineer does on-location. How do you monitor accurately on-location?

Paul Goodman: The monitoring room changes from venue to venue, but I always monitor with the same speakers—they travel with me. This results in a continuity of sound. I set up the speakers close to me (near-field monitoring) to make the control-room acoustics less audible.

Bob Ludwig: We use several different monitors. The main system is a tri-amped, modified Altec system, with a Hartley subwoofer and a Sequerra ribbon tweeter. We also use some home hi-fi speakers.

David Hancock: I usually monitor with Quad electrostatic loudspeakers. Often I encounter low-frequency problems—a factor of the room.

Thomas Frost: I take along sheets of Sonex™ acoustic foam to control the monitor-room acoustics. I also take familiar recordings and play them over the monitor system. If the tape sounds less brilliant than I remember, I know the fault is in the monitor system. I adjust speaker placement and sit close to the speakers to avoid hearing the room.

Jerry Bruck: With headphones it's hard to tell how much bass you have. I listen on two systems—headphones and speakers—as a safety measure. If both sound wrong, the problem is in the recording. If only the speakers sound bad, the monitor room is at fault.

How often are multitrack techniques used in modern classical recordings?

Paul Goodman: It depends on the instrumentation. Two tracks are okay for simple quartets. An orchestra and chorus may require eight tracks.

Thomas Frost: Often multitrack is an unnecessary crutch. I usually can record with three omnis. It takes a little fussing during the session, but I don't want to remix. Mixing too many tracks is time-consuming. Almost always, you can get a good sound in a good hall with two or three microphones. Multitrack can be used in extreme conditions.

What should the engineer be aware of in preparing tapes for disc mastering?

Bob Ludwig: If one transient peak is higher in level than the rest of the record, the average level of the record might be reduced to accommodate the peak. Make recordings using peak program meters and report the location of the loudest peaks to the disc-mastering engineer.

Paul Goodman: If a bass drum is off to one side of the orchestra, pan it to center. This makes the record easier to cut by reducing vertical modulation of the groove.

David Hancock: Put a set of tones on both channels simultaneously for azimuth alignment. Put on the Dolby calibration tone, if any, and three frequencies: 1K, 10K, and 100 Hz. 5K is useful too.

If one peak in the recording is, say, 6 to 8 dB louder than the rest of the program, tell the cutting engineer where it is on the tape.

Jerry Bruck: Analog tape compresses peaks, or reduces their amplitude due to phase shift. But digital recordings can have extreme peaks, and should be watched carefully.

Stereo provides incomplete reproduction of the original sound field. Wouldn't you rather reproduce the sound field that existed in the hall at the time of recording? Also, shouldn't you document the microphone locations for archival purposes?

Paul Goodman: No, generally there's too much pressure at the session to pay attention to archiving. Anyway, the microphones are often moved. I'm mainly going for the end commercial product.

Bob Ludwig: Presently we're not too interested in a "quad" or "holographic" sound. You might wind up with a faithful recording of bad hall acoustics!

One final note: Even though all the participants at this workshop have strong technical backgrounds, they place the highest value on conveying the musical performance to the home listener. Their love of music is the guiding force behind all their technical efforts.

denny andersen

Practical Music Video

Part 5: Technical Basics of Editing

In any video shoot you're going to wind up with some good footage and some garbage. This is no problem if you're just making work tapes for the band, but suppose you want to use your tape to get gigs, or as part of a demo package for a record company? In that case, you're going to want to put your best foot, and only your best foot, forward. You're going to want to cut out that rough footage and distill those brief flashes of brilliance into the hottest thing since molten glass. In short, you're going to want to get into editing.

Fundamentals of Electronic Editing

As you recall from Part 1, videotape is edited by transferring selected shots from one recorder to another—something like dubbing selected songs from one audio tape to another. You can't just hook up a couple of ordinary VTRs and dub away, however, because the sync signal will be disrupted every time you start and stop the machines. You'll wind up with a sync-loss "glitch" at each edited spot, and the picture will flip and roll at those points whenever you play the tape back.

To achieve clean, glitch-free edits you need to dub to a VTR specifically designed for editing. Editing decks have the ability to kick into the RECORD mode instantaneously, without disrupting the sync signal. When you play the tape back, the picture switches cleanly from one shot to the next just as if you'd punched it up on a switcher.

You'll find editing equipment in

almost any small-format studio. The specific procedures you'll use to edit your tape will depend on how sophisticated your equipment is, but the fundamental editing process is the same for all systems.

Basic Editor Operation

To make an edit, you put your original footage on the "source" VTR and your master-to-be on the editing deck. You find the shot you want to transfer on the source reel and locate the exact spot on the master tape where you want the transfer to begin. This is your "entrance" cue.

What you have to do now is back up both machines and get them running in sync so that they both arrive at their edit cues at exactly the same time. Like two relay runners passing a baton, they have to take a running start, get into step with one another, and reach the designated spot simultaneously in order to make a smooth transfer. This is a tricky maneuver, requiring split-second timing.

Fortunately, most editing systems now handle cueing and back-rolling automatically. You locate your edit points, then place an electronic entrance cue on the master tape by pushing a button on the editing deck. The two machines back themselves up a specified distance from the edit point and await your command to start. When you push EDIT or START, they take off running. When the editing deck hits the electronic cue at the edit point, it kicks itself into record mode and makes the transfer. Some decks allow you to place an "out" or "exit" cue on the master tape, which automatically switches the editing deck back into playback mode at the end of the shot. Otherwise you have to punch out manually.

With some older editing decks you have to do all the cueing and back-rolling by hand. You work out the timing with a stop-watch, cross your fingers, and start both machines running. At the edit point you punch an EDIT button, which kicks the receiving deck into the record mode, and the transfer begins. To end the transfer you release the edit button, and the editing deck returns to playback mode.

Editing Audio and Video Separately

All editing decks allow you to edit the audio and video tracks separately, if you wish. This is an important feature, since it lets you change the pictures around without messing up the music. In music video you'll usually lay your audio track down first, then go back and edit the video track separately.

Edit Modes

There are two edit modes you need to be aware of—*assemble mode* and *insert mode.*

In assemble mode you begin with a blank master tape and dub your selected shots onto it in sequence, like stringing beads. Once you've assembled a string of shots, however, you can't go back and change any of them without having to re-assemble the entire string from that point. If you laid down shots A, B, C, and D, for example, then decided you wanted to change shot B, you'd have to go back and re-edit not only shot B, but shots C and D as well.

Insert mode allows you to break into an existing recording and insert a new shot without having to re-edit all the material after it. The only catch is that there has to be a sync signal already present on the master tape. Before you can insert-edit onto a blank tape, you have to record a stretch of uninterrupted sync signal as long as you expect your finished, edited product to be. Then you can go ahead and string a series of shots together, just like in assemble mode.

The key difference between assemble and insert modes is the way the sync signal is handled. In assemble mode, the editing deck records the incoming shot *along with the sync signal from the source tape.* In other words, each shot is transferred with its own original sync signal intact. The editing deck matches up the incoming shot's sync signal with the sync signal from the previous shot and butts them together at the edit point as best it can.

In insert mode, the editing deck records the incoming shot *but does not record the sync signal from the source tape.* Instead, it makes each shot conform to the continuous sync track you've already laid down on the master tape. The result is a more stable sync signal and a cleaner edit. For this reason, most professional editing is done in insert mode.

A Simple Edited Demo, Step-By-Step

Let's run through a typical example and see how all this works in actual practice. Say we want a demo

of a band playing their best song in a rehearsal hall. We only have one camera and a portable VTR, but we want an edited reel that looks like we had several cameras covering the performance.

Shooting for Later Editing

We'll need at least one good, uninterrupted take of the song to use as our audio master. To get it, we shoot the tune straight through one time, without stopping the camera. (If we stopped the camera to change shots, we'd disrupt the audio recording.) This continuous one-shot take is also our basic video track. We focus only on the dominant action—the lead singer and solos, since they'll need to be perfectly "lip-synced" with the audio track we're laying down.

Once we get a good basic take, we have the band play the song again, matching their first tempo and performance as closely as possible. This time we get shots from different camera angles (called "cutaways,") which we can later insert into our basic video track. We should be able to "lip-sync" at least some of the pictures from this take with the soundtrack on the basic take. Once we have all the footage we need, we go into the editing suite to put it together.

Laying the Foundation

We put the editing deck in assemble mode and lay down our continuous take of the song, audio and video together, straight through without stopping. This accomplishes three things: it gives us our master audio track, it gives us our basic video track, and it gives us the continuous pre-recorded sync track we need for insert editing.

Now we can go back and begin editing in the cutaways. We switch to insert mode and select "video only" editing.

Inserting New Video

The first cutaway is a shot of the drummer doing a tom roll. We locate this shot on the source reel and decide on our edit point—the frame where his stick just hits the first drum. Then we find the spot on the master reel where we want this shot to begin—in this case, the point on the master audio track where we hear the first tom hit. We enter this as our "entrance" cue.

Now we have to decide where we want the cutaway to end. In this case, it's just after a cymbal crash and before the singing starts. We place our "exit" cue there. When the editing deck hits that spot, it'll kick out of RECORD and leave the original video track (a shot of the singer) intact.

Once we've selected our entrance and exit cues, we back-roll the machines, start them both forward simultaneously, and make the edit. The old video signal is erased, and the cutaway is recorded in its place. Since we're editing "video only," the audio track remains undisturbed. On the first beat of the roll, the picture switches to the drummer just as if we'd switched to a different camera. Just after the cymbal crash, at the exit cue, the picture switches back to the original shot of the singer.

It's a good idea to go back and check each edit before moving on to the next one. (Occasionally an edit doesn't "take" cleanly, and you get a little sync-glitch in playback.) If the edit is clean, we move on to the next and repeat process.

Advanced Editing Systems

Manual or semi-automated editing gear is readily accessible, often at little or no expense. There may be times, however, when it would be worth your while to book time in a fully-automated editing suite. These are available on an hourly basis, like recording studios. The more sophisticated systems don't come cheap, but they're so much faster and more precise that they may be more cost-effective in the long run for an important project. Let's take a brief look at what they can do for you.

SMPTE Time Code

The key to automated editing is the SMPTE Time Code. The time code is recorded on a cue track on the videotape, and it numbers each video frame with a unique *time code address*. The address reads like a digital clock, in hours, minutes, seconds, and frames. (There are 30 frames per second.)

With time code you can pinpoint a specific frame, quickly and precisely. This makes placing entrance and exit cues a snap. You can rehearse an edit over and over without recording it, shaving your edit point frame-by-frame until it's exactly where you want it. You can lock two or more machines in sync, multi-track audio recorders included. If that's not enough to get your saliva glands working, the time code also makes computer-automated editing possible.

Computer-Assisted Editing Systems

With these systems, a computer controls the tape machines. This allows you to have several source machines feeding a single master tape. You enter the time code addresses of your entrance and exit cues, and the computer does the rest—it locates your edit points, cues the machines, locks them into sync, and makes the edit automatically.

This is the system used to edit professional multiple-camera shoots, where each camera is feeding its own isolated VTR. You can sync-lock all the VTRs together and replay the show exactly as it occurred, multiple cameras and all. Since the whole thing is on tape, you can experiment with different switching sequences and program complex special effects at relative leisure. You can store your whole shot list on disc, enter a few commands, and go get a cup of coffee. When you get back your finished tape will be waiting for you, completely edited and ready for review.

Next time we'll continue our discussion of editing with a look at picturization—the art of combining pictures with music to create the effect you want.

dave miller

Studio Notebook

How To Conduct An On-Location Recording

This is the final installment of our series on how to sell, prepare for, and conduct an on-location recording session. Are you still with us? Good. Let me bring you up to date. You have successfully sold yourself and your services to a group of musicians for an agreed amount. This in itself is a formidable accomplishment. To add to this feat, you have also secured a deposit (don't spend it yet), made the proper connections, have completed your set-up and sound check, and now you await only the start of the performance. If you have done all of this with a minimum amount of mishaps, my question is this: where were you when I was first starting my recording career?

In any event, I must admit that things are pretty much smooth sailing past this point. If you're not trouble-shooting (remember cords), go over your notes, set lists, and all other information concerning the band and their selections. Familiarize yourself with band members' names, their placement on stage, the instrument(s) that they will be playing, and their vocal mic if they sing. Make sure that your faders are clearly marked so that if you forget who is who you may quickly regain your footing. Now is a good time to try to secure the aid of the band's manager or someone who is more familiar with their music than you are to assist you during the session.

Prepare your machines. Clean the heads! Calibrate levels between the board and tape decks, if necessary. Demagnetizing is equally important. You did bring the blank tape, right? Then go ahead and thread it onto the machine. Use the remainder of the time to organize yourself and your equipment. Clean up after yourself on stage for two reasons: One, when you tear down there will be less confusion with as little equipment to strike as possible. Two, the band has a hard enough time keeping its own stage clean without you helping them mess it up. Place the stage box of the snake out of the way (I like it somewhere in the vicinity of the kick drum and floor tom). For goodness' sake, duct tape those cords that cross traffic areas. It is a good practice to mark your equipment: cords, stands, everything, with a clear and quickly noticed "brand." Let this be known to the band to avoid abduction unknowingly. Make sure that the snake runs on an inconspicuous path, away from traffic areas in the venue. Make as straight and short a shot as possible to speed up loading out. As a matter of fact, do everything you can to pack away unnecessary gear before the gig—this will be a big help at the end of the session. Save yourself steps and don't load anything in your vehicle that you will need to bring back in when packing up. You can usually find a safe place around or under the stage for this stuff.

If you have put out all of the fires, at least the ones that must be extinguished before the gig, then sit down, get yourself a drink, have a smoke of your favorite leaf, and attempt to settle your nerves. You deserve it, and you need to be fresh when the next phase—the engineering phase—of your services begins. Go to the dressing room and shoot the breeze with the band—who knows, maybe your friendly attitude will relax them as well. You must remember that the musicians will undoubtedly be more nervous about the session than you are. You will hear things like, "I sure hope we're ready for this," or, "I only wish we would have had a couple more days to practice."

I always say that a band is never completely ready to record, in much the way that most couples are never completely ready for their first child. I like to think that if a band is prepared to play in front of a live audience, then they are probably prepared to play for a tape recorder. After any session, it is easy to think that a song would have sounded better with this added or that re-arranged. If you have the tracks, offer overdubbing of these parts later—that means more money for you. Install a sense of urgency: "My rates are so inexpensive that you can record it now, polish it up, then give me a call to do it again." The chances are in your favor that the next time you see these guys they will have made a personnel change, and you will have a shot at another job. If you let them put you off, chances are you will never do anything for them. They will always have a bass player that's only been with the band for two weeks, or a keyboard player who's leaving after this gig. Turn these objections into selling points: "That's great! Your bass player can use this tape to help familiarize himself with your music, and at the same time, he can critique himself." Or, "Why not do a tape just for sentimental value? Years from now you'll be glad you did."

Don't forget the ever-present incentive of selling cassette copies to help curb production costs for the band, while boosting profits for yourself. Although technically a copyright infringement, the offering of these cassettes on a small scale is much less threatening than bootlegging Billy Joel cassettes. Check into the legalities of cassette dubs. Anyhow, keep in mind that the band may not feel ready, and may never be ready. As creative individuals (as we all are), these feelings are a justified part of their character. Do what you can to reassure them and lessen the feeling of anxiety. I have always received a good response by recording the sound check and running down a tune or two for them. When they hear how good they can sound "out front," they will tend to be more enthusiastic.

Much of your dealings with the band should be in

reassuring their decision and planting the seeds for repeat business. Although you should sprinkle these seeds continuously, you will get a better return on your investment if you prime the pump after a successful session. For now, try to raise the level of interest, ease, and advantages of recording sessions. Lure them into being entranced by what you're doing at every opportunity. Be careful to instill in them the idea that sure, you guys can do this, it's not that hard. Share your knowledge—it won't backfire on you and it will tend to help make you look like the expert that you are. As a matter of fact, I always suggest that bands run a deck from the soundboard during every performance to help keep them at their best. Get them used to the idea that there is a great value in recording themselves for later critical listening, but warn them that a mix for the house is in most cases radically different than a recording mix.

So, although a band can and should record itself, when it comes time for the professional, no-compromise touch, they need to call on you, or someone like you (what the hell, promote the idea for all of us). Get them to inter-mix performance and recording and you'll drum up more business for yourself in the future. When that repeat business comes around, the band may be more streamlined in their preparation, and more knowledgeable in their direction. This will make your job easier.

Although the picture that I have painted makes it appear that most bands are mindless, spineless introverts scared to leave the dressing room, let me assure you that this is the exception and not the rule. Many bands have taught me plenty about my own art, so always keep your ears, eyes, and mind open to learn from those more knowledgeable than you. They do exist, even though sometimes it takes a little insight to know when someone only thinks that they know more than you do.

Okay, here we go. The band takes the stage, makes its introduction, and you roll the tape. With the board pre-set during the sound check, don't be terribly alarmed to find that you need to make a lot of adjustments to compensate for stage changes ("This is the volume I'll be playing at tonight."). Also, don't be too upset that the first two or three songs sound sloppy during these adjustments—the band is getting adjusted, too. If they happen to be songs that the band wants on the finished tape, they usually won't have any quarrel with playing them again later in the evening.

If the band you're working with has an open, creative air about them, go ahead and experiment a little on those songs that you know they won't care about (don't mess with originals unless specifically instructed). Play with effects, do a little panning; do anything within reason that you think might enhance the mix. Usually, however, it is best just to stay with a straightforward mix—you might just be messing with your paycheck.

Watch for little surprises. Remember that mic you placed on the drummer's little percussion section that he only uses in one song? Well, he played it while you were lighting a cigarette. And you didn't think he was going to play vibes during *that* song! Be on top of your mix. Watch the stage as closely as you watch your meters. Be there when the guitar solo is. There is nothing worse than those who have the need to ride gain on all inputs with their fingers and toes. But there is little merit in compressing the entire mix to help make up for your slow reflexes either. Just pay attention and your mix will be fine. ("Oh, *that* part? That's when the back-up vocalists *were* singing off-mic.")

Keep your eye on tape usage. Well-planned sets should avoid any problems, but if you have a need to change tape during a set, the band may be able to waste a minute or two between songs. I remember when a group I was recording was into their second encore and boy, were they hot. I saw it coming and got prepared to make a quick tape change. To save time, I left the take-up reel tails out and removed it and dropped it to the floor. I switched the empty feed reel to the other turntable, stuck on the new tape, threaded and rolled. I was lucky—at the end of the night I made a simple edit that removed the chorus the band was playing when I ran out. You couldn't even tell that it was missing. Not all mishaps can be fixed like this, but it's always worth the chance.

Minimize distractions by minimizing traffic in your area. It doesn't take long to give someone the message that you don't wish to be bothered. Just ignore the myriad of questions ("What would happen if I turned this knob?") you will get from wonder-struck patrons ("My brother has a microphone."), and mindless individuals whose intelligence quotients match their blood-alcohol level ("You know Dennis, the drummer? Last night he told me that I'm his girl. That's why I'm here—isn't that what girlfriends are for?"). Although most of these comments are harmless, it pays to be on

your guard ("You don't mind if I take this, do you? I mean, you do have insurance, right?"). Remember that the rule of thumb in on-location sessions is that anything that is left unattended is the very thing that will require your attention. So, to the best of your ability, try to keep an eye on every link in the chain.

For ease in editing, I like to bring up the audience mics at the end of each song, then fade the master out. Be careful with this technique, as it will most assuredly backfire when songs are segued or one song turns into a medley.

We're not done yet. We need to cover basic post-production requirements and load-out. First, let's assume that you had a killer mix and the band confuses your work with Eddie Kramer's. You deserve congratulations and a pat on the back! I'll be the first one to offer, because if you wait around for overwhelming compliments from the band, you'd better change careers. From the first note that you play back, the band (understandably) is lost in critiquing its performance, not your mix. As long as every individual player can pick out his own playing from the rest of the band's with equal levels, they will probably approve of your performance.

Let's walk though a typical load-out of mine. First, turn off the tape and rewind it. Bring down all faders, and set all controls on the board to an off position. Resetting the board to zero allows for a fresh start on the next session. Turn off any outboard equipment not needed for playback; don't forget the microphone phantom power supply. Cover the boards, and begin playing the tape back at a sensible level. Go to the stage to begin striking and tell the band that the tape is playing if they wish to hear it. Make a strong suggestion that they had better listen to it now or miss the only chance they will have that evening.

Pull all mics from their clips, unplug them, turn them off, and remove the batteries, if used. Immediately place them in their protective travel case. I found a small hinged box that I lined with foam padding. Then I made a cut-out for all of my individual microphones. As the mics are returned to the case, it is easy to keep tabs on them all. This is a good time to bring up an inventory check-list. It is a very good practice to make a simple inventory of stage equipment to assist you in making sure that everything you brought will return home with you. Be sure to include all cords, patch cords, y's, adapters, tools, splitters, everything. Marking your equipment with your "brand," as we discussed before, is a terrific aid. Keep your inventory sheet with you as you pack. Refer to it often, and double-check it when you have completed striking the stage.

Unplug everything from the mic end first. Place everything but mics (direct boxes, in-line transformers, etc.) in neat piles together on the stage. Pull the clips from the stands. Then, starting with input number one on the stage box of the snake, begin wrapping cords. If there is one thing that sticks with me more than anything else that I learned at recording school, is that cords can never be handled too delicately. I chuckle every time I see those guys wrap their cords by winding them from the elbow to the thumb. When they are trouble-shooting a ground loop problem caused by the snare drum mic cord, I'm in the dressing room with a nice, tall drink.

There are some good methods I've seen utilized to ensure proper cord care. I use the most basic. By holding the cord in my left hand, I get an arm's length measured with my right hand. Then, I give the cord a turn with my right hand while bringing that to my left. The cord easily and naturally forms a nice circle. I simply continue this until the cord is completely wrapped. Then, I secure the cord. I have found that those little plastic retainers that come with garbage bags work perfectly. Wrap it once around the male end of the cord so that it will remain attached to the cord when in use. When wrapped up, bring the fastener around a second time to secure all of the wrappings. I then store my cords in a separate cord bag (a nice big gym bag).

Another neat idea is to get a garden hose cart (I use one for my snake with great success) at the hardware store for about $20, and roll your cords up one at a time. When you reach the end of one cord, simply plug that cord into the end of another and continue rolling. Treat your cords as if they are the most important part of your stage, because they are. Countless times a $15 cord has kept tens of thousands of dollars of equipment from operating. I can honestly say that in over nine years of operation, I have had the need to repair less than three or four of my mic cords. Forget patch cords, though; they develop shorts when you buy them.

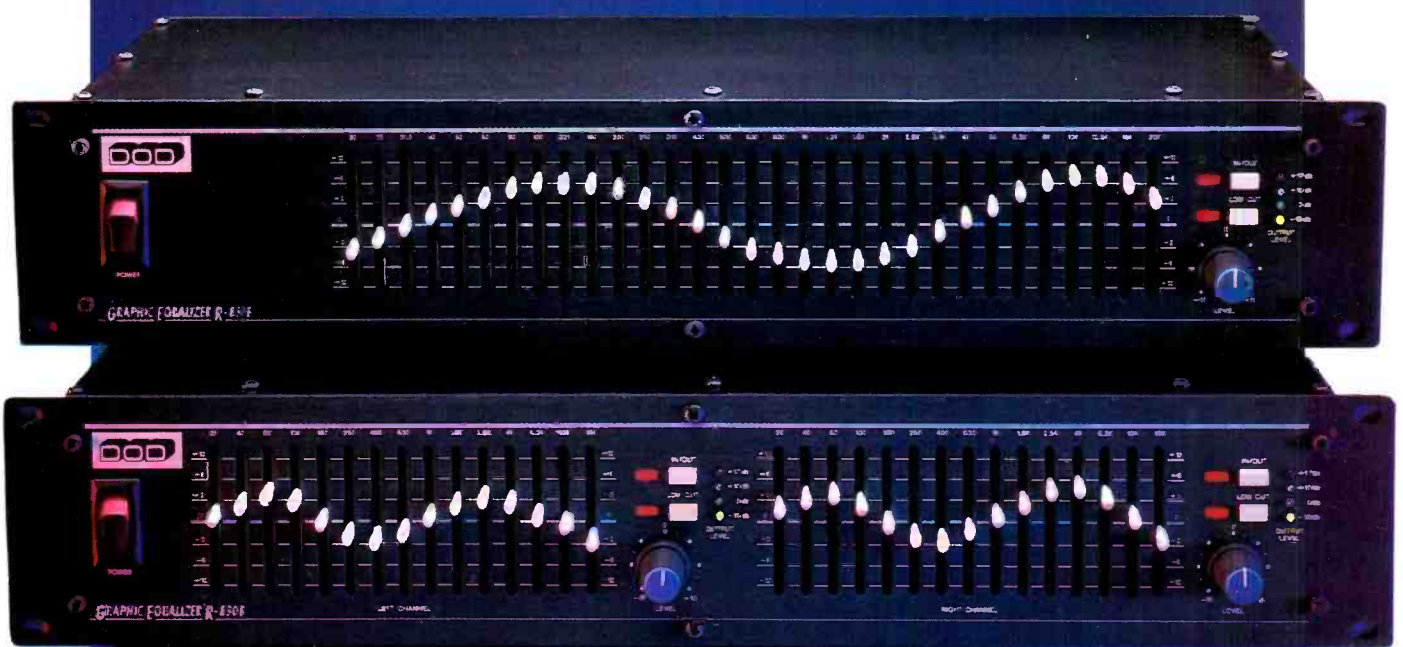
I'm also a little finicky about my stands and booms. Who do you know that paints their mic stand basses on a regular basis? I fold my booms up and lower my stands into their most compact position, then I place them in a box I built specifically for stands. By designing this box with casters for ease in rolling, I incorporated slots that allow each stand to slide in two deep. In the same box, I can store stands upright, hanging upside down. I've seen other such boxes that allow stands to store on both sides as well. About the time that you get to the stands, you might want to tell the band that you will be finished shortly. This will allow them to attempt to get their money together to shorten your stay. About the only thing worse than nodding off as you hear your 710th version of "Proud Mary" is to wait for an hour and a half after the session for your money.

Pack your equipment away, engage in about six and a half seconds of idle chit-chat with the band, and stop the tape. Get right to the meat of the matter and say that you would like to get the money out of the way so you can get home. I wish you luck.

After you have been paid, discuss the scheduling of additional playback, overdubs, or any other post-production work required. With proper pre-planning you just might be able to give them completed tapes in one hand and get your cash in the other. Before you dash off into the early dawn, muster up as much energy as you can and set the groundwork for another recording. I like to suggest that the demo tape of a club band has a life expectancy of about six months to stay current with personnel and music. Do what you can to plant those seeds of repeat business.

Then, take a last walk around the stage, double check your inventory, and hit the road. On the way home, be sure to question your sanity and start to envy your brother-in-law who only works 14 hours a day in heavy construction. If you do this last step, you are definitely one of "us." Join me next time... who knows what I'll come up with.

TRUE EQUALITY



In the past, low price has often been equated with low quality. No longer!

DOD's R-830B and R-831B EQ's feature computer aided design, low noise, high slew rate, low distortion, and extremely accurate controls. Add to this DOD's low prices, and the result is two of the most popular EQ's on the market today.

- Modular PC board construction
- Center detented, linear potentiometers
- All metal chasis
- Four-level LED output indicators
- Low cut filter
- Bypass switch
- 12 dB boost or cut
- Signal to noise greater than 95 dB
- IM distortion less than 0.01%
- One year warranty

If you haven't yet discovered the true equality, you owe yourself a visit to your nearest DOD dealer for a demonstration.

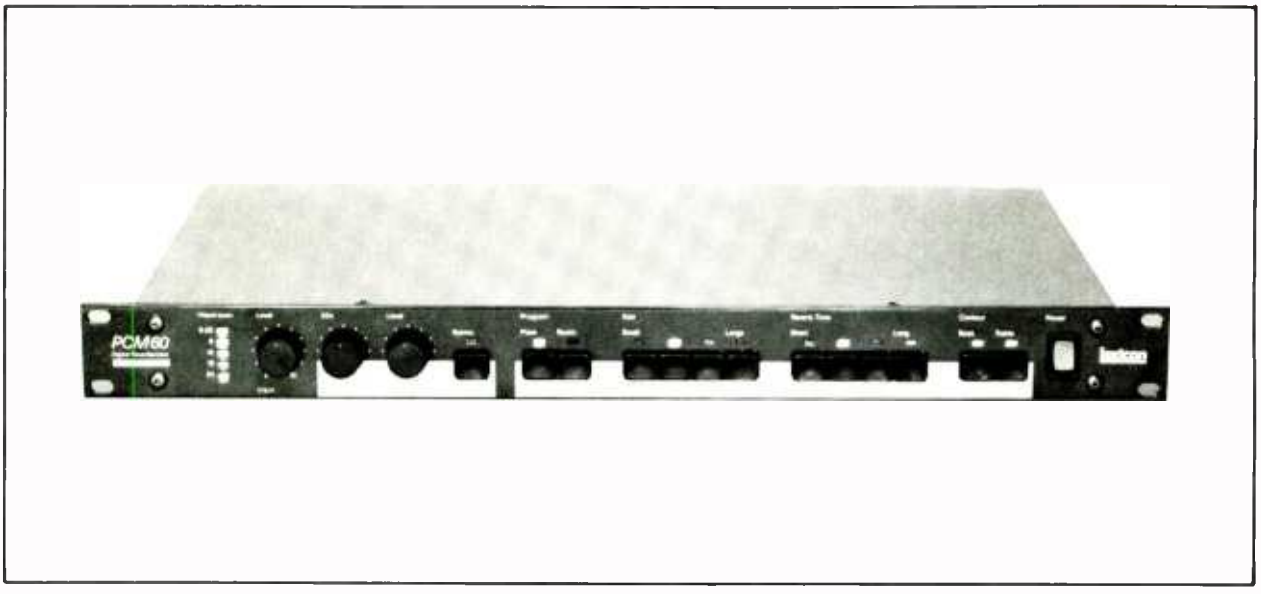
DOD

5639 South Riley Lane Salt Lake City, Utah 84107 Telephone (801) 268-8400

Circle 23 on Reader Service Card

craig anderton

Lexicon PCM-60 Digital Reverb



Once upon a time, you had to be rich to afford digital musical equipment such as delay lines, pitch transposers, programmable drum units, and digital keyboard synthesizers. Yet one by one, these formerly high-priced products are being upstaged by second-generation (and even third-generation) products that deliver comparable performance at a fraction of the price. With digital delays continuing to get less expensive, it was only a matter of time before digital reverb followed suit. Now, several companies have introduced digital reverb in the under-$2000 category.

Of course, you might question whether "under-$2000" could be considered inexpensive. Well, there's a good reason why you don't see $300 digital reverbs: Reverb is a very complex effect to generate, and by previous standards, under-$2000 *is* low cost. In a natural acoustic environment, you're dealing with what seems like essentially an infinite number of sounds being bounced all over the place; anything less than this sounds "fluttery" and periodic. Digital reverbs, then, must generate incredibly complex, non-repeating, high-quality sound, yet do so at a cost that's competitive with other types of reverb (spring, plate, etc.).

That's quite a challenge...which brings us to the Lexicon PCM60. Lexicon is well-known for its high-end digital reverb, and I was most interested in checking out their $1500 "little brother." Is digital reverb the "next big thing?" And how does it compare to other types of reverb?

What is it? The PCM60 is a single rack space device; the reverb parameters are all switch-selectable rather than continuously variable. By making the PCM60 more of a preset device, it seems that Lexicon has decided to optimize the unit for a selection of

4-TRACK MASTERPIECES

While the Beatles were teaching Sgt. Pepper and the Band to play, twenty years ago, George Martin was getting everything down on a 4-track tape recorder. Even by today's standards it's a masterful feat of technology.

So is the X-15, in its own way. It's the ultimate evolution of 4-track recording, designed by the engineers who invented the format of a multitrack cassette recorder/mixer.

This is the one that's really portable, easy to use and costs less than $500, retail. Plus, there's a companion mixer/compressor, microphones, headphones, self-powered speakers, the works.

It's all together, all affordable. So if you have a little masterpiece of your own in mind, see your Fostex Dealer today.

FOSTEX®
MULTITRACK DIVISION

FOSTEX CORPORATION OF AMERICA, 15431 Blackburn Ave., Norwalk, CA 90650 (213) 921-1112

Circle 24 on Reader Service Card

specific sounds rather than making more of a special effects device—you won't find backwards reverb, dynamic reverb, and other relatively esoteric features. However, the PCM60 presets do indeed offer a wide range of room sizes, reverb times, acoustical characteristics, and two different reverb programs ("plate" and "room"), so its versatility should be sufficient for all but the most hardcore high-tech crowd.

Rear panel jacks and switches. The Main Input ¼-inch phone jack works in conjunction with an input level pushbutton switch. The latter chooses between +4 dB (in which case the Main Input accepts balanced, high-level signals) or -20 dB (the Main Input then accepts unbalanced, low-level, high-impedance output signals). There are also ¼-inch stereo phone jacks, and an output level pushbutton switch that selects either high level (+10 dBv into 600 Ohms) or low level (-8 dBv into 10k Ohms) output. The output jacks are unbalanced.

Two ¼-inch phone loop jacks (effects send and effects return) allow for inserting an effect before the reverb generator. Typically, this would be a delay to provide pre-delay, a limiter to prevent digital "splattering" due to overload, or an equalizer to tailor the reverb sound. Note that the PCM60 does include some limited pre-delay and equalization options, but as you might expect, these facilities are not as flexible as what you could add with a sophisticated outboard rack-mount device.

The remaining jack (bypass switch) accepts a standard guitar amp-type footswitch. Plugging into this jack disables the front panel bypass switch. When bypassed, the PCM60 uses relays to connect the output jack directly to the input jack so that there is no intervening active electronic circuitry between input and output.

Front panel controls and switches. Moving from left to right along the front panel, a five-LED clipping indicator (top LED indicates clipping) and Input Level control help set levels going into the PCM60. Next comes an Output Mix control that pans between straight and delayed sound. The remaining control, Output Level, sets the reverb output level, and is typically adjusted for unity gain when compared to the bypassed signal.

Next comes a bunch of pushbuttons. The first, a bypass switch, parallels the rear panel jack. The next two are interlocking pushbuttons (i.e. pushing a switch locks it in and locks the other out) that select between "plate" and "room" reverb characteristics. Since digital reverb has the soul of a computer, you can easily teach it different reverberation "models"; plate and room are the two that come with the PCM60.

Next, a group of four interlocking pushbuttons selects the "size" of the room or plate, from small to large. (Note: Most of the PCM60 pushbuttons exhibit a slight lag between the time you press the switch and the time the effect changes.) Each size has its own LED indicator to show which is selected and also, its own added pre-delay. Moving from small to large, the four pre-delays in room mode are 6, 9, 16, and 37 ms, and in plate mode, 1, 2, 7, and 46 ms.

Another group of four interlocking pushbuttons selects reverb time. The actual reverb time varies depending on the room or plate size, and whether you've selected the plate or room program. The following chart shows the four available reverb times (in milliseconds) for different size and program switch settings.

Size	Program	Reverb Times (in ms)			
Small	Room	300	700	1100	1600
Larger	Room	600	1100	1900	2600
Next larger	Room	700	1500	2400	3400
Largest	Room	800	1600	2700	3800
Small	Plate	200	600	1100	1600
Larger	Plate	400	900	1700	2700
Next larger	Plate	600	1400	2600	4000
Largest	Plate	700	1500	2900	4500

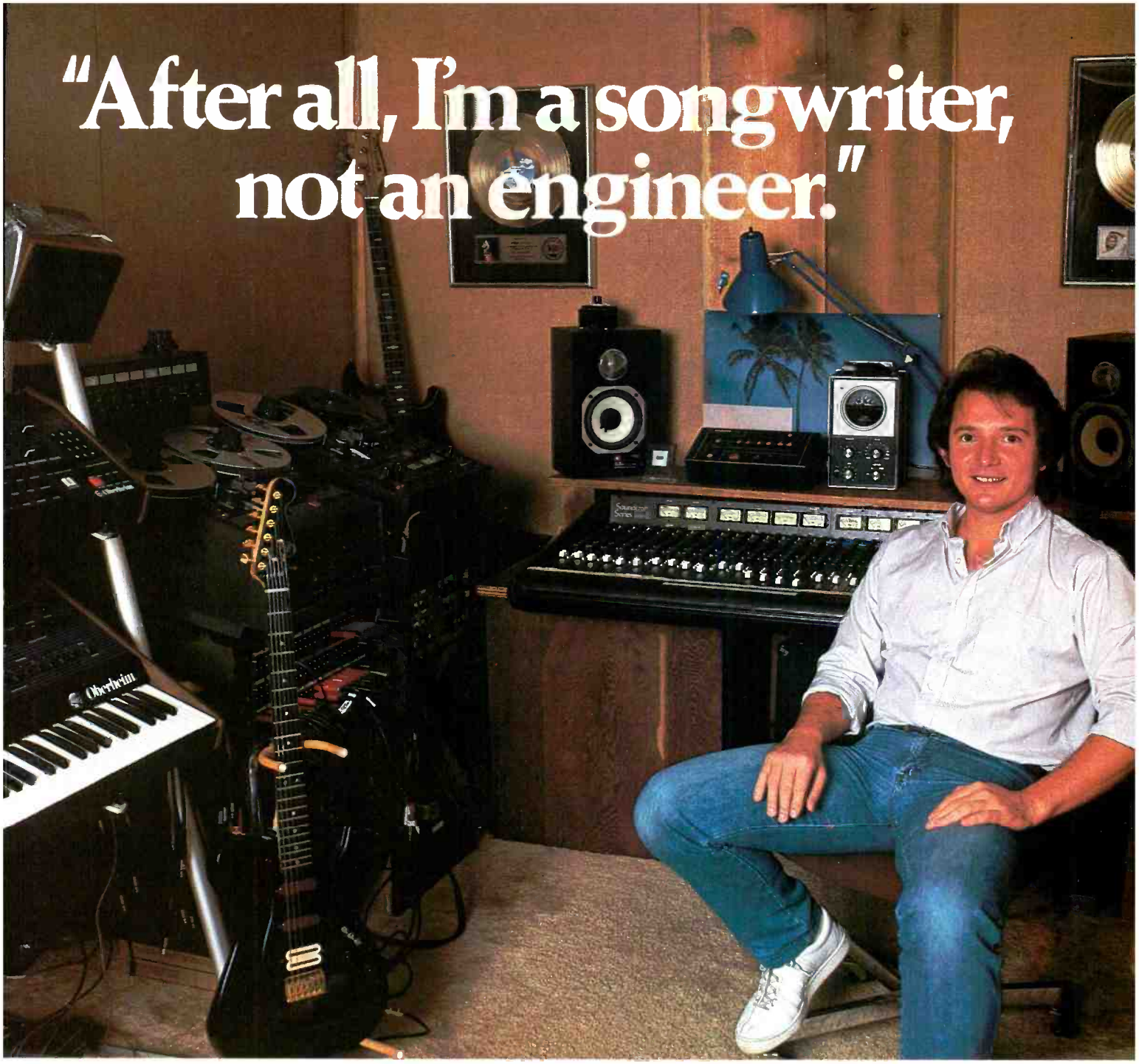
Aside from the on-off power switch located on the right side of the unit, the only remaining switches are the Bass and Treble Contour switches, which are not interlocking but instead act independently. Again, they respond differently depending on which program is selected and again, we'll use a chart to get the point across.

Program	Bass (1=in, 0=out)	Treble (1=in, 0=out)	Comments
Room	0	0	Flat response
Room	1	0	Increases low frequency reverb time about 50% below 800 Hz
Room	0	1	Decreases high frequency reverb time by about 25% above 800 Hz and rolloffs starting about 2 kHz to simulate room absorption
Room	1	1	Combines above two effects
Plate	0	0	Decreases low frequency reverb time by about 50% below 800 Hz
Plate	1	0	Increases low frequency reverb time by about 50% below 800 Hz
Plate	0	1	Flat response
Plate	1	1	Decreases high frequency reverb time by about 25% above 800 Hz and rolls off starting about 2 kHz to simulate room absorption

Obviously, these are not simply bass and treble shelving controls. In operation, they are extremely useful in shaping the reverb sound.

Using the PCM60. Low-cost digital reverb is in many ways superior to electro-mechanical reverb, but it is not a panacea. There are still areas where digital reverb lacks some of the endearing characteristics of its acoustic counterpart. I feel the situation is similar to tube vs. transistor guitar amplifiers; while just about anyone would agree that transistors have better specs, are more reliable, and cost less than tubes (besides, transistors don't need output transformers, filament current, or high voltage power supplies), a large number of audiophiles and musicians use tubes because they give a particular, subjectively pleasing

"After all, I'm a songwriter, not an engineer."



Songwriters and engineers are not only equipped with very different kinds of talent, they need different kinds of equipment to bring those talents out.

No one is more aware of this fact than Steve Kipner. He's one of the most successful songwriters in the country. You'll find his words and melodies behind many of the industry's top recording artists. Like Olivia Newton John's "Physical", "Heart Attack" and her newest hit "Twist of Fate." Other contributions include songs for Sheena Easton, Dolly Parton, America, and Laura Branigan.

And behind Steve Kipner you'll find Soundcraft's 400B console. Because to create the sound that both audiences and artists respond to, Steve prefers the console that responds to him.

Steve chose the 400B for reasons that are as solid as gold. "I spend long hours in my home studio, and I never know when the creative spirit is going to strike, even at 3 AM. I spend time at this console laying down tracks, not patching and repatching, or fooling around with a lot of confusing controls. The Series 400B does what I want it to do and lets me do it easily. The quality of the sound is equal to expensive commercial studio sessions, plus I've got the comfort and control of my home environment. After all, I'm a songwriter not an engineer."

It's easy to see why Steve chose the 400B. But of course, at Soundcraft we do more than build the kind of consoles that bring out the best in recording artists and songwriters. We also provide a full line of quality mixers to bring out the artist in the engineer.

Soundcraft

The Songwriter's Choice

Soundcraft Electronics 1517 20th Street, Santa Monica, CA 90404 (213) 453-4591 Telex: 664-923

Soundcraft Electronics Canada, Inc. 1444 Hymus Blvd., Dorval, Quebec, H9P 1J6 (514) 685-1610 Telex: 05-822582

Soundcraft Electronics Limited 5-8 Grand Sutton Street, London, EC1VOBX, England Telephone: 01-251-3631 Telex: 21198

sound. Similarly, a real room will give better sound than a low-cost digital reverb...but how many small studios can afford the luxury of their own reverb room, anyway?

What I like about digital reverb in general, and the PCM60 in particular, is the versatility and sound quality. Forget about muddy springs, noisy plates, and limited adjustments; digital reverb will give you virtually any space from a claustrophobic shower stall to huge concert halls. Digital reverb also has a clean, expansive, bright sound with a clear (although to my ears, somewhat dry and brittle-sounding) high end.

In particular, the PCM60 offered an absolutely great John Bonham/Phil Collins type ambient drum sound (select the largest room size, shortest decay time, and press in the treble contour switch). The effect is like the "noise-gate plus ambience" drum sounds heard on Collins' drum break on "In The Air Tonight," several Led Zeppelin songs, etc. If your taste runs more to Gregorian chants, the large room/long decay setting sounds like the inside of any good-sized medieval cathedral.

One point that became obvious the more I played with the PCM60 is, that digital reverb effects must be carefully applied. For example, if you select a small room and give it a long decay time, the sound will be unnatural because it's trying to synthesize an acoustic space that has no basis in reality. Sometimes these unnatural effects can be used to advantage (such as the large room/short decay sound mentioned above), but generally, you need to optimize the reverb to the signal source; what sounds good on a solo voice may not sound good applied to program material. If you just push buttons randomly, you might not end up with particularly good results—think about the program source, and the *consequences* of pushing various buttons, in order to select the best reverb effect. Consider that large room size and long reverb time applied to program material sounds pretty murky; yet if you "splash" a single snare drum beat into that reverb stew and let it hang over, the results can be extremely drastic. And speaking of dramatic, although the manual says to avoid overloading the input, electronic drums sound really forceful and mammoth if you set levels so as to keep the red LED on as much as possible during peaks. The "crunch" you get at the beginning of each note adds some character to rhythm machines—if you think you've heard everything, wait until you hear an electronic snare drum splattering all over the insides of a PCM60.

So does the PCM60 have any drawbacks? Well...one problem is that you can note a certain periodic feel to the reverberated sound. It's subtle, for sure, but it's there. Since reverb is normally mixed in the background you won't notice this phenomenon much (if at all); still, with the reverb mixed prominently the periodicity can be somewhat unsettling. Also, there's a quality that's clean—almost to the point of dryness—in the sound of the high end. Digital reverbs are disciplined, polite, and repeatable; but some music is more Dionysus than Apollo, and perhaps other types of reverb would be more appropriate in those situations. Quality spring reverbs, for example, have a kind of "wetness" and power to them which digital reverbs

just don't seem to duplicate, and plates have a crispness that, although the PCM60 plate setting comes very close, sounds subtly different from a digitally synthesized equivalent. (By the way, I certainly don't mean to imply a digital-vs.-analog argument, which I think is completely irrelevant here. Different methods of generating analog reverberation sound just as different as analog and digital reverb.)

Overall evaluation. While perhaps not as flexible as other under-$2000 digital reverbs, Lexicon's offering has superb sound quality. The presets are well-chosen to cover the majority of musically useful applications, the unit is easy to operate, and it seems to me that despite its relatively low cost, the PCM60 would easily satisfy the needs of all but the highest-level studios (and they can afford the bucks for top-of-the-line digital reverb anyway). For those who want to radically improve their reverb sound by buying just one gadget, the PCM60 is the best choice I've seen so far.

Incidentally, the manual (which is quite good—readable and to the point) mentions that you can "slave" two units together by connecting the effects send from one reverb to the effects receive of the other. While I didn't have a chance to try this, it sounds good in theory; I would expect an even more diffuse sound.

Before closing this column, I'd like to mention a trick for the PCM60 that completely eliminates any of the minor objections I have about the sound. As mentioned last month, while I was writing this review I also had the Furman RV-2 spring reverb on hand. After comparing the sound of the two units for a couple of days, I came to really appreciate the PCM60's clean, precise sound but I also really liked the RV-2's warm, more randomized character. If only there was some way to get the best of both worlds...as it so happened, after plugging the RV-2 (set for mostly straight signal with a medium amount of reverb) into the PCM60's effects loop jacks—wow! The reverb sound was incredible. Inserting the RV-2 broke up the sound just enough to mask the PCM60's periodicity, and interestingly enough, the two effects seemed "additive" in that the overall sound had the warmth and sweetness of springs but also the brightness and precision of the digital sound. Yes, it's an expensive solution (and the mix of the two sounds is critical), but it produced one of the most satisfying reverb sounds ever to grace my studio. Let me emphasize, the PCM60 sounds great on its own and doesn't need any outside help. But if you're thinking of replacing a spring unit with the PCM60, don't sell the springs until you've heard what happens when you hook the two together.

Lexicon has a real winner on their hands with the PCM60—they have indeed created high quality, affordable digital reverb. While a few compromises have been made in order to keep down costs, the overall sound quality is so clean that you probably won't notice or care about any minor (and they are minor) shortcomings.

Low-cost digital reverb is an effect whose time has come, and the PCM60 proves that. Overall, this is a most welcome addition to the small- or medium-sized studio's bag of tricks.

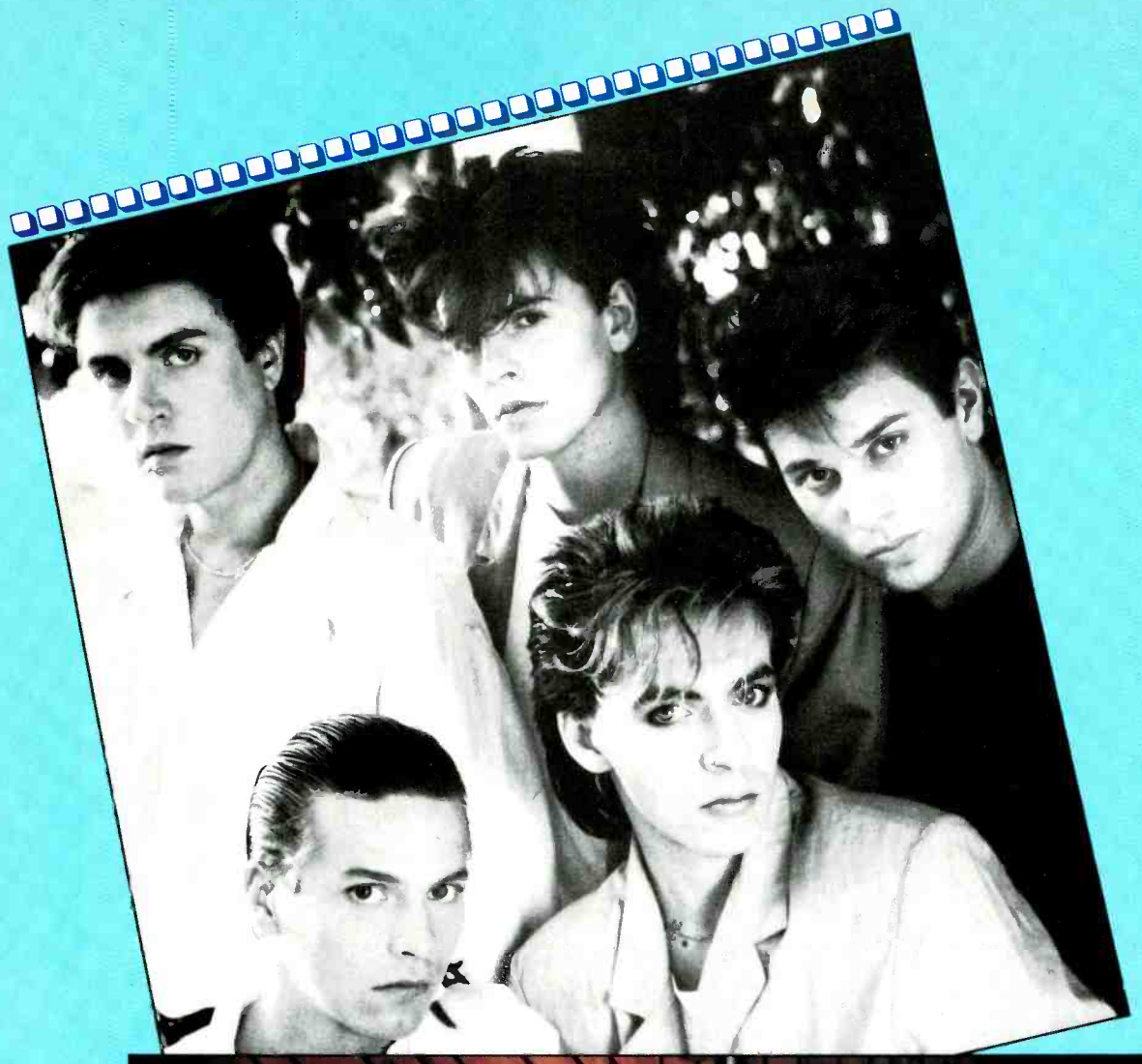


Photo by Cathy Miller

Duran Duran (top) and The Power Station (bottom) featuring (l. to r.): Robert Palmer, John Taylor, Andy Taylor and Tony Thompson.

deirdre rockmaker

Duran Duran

The Power and the Glory

Duran Duran equals screaming girls. Of course in *Modern Recording & Music* there's not much interest in screaming girls. But perhaps that's the point. With the mass emphasis on makeup, flashy clothes and expensive videos that surrounds Duran Duran, one fact is often overlooked: Duran Duran does make well-crafted records with a keen choice of producer, arrangement and recording studios.

In 1978, while the London "New Romantic" club scene was just gaining notoriety, a prototype Duran Duran was gigging amidst a similar atmosphere up north in Birmingham, England. The unit, consisting of five schoolfriends including Nick Rhodes on Wasp synthesizer and rhythm unit and John Taylor on lead guitar, was short-lived. But soon after, another Birmingham friend named Roger Taylor joined Rhodes and John Taylor on drums. John Taylor switched to bass. Lead guitarist Andy Taylor (none of the group's Taylors are related), who had been in several bands since the age of 13, was recruited through an English music paper. A London-born drama student named Simon Le Bon became a singer. The all new "Roxy Music/Chic influenced" Duran Duran was reborn. The average age of its members was 17.

Although the London trendies eschewed touring, Duran Duran knew that the recognition provided could only be beneficial and took to touring full force. The theory certainly paid off. By 1984 the band was considered the top band in England. By April of last year they had all become certified millionaires. With the money they earned they purchased "state-of-the-art" equipment: Guitars were fitted with Nady 700 radio transmitters, keyboards included a Fairlight CMI and the touring crew was vast.

A world tour was undertaken with most of the concerts recorded on a mobile. The result is the "live" album, *Arena* (Capitol), culled from tracks recorded in 63 cities in five different countries. But although the album consists of live performance tapes, the material has been taken into a studio, where it was remixed by Duran Duran's engineer, Jason Corsaro. Overdubs and effects were added, the audience was pulled back in the mix, and a studio track was included. The result is a non-live sounding album that claims only to have been "recorded around the world."

The first single, "The Wild Boys," co-produced by Chic's Nile Rodgers and Duran Duran, is the only cut not previously released by the band. (Rodgers had previously worked with Duran Duran when he remixed their single "The Reflex," from the Capitol album *Seven And The Ragged Tiger*.) Long-time admirers of Chic, one of Duran Duran's goals had always been "to be able to afford Nile Rodgers." This single was the first time the band entrusted any of its recorded material to an outsider without being present itself; Rodgers worked on the track in New York while the band was on tour.

Duran Duran also took time off during 1984 to work on various solo projects that had long been in the planning stages. Keyboard player Nick Rhodes worked on a book of his Polaroids, which was released in December, while vocalist Simon Le Bon contributed backup vocals to the Sister Sledge 12-inch "Lost In Music" (also produced by Nile Rodgers). But perhaps the most ambitious, as well as most prolonged, project was an album called *The Power Station*, a collaboration between guitarist Andy Taylor and bassist John Taylor.

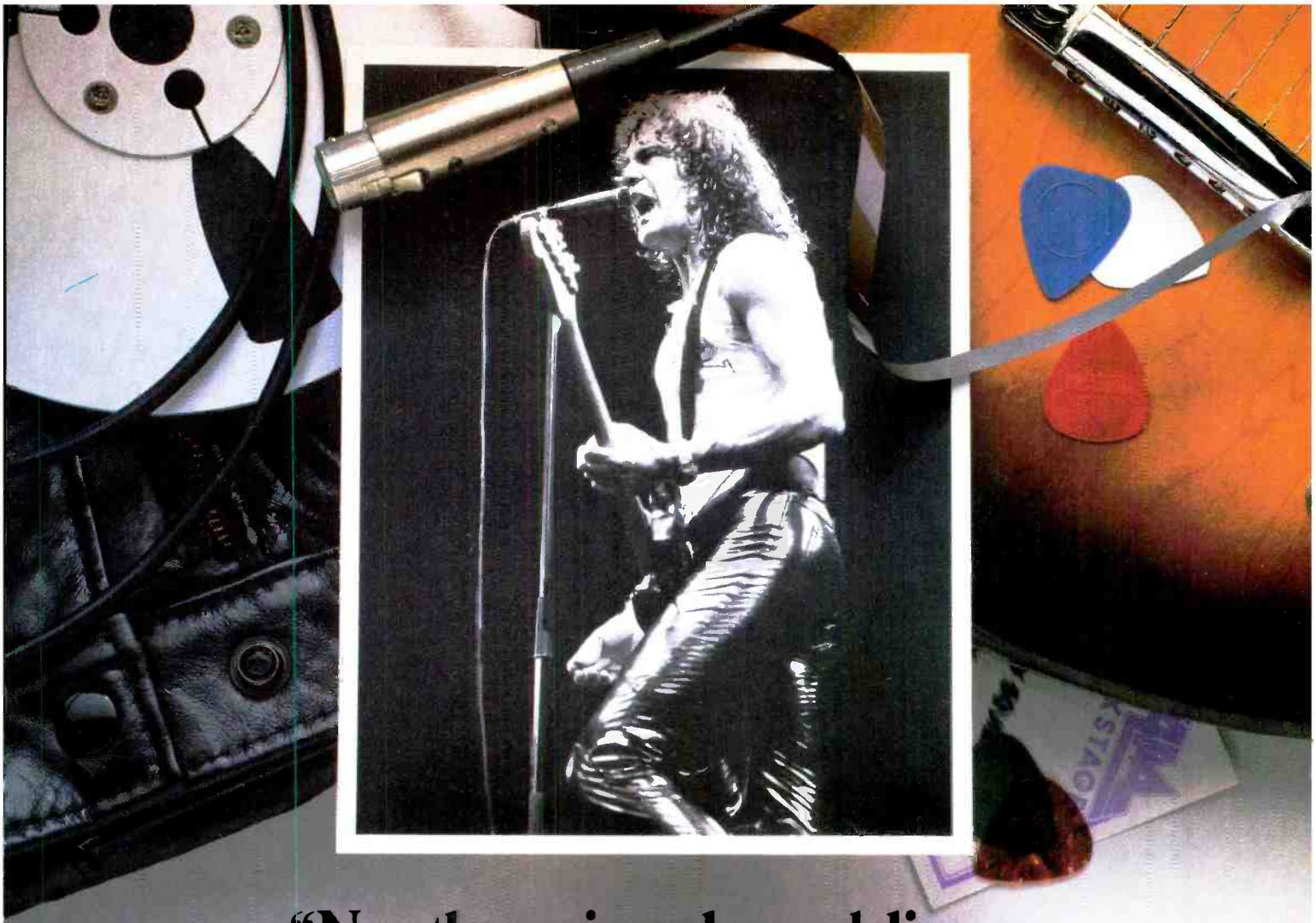
John Taylor had originally approached American recording artist Robert Palmer three years ago with the idea to record a single together, but conflicting schedules postponed the plan. Meanwhile, Taylor went about individually recruiting Bernard Edwards of Chic to produce, Andy Taylor for the guitar work, and Tony Thompson, also of Chic (but at the time on tour with David Bowie), as drummer.

We're in the '80s now when everybody has at least halfway decent home stereo systems and car systems and FM radios. The standard of live albums, I think, has to go with that. So we really had to engineer it as we would engineer a studio album. The main reason we did it was to prove we could just play.

The band, now calling itself "The Power Station," after the New York studio of the same name, was hesitant to specifically name any studios at which they worked, but apparently the album was patched together from recordings done in various locales. The two Taylors recorded in London, where Tony Thompson joined them. The tapes were then taken to Robert Palmer, who added vocals and lyrics, most likely at Compass Point in Nassau. The rough versions were then brought to the Power Station in New York, where they were mixed and the finishing touches added. At this late stage, it was the first time the band had actually been in the studio together.

During this final recording process, *Modern Recording & Music* spoke with both John Taylor and Andy Taylor. Perhaps because they were in the midst of this solo project they were able to talk about Duran Duran objectively, while maintaining a fierce allegiance to The Power Station.

MR&M also spoke with drummer Tony Thompson, whose work with The Power Station is just the latest in a long string of personal triumphs. Along with Bernard Edwards and Nile Rodgers, Thompson was a founding member of Chic. But unlike the other two, Tony Thompson became a dedicated session musician. He has toured with such top names as Patti LaBelle, Stevie Wonder and with David Bowie on his "Let's Dance" tour. As well as also playing on the *Let's Dance* album, he has laid



"No other microphone delivers hardcore rock 'n' roll like the SM57. That's why it's the only mic I use."

-Billy Squier

When Billy Squier rocks he needs a microphone that can roll with his punches. That's why he uses the Shure SM57. He's tried other microphones but he always comes back. As a matter of fact, the SM57 was the very first mic Billy used. It's taken him from small club dates to the big stages worldwide.

The SM57 is the perfect microphone for rock 'n' roll. It's got the right punch in live vocal applications to rise above the music. With a presence rise in mid-frequencies and a fixed low frequency roll-off to minimize "boominess" in close miking. The well-controlled polar pattern maximizes gain before feedback. Maximum gain is essential to high volume stage monitor applications during rock 'n' roll performances.

The SM57's presence peak makes it right for miking instruments, too. With clean, well-defined accuracy.

The SM57 is a tough act to follow. Its rugged, reliable performance lets it stand up to the steamiest rock 'n' roll abuse. It can go on performing even when Billy Squier is ready to call it a night.

When it comes to hardcore rock 'n' roll the SM57 is a star. Just ask a star like Billy Squier.

For more information on the complete line of SM Microphones, call or write Shure Brothers Inc., 222 Hartrey Ave., Evanston, IL 60204, (312) 866-2553.

SHURE®

THE SOUND OF THE PROFESSIONALS®...WORLDWIDE

Circle 27 on Reader Service Card

Photo by Debbie Leavitt/PIX Int'l

Duran Duran meets the press in L.A.

People tend to think of us as a singles band; but then again, if you have eight singles on an album, it tends to be a great album.

down tracks for Diana Ross, Sister Sledge, and is featured on four tracks on Mick Jagger's solo album. Perhaps not so coincidentally, all are produced by Nile Rodgers.

Although Thompson's name may not be as well-known as those he has backed, he is happy and confident with his decision to concentrate on touring and recording with a variety of artists. His credits confirm his creative ability.

Modern Recording & Music: Was the decision to record a live album at this time based on a feeling that Duran Duran was at its peak in terms of live performance?

Andy Taylor: In a way, yes. It also ties up four and a half years without a lull. The live album is like a summary of the past three albums; we thought that we were doing what we were doing as well as we could do it. Now we're moving on, so that sort of ties our stock up, if you like.

John Taylor: *Arena* is like a performance album, not a live album. It says, "recorded around the world," but there were rules we laid down at the start. We didn't want it to go, "Yaaay! Well, thank you very much, this song's called..." in between each song. Also, we didn't want to sacrifice. We're in the '80s now when everybody has at least halfway decent home stereo systems and car systems and FM radios. The standard of live albums, I think, has to go with that. So we really had to engineer it as we would engineer a studio album. The main reason we did it was to prove that we could just play. And it has turned out really well. I think every song is better. It's better engineered, and better performed, than the originals.

MR&M: So *Arena* was recorded live, but then brought into the studio to be overdubbed and produced?

AT: We recorded it on a regular 24-track mobile, the way most live stuff is recorded...

JT: There are loads of effects; we put scratch bits on it, and flanging and stuff. It doesn't say live anywhere; it just says "recorded around the world." There may be some overdubs, but then why not? Who wants to hear bum notes? It's just Duran Duran performing songs you've heard them perform before, but they're performing them better. We were wide open as to the approach of the production of it. There were no Puritanical-type, "Gotta keep this feel 'cause the kids are gonna know." I think that would have been very boring. I hate live albums personally, and this doesn't sound like a live album.

MR&M: How many concerts were recorded for this album and where?

AT: They were recorded all over the place. It started in Australia in October 1983 and went back around the world to Japan, England and America. We had to wade through piles and piles of tapes.

MR&M: Do you think of Duran Duran as a singles band?

JT: Yeah, I suppose. No, I don't want to make any distinction at all. People tend to think of us as a singles band; but then again, if you have eight singles on an album, it tends to be a great album. I like pop singles. I like pop music; not pap music but pop music.

MR&M: Do you use different equipment for live performances and recording?

AT: I mainly use Schecter guitars. I started using them for recording and playing live.

JT: I've always used Aria 'cause the company gives them to me. I was attracted to them by the way they looked, actually. I always used the SB 1000. I always go direct in the studio and I usually go direct on stage.

MR&M: We understand that there

is a rule within the band that the guitar strings must be changed every day, whether you're recording or playing live.

AT: Well, it's a common problem. People always say, "Why doesn't it sound the same as it did yesterday?" And the answer is simple—because you haven't got a new set of strings and the old ones are dead. It's very important to have somebody around who's concerned about the guitars to look after them. John and I are very fortunate to have gotten someone who can keep them balanced properly. For example, going up in an airplane can slacken the strings and warp the necks for life.

MR&M: Andy, you were the one who was most vocal-in favor of using digital recording, weren't you?

AT: I think everybody is for it once they hear it. I heard something that Nile (Rodgers, who Duran Duran is currently using as a producer) had done with Madonna, and the difference in quality was so powerful that I decided that when we had the opportunity to do it, it would be a good idea. We tried to do it with the last stuff we did, the single "The Wild Boys," but we couldn't get it arranged with the studio in time.

MR&M: Do you agree that Duran Duran is a technically-oriented band?

AT: It's a technical band, yeah. We do use state-of-the-art equipment. We use digital outboard effects for the reverb instead of standard plates—Quantecs and AMS machines for most things. Digital synthesizers sound fatter and they fill up a bigger space with one sound than ten regular sets of synths do. On a Fairlight you can knock together eight different sounds to create one sound.

MR&M: Do you use guitar synthesizers?

AT: I'm using one now; we use one on the new album. I haven't used it for a few years because I didn't like the old one I had. I've been using fairly regular sounds and I still am, but with different guitars to get different effects. I don't use many effects or direct delays on the guitar. I sort of screw around with guitars, which is why I've got so many.

JT: I don't like bass synthesizers. The bass is a really pure instrument. It's one of the few human instruments left and I'm getting back into sort of a rock 'n' roll purity...I think it's gotten really sterile with computers. That's been the great thing about doing the solo album. We haven't been working to click tracks and drum machines. We just go "one, two, three...boom!" With Duran, every note has to be studied and thought out. Working with these guys, they have such a different approach, you know it's just to have a good time. Just do it.

MR&M: How does Duran Duran approach the studio? Do you go in with a specific sound in mind?

AT: We don't spend a lot of time getting a sound; we don't need to, really. There are certain ways to go about it. There are certain things we use all the time to get sounds. Publison makes great machines for guitars. I can make a sound like five guitars using just one machine.

MR&M: Is that what you go for, the sound of a lot of guitars?

AT: Yeah, big sounds. That's the whole thing with digital. You can make a bigger sound, record it and cut it on vinyl. In America, you can cut things better than in any cutting studio in Britain because of the technology you've got here for cutting. You can make bigger sounds and put them on a piece of vinyl, whereas in Britain the needle would start jumping up and down and you wouldn't be able to use it. And that also goes for depth and size of sound. I've always wanted to make bigger sounds, and when I used digital I realized I could do it; the headroom was much bigger.

The bass is a really pure instrument. It's one of the few human instruments left and I'm getting back into sort of a rock 'n' roll purity...I think it's gotten really sterile with computers.

MR&M: Andy, in listening to you play, at times it sounds like you are a repressed heavy metal guitarist yearning to get out.

AT: I play all sorts of guitars. I used to, years ago when I was starving on the road, play in clubs, and I was expected to play lots of different things: rock, funk, jazz. So I would end up with this totally confused style, if you like. But in itself, I suppose that's a style. Yeah, I like heavy metal guitar. I like Jeff Beck and Garry Moore; there are a lot of heavy metal guitar players I like.

MR&M: John, how about you? Are you, as a bassist, a frustrated lead guitarist?

JT: I'm not frustrated at all because I like to see myself, on my more arrogant days, as being one of the few people my age to have made the bass fashionable. Kids are going out and wanting to play bass again. I'm not anchored. My role in Duran Duran is not "only the bass player," which most bass players are in their bands. Usually the bass is a reflection of their personality. They're quiet, and that's why they play bass. The lead guitarist is the one who gets the chance to show off.

MR&M: When you were looking for a sound, who was your main influence?

AT: Chuck Berry. My dad used to listen to him, so he used to make me listen to him. The first thing I learned how to play was blues. I'd sit and play blues with friends. It's the kind of thing I'd never play on a record, but that's the first thing I learned to play because it was the simplest thing. There are only three chords in a 12-bar form, so you can learn three chords and play a whole tune. So when you're 10 and just learning, you think you've really achieved something. Then I had to learn to play a lot of other things, so by the time I was 16 I was playing lots of different styles.

JT: Chic were my idols.

MR&M: Duran Duran has used several producers along the way. What is it you look for in a producer?

AT: Some sort of consistency, and a rhythmic consistency as well. A buoyancy so that when you go in the producer doesn't make you feel bad. And that's the great thing about working with Nile and now Bernard Edwards. There's never a dull moment, and that reflects in the music. They keep the attitude that every-

body counts and that consistency is the psychological aspect of producing.

JT: I don't know, I see the role of the producer as a diplomat, really. Being able, especially with the five of us—and we're all big-headed bastards—to tell people as nicely as possible that what they're playing is terrible. And by being diplomatic you get the performance. Obviously, on the creative level, you have to be able to listen to what is right for a song. With so many conflicting egos we really need a central pivot.

MR&M: Does a producer suggest ideas to you or do you have a concept in mind when you go in?

JT: Nile's the first producer we've worked with who has really asserted his personality onto our records. The first two albums were always arranged by us.

MR&M: Have you changed producers in the past because your attitude toward recording has changed?

AT: You climb the ladder of success and you just get better and have better people working with you. Three years ago, I don't think we could have worked with Nile or Bernard or any of these guys. We weren't in a position musically where we could understand. We were so young when we started, and you think you know it all when you're starting. You also think you know it all now, and in three years time you still think you know the whole thing, but you never really do. That's why we've changed a lot. But I think we've found a new format that works for the band.

MR&M: It has always been a tradition with Duran Duran to put out multiple versions of the same song. Is it that you're dissatisfied with the end results and want to change?

AT: We always keep trying and changing. I think it's also good for people when they hear one version of a song and then hear a totally different version of the same song. I think it's quite interesting when they can actually hear what can be done with the same song.

MR&M: What are the advantages of having both 12-inch and 7-inch singles?

AT: Well, 12-inch singles are basically for clubs but I usually prefer 12-inch mixes to 7-inch mixes because you can evaluate the musical aspect much easier. Rather than just taking it and making it three and a half minutes long, you can bring out all the little bits over eight or nine minutes, and that's just more interesting on a musical basis.

MR&M: John, since it was your idea for this solo project, would you tell us how it came about and when?

JT: I met Robert (Palmer) about three years ago and I said I'd really like to play with him. I had this idea for doing a real heavy disco single for the song "Bang A Gong" by T-Rex, and I asked Robert if he'd like to do it.

AT: John had the idea to do it and he met Bernard Edwards when we were touring with Blondie, and we talked about it. I met Tony Thompson and talked about it when he was on tour with David Bowie, and then we all got together one day and talked about it. Then we did it. We'd known each other for quite a few years by the time we sat down.

JT: From that the monster became uncontrollable and then we did the single and went on to do a whole album.

MR&M: Did you have any set game plan for how the album should sound?

JT: We didn't set any rules. We couldn't have because none of us had ever worked together before. Andy and I had worked together, but not in that way. So there had to be a free and open attitude because none of us needed to do it (a solo project). We've all got gigs we could be doing.

AT: We wrote bits and pieces but we never rehearsed anything together. We walked in the studio and played.

MR&M: Did the project take so long to become realized because of Duran Duran's hectic schedule?

JT: We worked in bits. Andy and I were doing bits in Paris and then me, Andy and Tony went into the studio together in London.

MR&M: So you recorded the instrumentals without Robert Palmer's lyrics?

JT: We weren't going to use Robert for the whole album. I sent him a cassette in the Bahamas of some of the stuff we'd done, and he wrote the lyrics. I then went to Nassau for a couple of days, we did a few more lyrics, and then came back up here. Funny enough, I just listened to all the tracks this morning and it sounds like we're just in the studio playing live one song after another... which is incredible because it's the patchiest album I've ever made in my life.

MR&M: No wonder it's taken so long for this project to come about.

JT: What really blew my mind is the actual recording time. It's taken maybe three weeks to record. For two years it was like, if he (Andy) doesn't shut up about it...

MR&M: Did you need to do this project now, just to step back from all the hysteria?

AT: Yes, I think everybody should take a break from what the norm is and work with other people and see how other people's attitudes are and how they work. You can learn something from that. But this album is the opportunity I've had to explore different guitars as opposed to writing strictly pop songs, which is what Duran's all about. This is a different configuration of music.

JT: Andy finally gets a chance to play 10-minute guitar solos. I was saying, "Christ!" And Bernard and Tony were saying, "This is great."

MR&M: Do you like mixing in New York? Is the Power Station a better studio than others you've been in?

AT: I've never been anywhere else that even comes near this place technically.

We were so young when we started, and you think you know it all when you're starting. You also think you know it all now, and in three years time you still think you know the whole thing, but you never really do.

THE MIXER SYSTEM OF THE 80'S!

SYSTEM 8 — the expandable mixer range from Allen & Heath, already used by many well known musicians, is the perfect solution for customers searching for the most comprehensive mixer at the best possible price.

Flexibility: A well-designed control layout eliminates tiresome re-plugging and lets you exploit the desk's maximum potential with minimum hassle.

Expandability: With SYSTEM 8, two or more units can be linked together quickly and easily — without sacrificing a single input or output. Need more input channels? Just add an EX8 Expander Module.

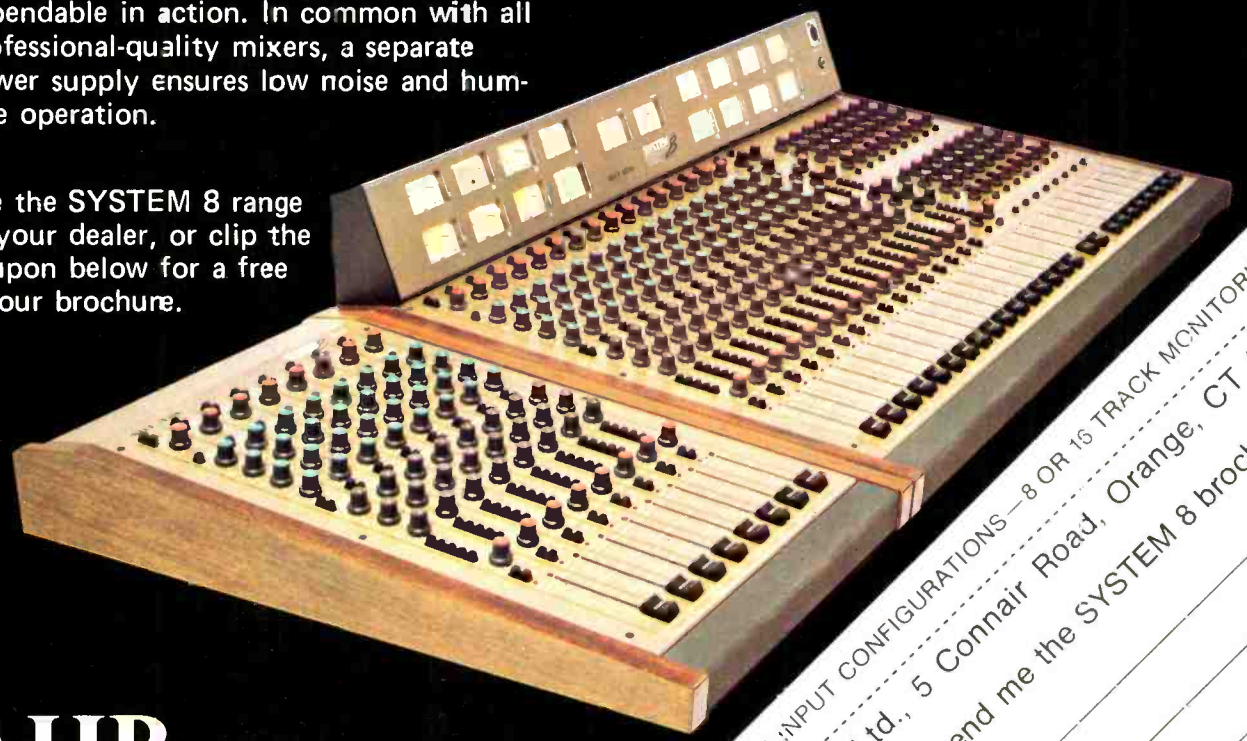
Compatibility: SYSTEM 8 gets along famously with all recording equipment. User-adjustable controls and line-up oscillator enable perfect level-matching on main output and tape return paths.

Use SYSTEM 8 with confidence. Selected high grade components and substantial all-steel construction make for a mixer that is both a joy to work with and rugged and dependable in action. In common with all professional-quality mixers, a separate power supply ensures low noise and hum-free operation.

SYSTEM 8

FEATURES INCLUDE

* External Power Supply with Phantom Power option
* 3 Band EQ with Mid sweep and selectable shelving
* Long travel fader
* Peak LED on all inputs
* Insert points on inputs and outputs



See the SYSTEM 8 range at your dealer, or clip the coupon below for a free colour brochure.

AHB
ALLEN AND HEATH BRENELL LTD

AVAILABLE IN 16-24 INPUT CONFIGURATIONS—8 OR 16 TRACK MONITORING

TO: AHB-USA Ltd., 5 Connair Road, Orange, CT 06477

YES—Please send me the SYSTEM 8 brochure

NAME:

ADDRESS:

ZIP:

Circle 31 on Reades Service Card

JT: Yeah, I mean that's why this band is now called the Power Station. It's just a vibe, and I think the vibe will come across on the album.

MR&M: Do either of you have a home studio?

AT: Yeah, I have a small 8-track unit. It's like Space Invaders. Everything's in a box and you just pull out drawers and there's a LinnDrum and racks of compressors, and then there is a little mixing desk that's like a panel and an 8-track Tascam machine with noise reduction, and a gate and compressor for every track. The unit has digital reverbs that are just sort of minor quality, but if you use them correctly, you can do things quite successfully for demos and ideas. You can take it anywhere because it's quite transportable.

MR&M: Is it hard leading a dual existence—being a pinup boy and a qualified musician at the same time?

AT: No. Well, that's the whole idea. I don't feel like a Jeckyl and Hyde.

Following our conversation with John and Andy Taylor of Duran Duran, MR&M *spoke with drummer Tony Thompson, the Chic drummer whose powerful rhythms give the Power Station much of its dynamic drive.*

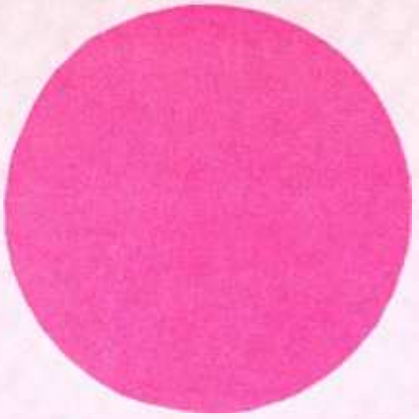
Modern Recording & Music: Do you attribute your success to the friendship you maintained with the other members of Chic?

Tony Thompson: We're all family. When we started out together, we didn't have 25 cents between us. But we stuck together and the rest of it speaks for itself.

MR&M: How did you first become involved with the Power Station project?

TT: I was on tour with Bowie and I went to the south of France. (Due to their elevated tax status in England, Duran Duran had moved to the south of France and recorded their *Seven And The Ragged Tiger* album at Air Studios in Montserrat.) John and the rest of Duran Duran were really interested in Chic. John really liked the music and the way I played it, so I said, "Why don't we form a band and do a record?" I met John again in Australia (where Duran Duran had taken *Seven And The Ragged Tiger* to be mixed at 301 Studios in Sydney), and we sat down with Andy for the first time. It just jelled together.

MR&M: Chic was produced by both Nile Rodgers and Bernard Edwards. What is the difference in method when working with Bernard alone?



TT: There isn't really any difference. Bernard always handled the rhythm section; he handled the grooves. As bass player, he laid down the foundation for all the records so we always had to work together. It's basically the same thing here; we're laying down the foundation. Except that Bernard is in the booth screaming. He just doesn't have to keep running between his bass and the booth.

MR&M: Why did you make the decision to become a session musician rather than a producer, as the others had?

TT: There were a lot of things that I still wanted to do for myself. I wanted to go on tour with Bowie, for instance. The studio atmosphere drives me absolutely crazy after awhile, and I like touring. In the future, after I get finished with all the other things I want to do, I'll probably get tired of the road and I'll start producing.

MR&M: What is it that draws you to touring?

TT: Going on stage and breaking sticks and being crazy. The biggest tour I've ever been on was the Bowie tour and it was just amazing. I'd come in after being tired from flying and when you hit the stage the energy from 50,000 people was just a blast.

MR&M: Are you in a different state of mind when you tour than when you're involved in studio recording?

TT: No, not really. You've just got to concentrate more when you're laying down tracks. Your timing has got to be a little more perfect than a live show. On stage you're not so conscious of time, tempo-wise, and the structure of the song is different. When you're making records you've really got to listen to the holes and think of a fill that will really cover the whole thing and make it work.

MR&M: What sort of equipment do you use for recording and touring?

TT: Well, since most of the records I've done were recorded at the Power Station, believe it or not most of the time I use the studio kit. It's an old Ludwig kit and it just sounds unbelievable. On this record I've used my own kit and, well, I endorse Yamaha.

MR&M: What is it that attracts you to the Power Station (studio)?

TT: I've always recorded here, except I did Jagger's solo album at Compass Point and most of the tracks off this album at Maison Rouge in London. I have no other choice; everyone always wants to do their albums here. It's just a custom. I like this place; it's home. I've recorded here for many years.

MR&M: Did you feel a greater freedom with this project, as opposed to both working within Chic and the session work you've done?

TT: Yes, it's different. With the Chic things there were two guys producing and with this thing Bernard is the producer. But although he's hired as the producer, everyone is speaking up and pitching in. For all the drum tracks I laid down, there was no one telling me exactly what to do and I basically play on the album for myself.

MR&M: Are you usually being told what to play when you perform the work of other people?

TT: Yeah, for example when I worked with Mick Jagger, he would say, "Tony, here's the tune. What do you hear?" I did about four songs with him. Because he didn't really know what he wanted to hear until it was laid down; he gave me some rope to see what I would do. If he dug it, he put it on tape.

MR&M: Do you bear any animosity towards artists who tell you what to play?

TT: No, not at all. Not if I didn't write the song. I mean, if I write the song and somebody else comes along and tells me something should be played a certain way, that's a whole different smoke. But if someone else wrote the song he knows what he wants then and I can respect that.

MR&M: Ironically, with the way you usually work, the Power Station is probably the group you've been with the longest (besides Chic). Yet because of the way the group recorded, when it came to recording you were still relative strangers. What made the work flow so naturally?

TT: We've been friends for a long time by now. I knew from being friends and talking about the project for such a long time it just had to work. It was very satisfying.

Profiling Engineer

sue gold

Humberto Gatica

Photo by Sue Gold

Humberto Gatica at Lion Share studio.

At one time, Humberto Gatica had four albums in the top 10 and seven in the top 100 of *Billboard's* charts, although none were released under his own name. Gatica, in fact, has mixed and/or recorded some of the most successful albums in music history. He worked on Michael Jackson's *Thriller*, Lionel Richie's *Can't Slow Down*, and the *Footloose* soundtrack.

Being producer David Foster's engineer for the past seven years has given Gatica the opportunity to work with many artists, but he has also made a name for himself by becoming one of the most sought after engineers in the business. Working for Foster, he has engineered for Kenny Rogers, Lionel Richie, Chicago, the Tubes, and Kenny Loggins. On his own, he has been involved with Michael Jackson, Tina Turner, Dan Hartman, and Julio Iglesias. Gatica has also co-produced several songs with Foster.

Some of the artists with whom Humberto Gatica has worked include Michael Jackson, Tina Turner, Kenny Loggins, Lionel Richie, and Fee Waybill of the Tubes.

Gatica, who was born in Chile, came to the United States in 1968. He got his first look at a studio through a relative, singer Julio Gatica. He knew, as soon as he walked in, that he wanted to get into the music business.

"It had never occurred to me before how records were made or the process involved," Gatica said. "But as soon as I saw what was going on, I knew what I wanted to do."

While Gatica's versatility and talent for creating a clean sounding album is a major reason he is requested by so many artists, his congenial personality is also a major factor in his success. His sincerity about his work and the people he works for, and his gentle sense of humor, make it a pleasure to have him in the studios. Instead of knocking other engineers' work, he will be the first to admit that somebody else can put out a good record, too.

Taking time out from mixing, Gatica spoke with *Modern Recording & Music* at Kenny Rogers' Lion Share recording studio in Los Angeles.

Modern Recording & Music: You have an interesting credit on Michael Jackson's *Thriller*: "additional sound sources." What did you do for the album?

Humberto Gatica: It's an interesting credit, all right. I never heard of it before (laughs). I put in about 200 hours of work on that album.

When they were three-fourths into the project, they needed a lot of help, so I was called in. They didn't have a technical problem, but they had a release date to meet. They were really far behind. When I came in they were still doing vocals and drum overdubs.

On "Beat It," I recorded the basic rhythm parts for the song. I did the drums and the bass. On "The Lady Of My Life," all they had was a drum machine laid down. I did all the guitars and vocals for that song. Anything that needed to be done, I did. For three weeks we worked 14-15 hours a day until it was done. There were two sessions going on at once almost all the time. I was in one place and (engineer) Bruce (Swedien) was in another room.

MR&M: It sounds like things were really hectic. How do you work with that kind of pressure on you?

HG: The way Quincy (Jones) works is great, because he gives you an incredible amount of room to be creative. I just kept going, jumping from one thing to another. I did something on every song, and on some of the songs, I did everything. There was a feeling about each of the songs when I came in. On "Beat It," for example, we were trying to get a live drum sound, so we went to a big room and used several mics. There was a laid-back attitude about the song. And on "Billie Jean," we went for a tighter sound.

MR&M: It sounds as if you should have been listed as a co-engineer?

Mixdown is the most crucial part of recording, because that's when you put it all together and make the album more exciting. People come to engineers for that sound, and you need the right atmosphere.

HG: The album took about 1,000 hours to complete and I worked 200 hours, so I contributed 20 percent to that album. That's a lot. Knowing I was part of the most successful album of all time is enough for me, but it would have been nice to get the proper credit—and a Grammy.

MR&M: You've been part of some other very successful albums in the past few years, too.

HG: I find myself very versatile. I'm not a heavy metal engineer, but I make a pretty good rock 'n' roll record. There was one point, last year, when I had Dan Hartman, Footloose, Tina Turner, Chicago, and Julio Iglesias, all on top of the charts and it felt great.

MR&M: You recorded one song for another monumental album, Lionel Richie's *Can't Slow Down*. How did you get involved in that?

HG: David (Foster) produced five songs for that album, and I engineered and mixed them. Unfortunately, only one song made it onto the album, but we spent a lot of time working with Lionel.

MR&M: Does it bother you to just do one or two songs on an album and not the whole thing?

HG: Not really. When someone calls me to help them out, or do a song, I have to adapt to the engineer and the record. If I call an engineer for help, I would want him to keep my sound and the sound of the record, as well.

With Lionel Richie, I tried not to be too different when working with him and did what I always do, but I also had to fit the album. Lionel is such an incredible singer that simplicity is what makes his records. The album itself is simple. I tried to accommodate my sound to suit the album and him. Lionel can't have things too complicated, or it will get in his way.

I can do a pop/rock record with Kenny Rogers or Chicago, and then turn around and do Lee Ritenour. That's easy for me.

MR&M: You used some interesting effects on Kenny Rogers' album, *What About Me*.

HG: Yeah, Kenny (Rogers) and David (Foster) gave me all the freedom I wanted on the album. Working with Kenny was really easy. We have an AMX echo on one of the songs, "Dream Dancer," and we used a slapping sound on another song. Technically, I think it's the best sound that Kenny has ever had. For once, Kenny gave himself more time and room to do things. He's used to going in and out of the studio really quickly. He gave more time to this project.

MR&M: Kenny Rogers owns Lion Share studio, yet the album was recorded at other studios as well.

HG: Lion Share is so successful that there wasn't a studio available for us. That bothered Kenny a little. Lion Share is where he's the most comfortable, obviously, but he wanted to get the album done, so we went to The Lighthouse, Sunset Sound, anywhere we could get a studio.

The only problem with Kenny's album, is that David and I got caught up in two projects at once, his and Fee Waybill's. I think something got sacrificed along the way.

MR&M: You basically work out of three studios: Lion Share, The Lighthouse, and Sunset Sound, don't you?

HG: I move around a lot, according to the project I'm working on. If you stay in one place, it tends to be boring to me. I need to change moods.

I use the Lighthouse for overdubbing a lot. It's very comfortable there. It has a Trident board and a Studer 24-track. It's not a big room—about medium size—but I feel like it's my room. They keep the room working perfectly. If something goes wrong, they're right on top of it. Sunset Sound is another place where they have great equipment and a comfortable atmosphere.

As for Lion Share, they have every type of outboard equipment you could want. It has an API with a Necam system, and you get a true and honest balance.

MR&M: You were involved in the building of Studio A at Sunset Sound, weren't you?

HG: Well, I contributed some ideas in terms of the board and how I thought the board should be built. Over the years, you get to use all different types of equipment and pick up things you like about each one. I choose all the best things that I like and put them into one.

MR&M: What kinds of boards do you like?

HG: I like the NEVE and API consoles. We did Fee (Waybill) on a NEVE to get the equalization. It has that extra edge we wanted. For an R&B sound or Kenny Loggins, I like to use the API.

MR&M: What other type of equipment do you like?

HG: I love the AKG mics. The Shure 57 is also a good mic. I like to use the tube mics for vocals a lot. I want to use anything that will help the project, anything that has character.

MR&M: What do you look for in a studio?

HG: An environment that I can feel comfortable in. At Sunset and The Lighthouse, I feel like I'm in my own house. You have to create an environment that you can work in. Mixdown is the most crucial part of recording, because that's when you put it all together and make the album more exciting. People come to engineers for that sound, and you need the right atmosphere. You don't want to be in a place where the people are unfriendly and you feel uncomfortable. My job is to enhance an artist's music, and I need a place that I feel comfortable in.

MR&M: How do you prepare for a project?

HG: I do my homework. I think about a particular concept when I find out we're working with a particular artist. When I found out we were doing Fee (Waybill's) album, I went out and got an album by the Fixx. I listened to it carefully. It ended up influencing Fee's album a lot. You start thinking about different sounds you can use.

MR&M: Do you have a set way of recording a song?

HG: I change all the time. I don't

have rules. Take the microphones, for example. I can't do the same things with them because then the sound becomes boring. Everything is different, except the drums. I use either a drum machine or acoustics. There is no better bass drum sound than a bass drum. No machine is better. The tom-toms are a relative thing. It depends on the sound you want. I want to be able to make a good sound sound different. But the first thing I will do is lay down the basic tracks: drums, bass and guitars. People like Kenny Rogers or Lionel, the first thing they do is record the drum machine. But eventually, they realize the need for acoustics.

MR&M: What other devices do you like to use?

HG: I'm really attached to delay devices. I'm not fond of Dolby at all. I think I'm able to put out a clean tape without it. I'm extremely careful. Whatever it takes, such as getting a new amplifier, or whatever, I do it. Everyone wants a clean sound.

I don't like complicated equipment. When I'm mixing, I want to spend most of my time being creative and not worrying about how to use the equipment. Like at The Lighthouse, I use Necam automation. I just turn it on and that's it.

MR&M: How would you define your sound?

HG: I think my sound is very clean and fresh, because I like to hear everything. I try to be consistent and make each song sound like a single. I've gone out to buy albums where the singles sound great, but when I hear the rest of the album, it sounds awful. I want each of the songs to sound like singles. I make it really hard on myself that way.

I also listen to records carefully, mine and others. I always think it can be better. I don't think I've ever put out a perfect record. It's impossible. You have to have an incredible feel about the music you're mixing. You have to capture the feel of the record, musically and technically, and I do. Sometimes you get a hiss on a recording, and there's really nothing you can do. You can't destroy an entire performance for that, but I try not to let any sound go by me.

MR&M: You've recently started to experiment and use digital. Do you prefer digital or analog?

HG: I have my reservations about digital. There are different sides and points to be made with digital recording, but I'm very happy with analog tape. I haven't put anything out on digital yet. With Kenny Loggins, we used some digital, but I doubt his album will be released that way.

MR&M: Do you feel the same way about compact discs?

HG: Compact discs are digital all the way, but I love them. There's nothing more happening now than CDs. The quality is getting better all the time. The way they press records today is so bad that you can see fingerprints all over the place when you take a record out. CDs are definitely going to take over.

MR&M: You and David Foster are a successful team. How did you get together?

HG: I recommended David as a musician for a project I was working on. After the first track, he came over to me and asked if I would do some stuff on a project he was working on, Bill Champlin's solo album. I ended up doing the entire album. We've been working together ever since. There were times, earlier on, when he thought I wasn't ready to do certain things, but now he gives me a lot of freedom and room for creativity.

MR&M: Lately, you've co-produced some things with him and others, Chaka Khan and a tune on the *Two Of A Kind* soundtrack. Is producing something you want to get into?

HG: I would like to get into producing. I admire and am influenced by what David does. I want to be more creative. I wouldn't mind cutting down the engineering and limiting myself to the mixdown mode. But I will always want to work with David, because we have a great time. He includes me in everything, including the creative parts of making the album.

MR&M: You've worked with Chicago on their past two albums with David. How do you feel with a band that's been around for that long?

HG: Well, a few of the members looked over my shoulders at first, until they saw I knew what I was doing. The bass has a unique sound on their albums. With Chicago, I began to go from being concerned only with the technical aspects to being creative. I'm really happy with the way *Chicago 17* came out. I think it sounds great. I'll admit, there were problems in the studio, but you pick things up over the years. You learn how to deal with people.

MR&M: What about dealing with a cast from a Broadway show? You recorded the Tony and Grammy award winning *Dreamgirls* cast album.

HG: That was very difficult for David and me. There were too many people to deal with, and the tension within the cast was impossible. To have all of those people in the studio was expensive. We found out early on that we had to move fast, both technically and musically.

You can't go to school to become a major league baseball player, and being an audio engineer is the same thing.

There was a problem with the way the singers were projecting. They sang as if they were trying to reach the last row of the theater instead of a microphone that was right in front of them. Believe me, you need fast hands to hold down the dynamics of their voices. Most people buying the album had seen the play, so we had to try and give them that same feel.

There was also a big attitude problem. After one take of a song, Jennifer Holliday said, "I just did the best I could," and that was it. There were no more takes of that song. It was definitely a difficult project.

MR&M: How do you feel about engineering courses?

HG: I have reservations. You can't go to school to become a major league baseball player, and being an audio engineer is the same thing. You can learn the basics, and how it's done, but then you have to hope to get a job in a studio.

You have to realize that this job is association. You have to associate your hands with your ears at all times. They have to work together. You don't just turn something because you're supposed to. You have to be able to hear what's going on. A course can't teach you how to do that.

Talent in Bloom

gene kalbacher

Soprano Saxist Jane Ira Bloom

The soprano saxophone has been dubbed "the straight horn" for an obvious reason—without an upwardly curving bell, the soprano resembles the clarinet more than the tenor, alto and baritone saxophones. But in the hands of Jane Ira Bloom, the soprano sax is neither held nor played "straight."

A Manhattan resident who grew up in the Boston area and took up the soprano in the third grade, Bloom's "main interest" and trademark is the soprano, but she plays alto with equal ability and authority. Bloom, who holds undergraduate and graduate degrees in music from Yale University, has issued three albums as a leader: two on her own Outline label and *Mighty Lights*, an acoustic quartet date for Enja Records that earned five stars from *down beat* magazine. *Mighty Lights*, moreover, showcases her talents as composer, player and bandleader. Recently, she began experimenting with electronics and tape in the duo Windshift.

In the following interview, conducted in New York, Bloom discusses her approach to the soprano and, owing to the instrument's shape and sometimes shaky intonation, her recording techniques in the studio. She begins with her formative influences in jazz.

Jane Ira Bloom: What became my trademark was just the result of having spent a lot of time with an instrument that most people don't spend a lot of time with. I have very little strong influences from the great soprano tradition. I never had a lot of exposure to a great many soprano saxophonists. My influences came from, of course, the great saxophonists of the jazz tradition—the alto and tenor—but I found I had a lot of strong interest in listening to trumpet players and vocalists. And I think if anything can be said for the unusual approach I have to the soprano, it comes from these different influences.

Modern Recording & Music: It has been said that today's soprano saxophonist isn't burdened by a great stylistic lineage, or bondage to the instrument. Yet surely Sidney Bechet, Steve Lacy, John Coltrane and Wayne Shorter have indeed laid extensive groundwork.

JIB: In all honesty, I can't tell you that I was aware of these people in my formative period. A, I was too young, and B, I was busy listening to so many other important people of the jazz tradition.

MR&M: That is not to say that the influences of these innovators are readily apparent in your music.

JIB: Honestly, when I was learning and studying, the people I listened to were Sonny Rollins, Eric Dolphy, Charlie Parker. I was too busy just trying to find out about Miles Davis. I didn't know about people like Steve Lacy and Sidney Bechet.

MR&M: Pitch control is an inherent problem with the soprano saxophone. How difficult has this been for you to overcome, if not totally control?

JIB: Well, it just comes from a lot of practicing and studying with a lot of attention to intonation, because it is such a difficult problem on the soprano. If you can get a hold on it, you can make the instrument sing in a little more of a clear and perhaps unaffected way. Trying to play the soprano saxophone in tune is like trying to fight the instrument. Any soprano player will tell you that. It doesn't seem to want to play in tune. The kinds of things you're doing mechanically with your embouchure and wind control are things that are almost like twisting the instrument into a way that it doesn't naturally seem to want to go.

MR&M: So you have to *finesse* the instrument.

JIB: Absolutely. You have to finesse it.

MR&M: It sounds like the soprano has a life of its own.

JIB: Absolutely. I suppose that when most tenor players pick up the soprano, they play it with a naturally relaxed embouchure and playing style. When you play the tenor, that's the way you usually approach it. Not with the soprano, boy.

MR&M: It seems to me that to create one's own style on an instrument, one would, perforce, have to know what one's style is *not*.

JIB: As you mature, you begin to understand those things: what makes you different from other kinds of players, where your strengths are, where your weaknesses are.

MR&M: What *do* you consider your strengths on the soprano?

JIB: (laughs) I suppose my strength is a strong interest in pure sound and phrasing, which is something I study a lot from the vocalists. I suppose my other strengths come from my background in compositional development. I have a strong background in composition, and I seem to apply that in a concentrated way to how I improvise.

MR&M: So your actual playing and composing are interrelated; one enhances the other?

JIB: They're one and the same to me. I've always looked at improvising as a kind of spontaneous composition, and likewise, composing to be compositionally spontaneous. To me they're one and the same thought process. I'm talking to you about this in a very logical and analytical way. But that's not to say that the whole thing is conscious on my part when I'm playing.

MR&M: Jane, you mentioned earlier that vocalists have had a major influence on your development as a soprano player. Who impressed you most and why?

JIB: People like Abbey Lincoln. My earliest listening to the jazz tradition happened because my mother had a collection of Ella Fitzgerald records in the house when I was quite young. That's how I learned the American songbook. Frank Sinatra, Nat King Cole—these are people I listened to for phrasing. Billie Holiday. People who had very strong ideas of their own sound and voice. I guess I also appreciate the subtlety of phrasing that vocalists have to master, and I apply that to my instrument.

MR&M: Do you sing yourself?

JIB: Nope (laughs). You'd hate to hear my voice. But I will tell you that when I play a ballad, when I pick a ballad to record, I do learn the words before I play it. To me, that's as important a part of the composition as the line.

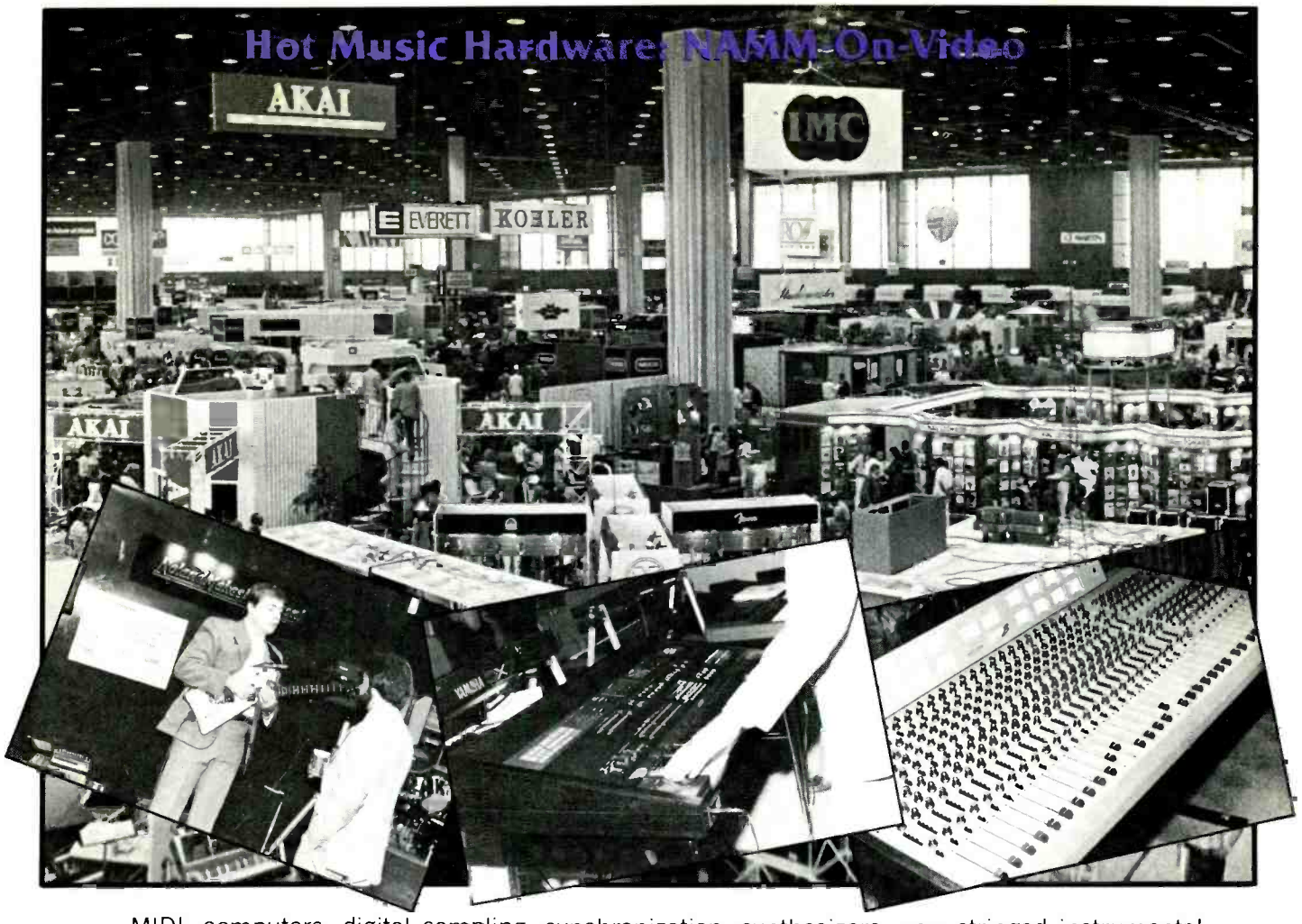
I can't stand playing in a dry studio sound-absorbent room. Horn players just hate it because you don't get anything back from your instrument. So I much prefer a room where there's some ambient sound happening or some reverberation going on.

MR&M: You're not the nominal producer of *Mighty Lights*. Did you have any input in the editing, engineering and so forth?

JIB: I'm in on every aspect. I'm kind of pushy in that way. Because I've been a producer on my own, because I have my own record company [Outline Records] and I know how to make a record, I have a lot of experience and I'm used to having a strong amount of control in the artistic process.

With this record, everything that went on in the studio—mixing, organization, selection of cuts—I was involved with. [Producer] Matthias [Winckelmann] is very good about working with the artist that way; he gives them a strong amount of artistic control.

MR&M: *Mighty Lights* sounds like



MIDI, computers, digital sampling, synchronization, synthesizers, new stringed instruments! Although it was closed to the public, you can now go behind the scenes at the largest music industry trade show in the U.S., presented by the National Association of Music Merchants, with the **Summer '84 NAMM-On-Video.** Hosted by *Modern Recording & Music* columnist Craig Anderton, this one-hour VHS video includes demos of the latest gear, interviews, commentary, and background on changes in the industry and what they will mean to musicians. Send $49.95 (plus $2.50 shipping/handling).

Send me the 1984 Summer NAMM Show One-Hour Color VHS format Video.

Name _____

Address _____

City _____ State _____ Zip _____

I'm buying it ☐

I've enclosed a check for $_____.

My Visa/Master Charge NUmber is _____

The expiration date is _____

My Signature (required for credit card orders) _____

Send to VIDEO, Modern Recording & Music,
1120 Old Country Road, Plainview, NY 11803

Special offer: Order the **Summer '84 NAMM—On-Video** (including demos of the Oberheim Xpander, Gittler guitar, Buchla 400, Akai Micro Studio, Simmons drums, SMPTE and MIDI sync boxes, and more!) *and* the **Winter '84 (January) NAMM-On-Video** (featuring the Emulator II, Kurzweill 250, Chapman "Stick", Yamaha DX7, and Tom Coster with the Moog Liberation) for a package price of $79.95 (plus $2.50 shipping/handling).

Produced by David Karr for Notch Productions.

Most people don't quite understand that the resonance of the soprano is coming out from all sides of it; unlike an alto, which has a bell that projects the column of air, the soprano is leaking all over the place, if you can imagine that. And that's how I prefer to mic it in performance and in the studio.

it was recorded live in the studio, in the presence of the ensemble, with minimal, if any, overdubbing. Is that so?

JIB: Absolutely. And you wouldn't believe how many hours it was recorded in (laughs). I think we were in the studio recording for maybe two and a half hours. That's how quickly it came down.

MR&M: Two and a half hours? The record must be 40 minutes long. Had you performed these tunes with the band prior to entering the studio?

JIB: I had two rehearsals the day before. That particular session was so spontaneous and beautiful. I decided what to play, we played it, and it happened. And that's remarkable!

MR&M: How much did this studio experience differ from your two albums on your own label?

JIB: Oh, my God! The first album I did [*We Are*] was a duo album with a bassist I'd worked with for years [Kent McLagan]. We spent close to 12 hours recording. And the second album involved me in various settings: trio, quartet, sax/bass/drums, sax/bass/piano, vibes/bass/saxophone [alto and soprano]. So that was an album that involved setting up microphones for each piece. That was a chore, so that took much longer.

MR&M: Do you have a preferred type of microphone for recording and live performance?

JIB: I have a particular interest in a special way of recording the soprano, which most recording engineers find unusual. I prefer to mic the soprano from the front and sides, as opposed to putting anything near the bell or anything just in front of the instrument. Most people don't quite understand that the resonance of the soprano is coming out from all sides of it; unlike an alto, which has a bell that projects the column of air, the soprano is leaking all over the place, if you can imagine that. And that's how I prefer to mic it in performance and in the studio.

MR&M: Do you favor any one special kind of mic?

JIB: I'm not familiar enough with microphones to tell you that. I'm familiar with a very special mic'ing system that I used on my first record; it was supplied by Mark Levinson Audio Systems. He's devised very special kinds of acoustic recording systems. This system is as lifelike and as *present* in the air surrounding the instrument as anything you can ever get. So the effect of using his microphones is—*you are there!* You're recording exactly what you hear in the room.

MR&M: Was the engineer on *Mighty Lights* receptive to your mic'ing approach?

JIB: David Baker was very sympathetic to the acoustical needs of the ensemble. I think he did a very fine job. He came and checked out the music before the [recording] session—he came to our rehearsals to hear what we were doing—so that when it came time to go into the studio, he knew exactly how it should be set up.

MR&M: You've spoken of your mic'ing needs. What things do you require in the room itself?

JIB: I look for rooms that have a little bit of natural resonance in them. I *can't stand* playing in a dry studio sound-absorbent room. Horn players just hate it because you don't get anything back from your instrument. So I much prefer a room where there's some ambient sound happening or some reverberation going on. And I don't mean echo, just a little bit of response. Most horn players will tell you that, too. It's not an uncommon feeling.

MR&M: Now that you work in both an acoustic-jazz context and an electronic bag in Windshift, do you foresee yourself using much overdubbing or effects from the board?

JIB: My experience with that has been very limited so far. I can't say that someday I won't get involved in that. I haven't so far, because I am so interested in the spontaneous process of improvising. It's so difficult to overdub; it becomes a different *beast* (laughs) when you start doing that. I can't say I'm particularly interested right now.

MR&M: What does the future hold for you?

JIB: I guess you could say I'm going back to experimenting with some more unusual instrumentations. At the time that *Mighty Lights* was being recorded, I had a strong interest in working in the traditional quartet setting. I think every artist goes through that at a certain time because there is something very special about the traditional quartet—horn, piano, sax, drums. Right now I'm experimenting with some different instrumentations and some probably more contemporary new-music inputs that extend from the jazz tradition. I am starting to work a little more with trumpet.

MR&M: Earlier, you mentioned that you have a strong interest in "pure sound and phrasing." Now, besides acoustic, straightahead jazz, you also play electronic, sonically altered music employing tape. Do you have difficulty reconciling the purity of acoustic jazz with the charge of electronic music?

JIB: Well, it's only come up recently. I've been primarily interested in acoustic music. Only in the last two years have I gotten involved in working with electronics. My work in electronics has been isolated to what you'd probably call a contemporary new-music idiom, although it's strongly influenced by my background in jazz.

I've been working with the soprano and all kinds of various tape delays and various sonic alteration of what I do on the saxophone. I work with an electronics specialist; you wouldn't call him a synthesizer player. This is a live-performance medium, and I work with Dana McCurdy in a group called Windshift.

I've always looked at improvising as a kind of spontaneous composition, and likewise, composing to be compositionally spontaneous. To me they're one and the same thought process.

For the most part, we haven't worked with a keyboard input. He mics the saxophone and uses that input to alter, in many kinds of ways, my sound. It all feeds you. You get involved in so many different projects, but all these different things feed each other.

MR&M: In Windshift, with Dana sonically altering your sound, you may know what you're playing, but it seems to me that you won't know exactly what you'll be *hearing*.

JIB: When you compose a piece, you map out the processes and the things that are going to be done to your sound. You do rehearse them, so there is a certain degree of accuracy in repeating things and knowing *approximately* what to expect. In electronic music the variables are as uncertain as playing with jazz musicians, *but* there is some degree of expectancy (laughs).

MR&M: Yet it would seem to me that it could be hooked up in such a way that you could improvise with yourself.

JIB: *Oh, absolutely!* There is a strong element of surprise there (laughs).

MRM: After listening to your pristine acoustic music, the electronics in Windshift sound, from your description, like hocus-pocus. How is all this set up?

JIB: I'm going through a microphone, and the microphone is plugged into a synthesizer or a vocoder or several other attachments he has, and then out through the speakers. These are all planned and structured things we're doing; it's not just a *black box* (laughs). We know exactly what we're doing. There are always surprises. Any electronic musician will tell you that no matter how carefully you try to re-create some exact situation or exact timbre or sound that you heard once before, somehow it's almost against the nature of electronics to re-create it perfectly. Somehow it always changes ever so slightly.

MR&M: In Windshift, as opposed to your quartet, all the musical components—harmony, melody, rhythm, movement, tone color—must be handled by the two instruments, your horn and Dana's electronic devices. Does that pose any problems?

JIB: I never thought of it that way. When you talk about those parameters of music—rhythm, harmony, melody—those parameters are very important to a traditional quartet idiom or even to acoustic music. But when you start working with electronics, another parameter becomes just as important as those, and that is *timbre*, instrumental timbre. And that's something that tends not to get thought of a lot when you're playing acoustic music. It's usually intuitive, applied or whatever. But [timbre] becomes a consideration that's just as important as those other ones you mentioned. Spatial movement—the way music is placed in space and the way music moves in space—is almost like another dimension, another musical parameter we don't often think about.

I did not want to go through my career with the label of being a "female" jazz artist. I wanted to be a fine musician who was a woman.

MR&M: The soprano saxophone is dubbed "the straight horn," but you don't always play it straight, meaning at a right angle to your body. You twirl the horn—and yourself—around the stage.

JIB: Very often I'll hold the instrument so that the bell is somewhat facing forward; I don't hold it at a right angle, like you've seen in some pictures of John Coltrane. But I will hold it up a bit so that the bell is open, almost like a trumpet. And I'll move it either by moving my body or just by moving the instrument, either 180 degrees or 360 degrees. From dancers I've learned how to turn and use breath control.

MR&M: Please forgive this question, but it should be addressed: As a woman, and as a white woman, in an essentially male, black-dominated field, have you found your situation hard to cope with? Has it been an advantage or disadvantage?

JIB: At the start of my career, it helped me. I was able to take part in some early women's jazz festivals that got me exposure that I don't think I would have ever got at that early stage of my career, and I'm being completely frank with you. But after the first year of my career, I found that I wanted to steer away from that category because I wanted to work with the artists I wanted to work with, and I did not want to go through my career with the label of being a "female" jazz artist. I wanted to be a fine musician who was a woman. As my career has gone on, with maturity and a little perspective...it's tended to weigh me down a little bit. I have to be a lot more patient in a lot of circumstances than someone of my capability and reputation who is a man [would have to be].

MR&M: How does this problem manifest itself?

JIB: Response from concert and club people. Mostly this doesn't have to do a lot with the musicians; it has to do with the people who encircle the music in the business. Usually when I work with guys, the minute we play and establish some musical meaning for ourselves, there are no problems. The problems come in socially; they come in the music *business* when you have to deal with club-owners and concert promoters and people who... I don't know, it's the world, you know (laughs) I'm not naive enough to say it hasn't meant a thing—it's a constant obstacle and it's a problem. A part of my personality has to deal with it, other than my musical self.

rosanne soifer

Bartering—Music's Alternative to Money

The *American Heritage Dictionary* defines bartering as the exchange of goods or services without using money. Unfortunately, the word itself seems to descend from the Old French *barater* and the Vulgar Latin *prattare*, both of which mean *to cheat*. (So be careful if you're considering doing business with any old French or vulgar Latins.)

Barter does go on in the 9-to-5 world, and several barter services have arisen to take care of the business of bartering. Barter Systems International in Jacksonville, Florida, is an example. For a fee, they function as a broker, matching your product or service with someone else's needs. When you fill their need, you earn trade units in the system, which you can then use to get what *you* need.

Barter Systems International obviously pays taxes, since it is a business that generates an income for itself. The people who use bartering, however, don't, and the IRS considers this a form of *tax evasion*, which is illegal. The IRS, in fact, is not fond of *any* non-monetary transactions, obviously because there's no money exchanged that they can tax. (For this reason, first names only are often used in this article, and a situation presented may be a composite of many.) *Tax avoidance* (tax shelters, charitable donations, etc.), though, is legal and OK.

The music business, as we all know, functions on a very fluid and rather informal basis. Trying to set wage and price guidelines is a laugh, since the "going rate" for anything often changes hourly. Yet bartering may be a visible economic alternative to paying cold, hard cash. Many music operations begin by exclusively using this way of doing business, and continue to use the barter system long after they become successful.

Paul is an indie music video producer. He knew a T-shirt and jacket manufacturer who wanted to advertise on Paul's cable TV show, but didn't have the money. Paul wanted T-shirts and jackets with his company's logo for him and his staff. He didn't have the money, either. The logical step, naturally, was to effectuate a trade.

Derek is president of a 24-track recording studio. He was recently approached by the publisher of a local gourmet magazine that wanted to start an arts section. The publisher needed studio time to record radio jingles. Derek wanted to expand the studio's advertising into other areas besides the music trade magazines. "We compared rate cards," Derek said, "and were able to equate his need for studio hours with my need for ads. It worked to our mutual benefit and I'm convinced that successful bartering eventually becomes good for business in terms of dollars and cents. For example, when the publisher found that he didn't need all of the studio time I allotted him, he "gave" it to a musician friend, who eventually came back as a paying client—and recommended the studio to several others."

The Name Game—Product Endorsements

Product endorsements are a popular form of music industry bartering that have reached "thriller" proportions (sorry!) with the hook-up of the Jacksons with Pepsi Cola. Since it's difficult even for big names to go out on the road and stay solvent, a product is often sought to help underwrite the cost. And of course, the tie-in to a popular act can only help the product's sales. Another interesting example is that of Earth, Wind & Fire, who were "sponsored" by Panasonic when they played Madison Square Garden. In addition, Earth, Wind & Fire received an equipment gratuity.

Why such royal treatment? Because there were at least 20,000 potential Panasonic equipment purchasers in the Garden audience. Miles Davis worked out a similar deal with Yamaha on his 1973 tour of Japan, to both parties' advantage. And around 23 years ago, an unknown drummer named Ringo Starr unofficially provided a product endorsement when he insisted that the manufacturer's name be boldly emblazoned on the front of his bass drum. (As we all know, this did wonders for the sale of Ludwig drum sets.)

Trade-off or Rip-off??

One of the occupational hazards of the music business (and it doesn't matter if you're just beginning or a seasoned pro) is having to work for no money, simply because there's no alternative. This usually happens when promises are substituted for pay, or when something arranged for

your benefit winds up benefitting everybody else.

Musicians are sometimes convinced (and indeed can deceive themselves into thinking) that the freebie is a fair exchange, a type of bartering in which musical services are traded for other seemingly equal commodities. Unfortunately, most of the time these turn out to be verbal promises, most of which are virtually unenforceable.

Nowhere is this line of reasoning more apparent than in that peculiar institution of our business known as the live showcase. Showcases are essentially schizoid in nature, since they are actually auditions that pass themselves off as real gigs. (Record company showcases of new bands are something entirely different—here the company foots the bill.) Sometimes there's even a "pay to play" situation involved. Is any of this a true barter?

Take, for example, the policy of a well known New York area club. On the whole, their showcase policy for unsigned bands sounds like all the others; the band's take is based on a percentage of the door. However, the club insists on having a "guarantee" up front of several hundred dollars in order to cover the "expenses" of opening the club to the public. After the first 100 paid admissions (which equals the amount of the up-front guarantee), the club splits the rest with the band 60/40. *But*, if the band brings in less than 200 people, there is a $200 surcharge (!). The band is literally had both coming and going, and they must draw a crowd if they expect to be "rehired."

A heated discussion on this practice ensued at a recent meeting of the Rock Committee of Musicians Local 802. Russell A., a New York City guitarist, remarked, "As a one shot deal, playing a showcase club is fair. More than once is ridiculous. *Maybe* a bartering assumption does exist when the musician gets the exposure, and the club provides the drum set, PA, and sound. But the attitude of most original music club owners is that they're doing you a favor, and if you want a tape or video of your show, they'll charge you for it."

At the same meeting, however, Alan Pepper and Stanley Snadowsky, owners of the popular Bottom Line club, said, "We always pay musicians. Playing for free is only worth it if you can get press, a manager, or an agent to come hear you. Barter doesn't really apply here at all."

Promises, Promises—Bartering Gone Amuck

As we will see, bartering is often misused. Let's take a look at an instance involving both aspiring musicians (now sadder but wiser) and an aspiring publication (now defunct).

CASE STUDY: Mac was an oddball who hadn't gotten very far in life. Operating on the premise that next to a thorough knowledge of an industry, unadulterated ignorance is the surest road to success, he decided to enter the music business. Having limited money, but unlimited chutzpah, he started a music publication called *Anteater*, utilizing the barter system.

Many fledgling publications raise money by soliciting advertising. Mac, however, started out by soliciting bands in need of exposure, by arranging for a showcase at a local club—for a fee. The band would play, and subsequently receive a lovely "review" in *Anteater*. The club (usually in an out-of-the-way location) was only too glad to get free entertainment, and would also be promised a big ad *if* the club could be used as a *Anteater* distribution center.

Mac, using a variety of tactics culled equally from *How To Win Friends And Influence People* and *Mein Kampf*, imitated a "cross-barter" with Tony, owner of a small video production company. Tony, it seemed, would go to the club and shoot a video of the band, who would then buy it. The Club would, of course, allow Tony in so they too could get free exposure on the public access cable channel where Tony ran his videos each week. Mac would give Tony's company exposure via a monthly write-up in *Anteater*. (Are you still with me?)

Why was a screw-up imminent? *Anteater* obviously was not a real newspaper, but actually a collection of paid press releases. It therefore carried no credibility with any of the local clubs (who were all approached by Mac for ads and showcases) where the bands might look for work. A band's "review" in *Anteater* was as reliable as a five cent watch.

Tony, on the cross barter, got burned because no party involved—Mac, the club, and especially the band—possessed the money to pay for his production e... buy the actual vid... downfall was due to ov... himself on promises and n... able to get money *up front* to a...

Conclusion? One must delve dee... into someone's personal and professional credibility when bartering than when dealing in cold, hard cash. Are they reliable? What is their background? And at least one party (no matter how many are involved) must have *funds* to get the barter initiated and keep it going.

With a Little Help From My Friends

Claude "Coffee" Cave, a former member of the Polydor label act *Mandrill*, has worked in studios as a musician and indie producer. He says, "Musicians usually help each other just to get a recording project off the ground, especially in the jazz field. Mutual respect plays a big part in a barter of this type. Spec work has become an everyday occurrence, especially on indie projects where the money parameters are very much reduced. And sometimes a studio gets involved, too, in letting well-known musicians record a private project there. The understanding usually is that these musicians will bring in others as paying clients. The music industry is one big barter anyway; you do for me and I'll do for you."

Much of the music business has and will probably continue to function as part of what can be termed the "underground economy," with unreported gigs (no taxes taken out nor benefits paid) and bartered goods and services being its two major components. Nevertheless, there seems to be great potential in the music barter field. A music barter service could attempt to connect various jobs in music and recording, and create another tie-in with peripheral goods and services such as band T-shirts and equipment repair. (There might also be a third set of standards for fields unrelated to music.) Obviously, heavy reform is needed in the showcase club area redefining barter, so musicians can "work" these clubs with dignity.

Maybe bartering won't make anyone rich initially—but it sure as hell shouldn't get anyone ripped off! An eduction about the realities of the system is the first step toward avoiding its pitfalls.

jon gaines

ling Active Balanced Input and Output Circuits

Buying the equipment is easy compared to plugging it in. A glance around the average studio control room reveals a mind-boggling assortment of input and output connectors; nominal line levels, impedances, and balancing schemes. Interfacing products from various manufacturers can be a minor nightmare for studio owners and engineers, especially if your talents lie in areas other than electronic design.

Possibly the most frequently asked question in pro audio is: "How do I balance an unbalanced input (or output)" that is followed immediately by: "How can I match the levels of

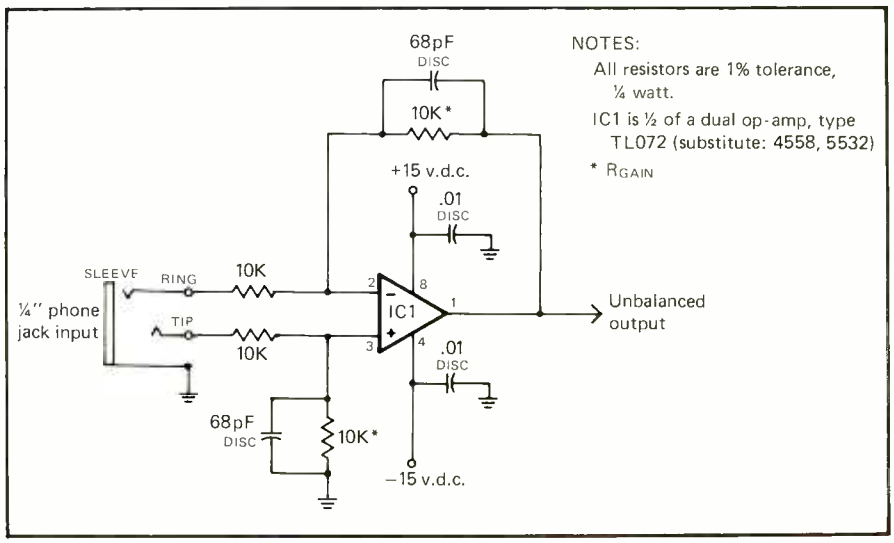


Figure 1. Balanced Input.

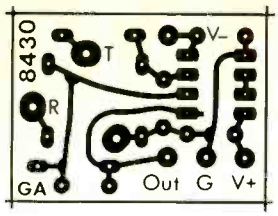


Figure 2. Actual size printed circuit board artwork for active balanced input circuit. This view is from the copper side of the circuit board. The pads marked T, R, and S are provided for use with a ¼" phone jack, or may be connected to an XLR connector, pins 3, 2, and 1 respectively.

these two pieces of equipment?" For example, you want to plug the unbalanced, -10 dBm output of your 4-track recorder into a mixing console that is designed for balanced +4 dBV inputs. Perhaps the situation is complicated by the fact that the recorder has a high impedance output which you want to route around the control room through some 40 feet of wire before connecting it to the console, a combination that can result in significant deterioration of high frequency response.

The most common solution to this type of problem is to grab as many adapters and plug-in matching transformers as you can find and hope for the best. Unfortunately, the transformer as line balancer/unbalancer, level matcher/impedance matcher is often less than ideal, since these various objectives usually collide with each other. In the case of the unbalanced 4-track recorder, a transformer will do a good job of balancing its output and "stepping down" its output impedance, but it will simultaneously drop the recorder's output level by roughly 20 dB, which is exactly the opposite of the gain change desired. If you then try to make up the gain by turning up the mixing console, noise performance will be degraded. There is a better way. This article describes two common audio circuits: the differential input amplifier and a balanced output/line driver, both of which are in use by major audio manufacturers and may even be a part of some of the equipment you already own. They are the electronic equivalent of matching transformers, with the added advantages of easy gain setting and very low cost. The circuits are easy to build, easy to apply, and may be attempted by anyone with even modest electronic experience. Between the two of them, you can solve virtually any interference problem.

Balanced Input

The balanced input amplifier shown in *Figure 1* is drawn as a unity gain amplifier (input level-output level) which accepts a balanced input signal on a ¼-inch tip-ring-sleeve (stereo) phone jack and converts it to a low impedance, unbalanced output which can then be connected to the input of an unbalanced piece of audio equipment (the phone jack could just as easily be an XLR type connector, of course). By simply changing the value of the two resistors marked R_{Gain}, the circuit can be made to have a loss or a gain (lower volume or higher volume at the output). Typically, this circuit will be used when you have a line level balanced source feeding an unbalanced unit that

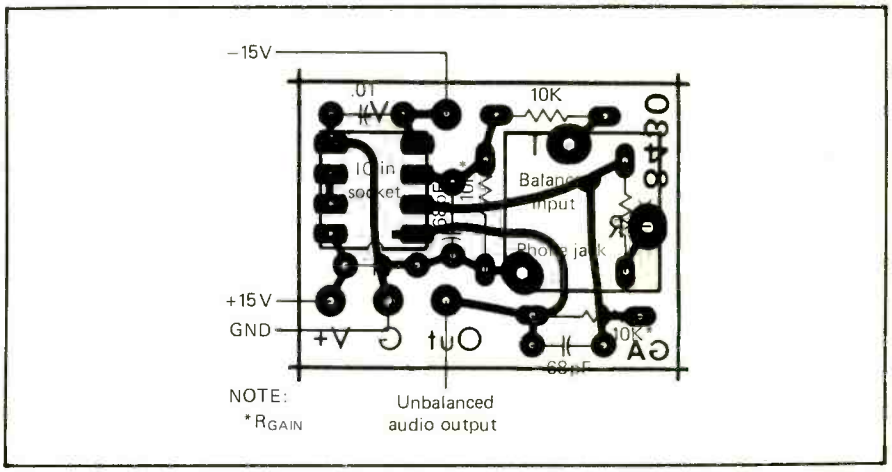


Figure 3. Component stuffing guide for active balanced input. This view is from the component side of the circuit board.

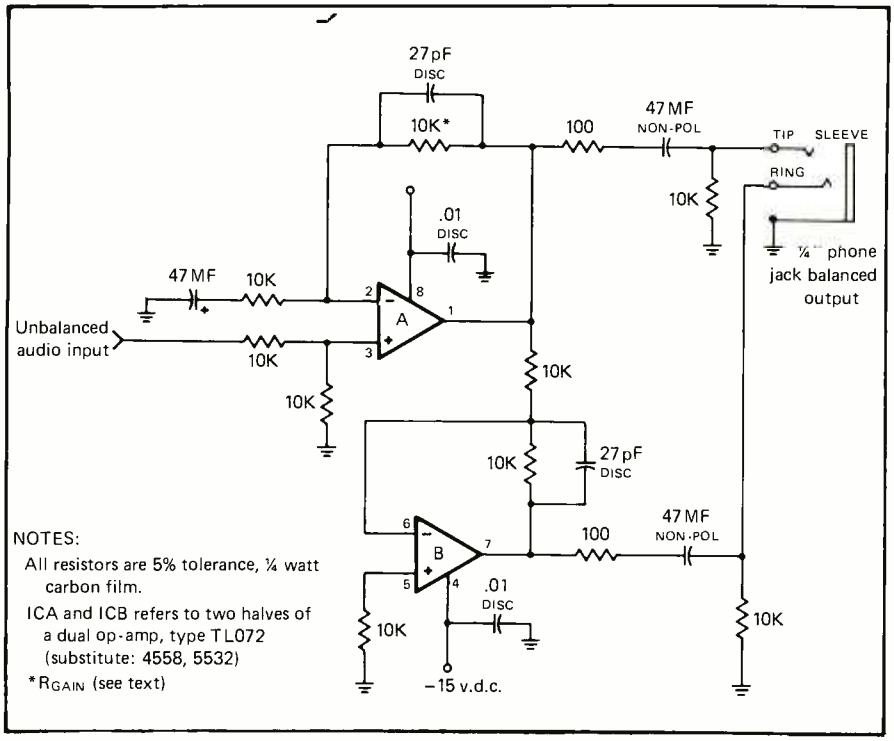


Figure 4. Balanced output circuit.

wants either the same or a lower level.

For example, if you want to connect the +4 dBm balanced output of a mixing console to the -10 dBV input of a tape recorder, you must fill two requirements: you need to unbalance the console's output and get rid of 14 dB of level. So, to make this circuit work for this application, simply consult *Table 1*, which indicates that the value of the two R_{Gain} resistors should be 2K ohms, substituted for the 10K resistors shown in the *Figure 1* drawing.

R_{Gain}	Level Loss
10K	0 DB (Unity)
6.8K	- 4 dB
4.3K	- 8 dB
3K	-10 dB
2K	-14 dB
1.3K	-18 dB
1K	-20 dB

Table 1. Commonly available resistor values used to set gain in the Balanced Input circuit of *Figure 1* (± ½ dB).

The circuit has an inherently high input impedance (20K ohm) and a low output impedance (around 10 ohms), making it an ideal impedance matcher for all modern audio equipment. The days of rigid impedance matching are gone, thankfully, and this high-Z input/low-Z output structure is now fairly universal.

Suppose that you want to use the gain and impedance matching features of this circuit, but you don't need the balanced input feature, i.e., you're feeding it from an unbalanced source. Just take the leg of the circuit which is shown connected to the ring of the input jack and connect it to ground instead. The gain of the circuit is unchanged. This ability to switch back and forth from balanced to unbalanced input operation adds to the versatility of this circuit. When used in conjunction with a tip-ring-sleeve phone jack as shown in *Figure 1*, the input will be balanced if fed from a balanced tip-ring-sleeve phone plug, and will automatically unbalance itself if an unbalanced tip-sleeve (mono) phone plug is inserted. No re-wiring needed; the connector does the work.

Other characteristics of this circuit are: low noise, low distortion, perfect frequency response, and phase integrity; it does not reverse the phase of the input signal.

Note that the circuit is shown using all 1 percent tolerance resistors. This is suggested to maximize the common mode rejection ratio of the input amplifier. Put simply, this is an expression of the circuit's ability to reject noise that gets into your cables through the atmosphere.

Examples of this are radio station signals, television sync buzz, magnetic hum, light dimmer noise, and, lately, emissions from personal computers. The closer the matching of the resistors in this circuit, the better the amplifier's ability to reject such noise. Note that there are two pairs of resistors here: the two 10 K input resistors form one pair, and the two R_{Gain} resistors form the second pair. It is not important for the resistors to be within 1 percent of their marked value; the point is to match the two resistors within the pair so that they are within 1 percent of *each other*.

Before you rush off to track down precision components, let me offer an easier (and cheaper) approach. If you have access to a digital volt-ohm meter, you can select your own 1 percent resistors out of a bag of ordinary 5 percent parts. Typically, more than half of the resistors in a batch of 5 percent types will turn out to be within 1 percent of their marked value. And even if you have to settle for unsorted 5 percent parts, you'll still end up with better than 20 dB of common mode rejection, more than adequate for most line level applications.

The two 68 pF disc capacitors improve stability and filter out high frequency noise. This value is not critical, and you can use anything from 50 to 100 pF here, depending somewhat on the type of op-amp chosen.

Finally, the .01 MF disc caps shown attached to the power supply lines are a standard protection against noise and oscillations. Locate them close to the IC.

The balanced output circuit of *Figure 4* uses two op-amps, one non-inverting and the other inverting, to

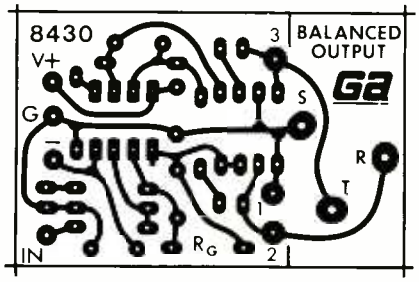


Figure 5. Balanced Output printed circuit board artwork, actual size. This view is from the copper side of the board. The large oval pads at the right are for use with a PC mounted phone jack. If not needed, this section of the circuit board may be cut off, reducing the overall size of the card. The pads marked 1, 2, and 3 would then be used as the outputs, shield, minus, and plus, respectively.

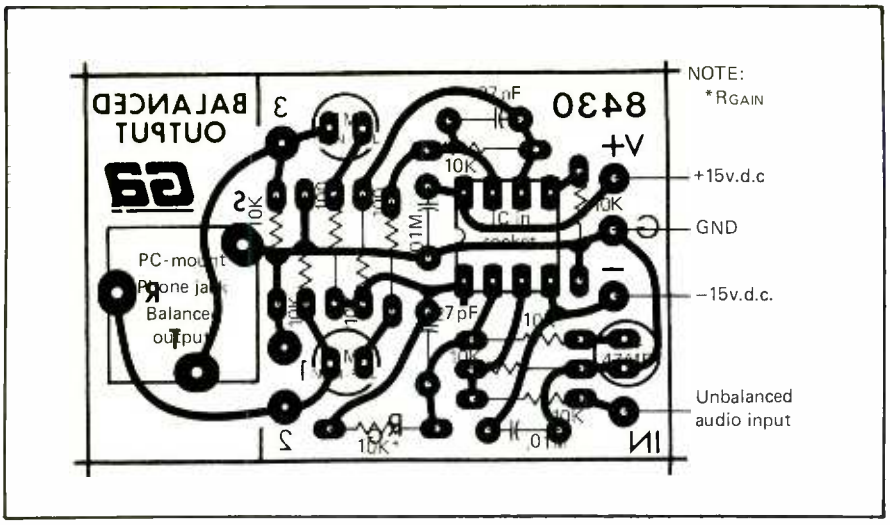


Figure 6. Balanced output component stuffing guide. This view is from the component side.

R_{Gain}	Balanced Output Level	Unbalanced Output Level
0 ohms	+ 0 dB*	- 6 dB
6.8K ohms	+ 4 dB	- 2 dB
15K ohms	+ 8 dB*	+ 2 dB
24K ohms	+10 dB*	+ 4 dB
39K ohms	+14 dB*	+ 8 dB
56K ohms	+16 dB*	+10 dB
100K ohms	+20 dB	+14 dB
200K ohms	+26 dB*	+20 dB

*unity

Table 2. Resistor values for balanced output circuit gain setting.

produce a symmetrically opposed pair of output signals which can then drive a balanced line and, at the other end of that line, feed a balanced input. As shown, it has a gain of 6 dB as measured across the outputs of both amplifiers, and the gain of this circuit can be modified by changing a single resistor, again called R_{Gain}.

Typically, this circuit will be used at line level and will either have unity gain or some increase in gain. As an example, suppose that you want to convert the unbalanced -10 dBV output of a tape recorder to a balanced 0 dBm output. Just consult *Table 2*, which specifies a 24K ohm resistor for R_{Gain}.

Like the balanced input circuit discussed earlier, the circuit of *Figure 2* allows you to choose balanced or unbalanced operation, depending on your need. To use it as an unbalanced level matching circuit, simply leave the bottom amplifier disconnected from the ring of the output connector and use only the first stage of the circuit. You can still take advantage of the op-amp's buffering and impedance matching characteristics, and you can still set the gain to any level you like. Consult the third column in *Table 2*, "Unbalanced Output Level," to determine the correct value for R_{Gain}. Note that the level seen across two amplifiers is always 6 dB hotter than the level across one amplifier, thus the need for two level columns in *Table 2*.

Since both the tip and ring connectors of the output jack are "hot" in this circuit, you must never plug in a mono phone plug; the barrel of the plug would short the second op-amp to ground, which could eventually cause a failure. The two 100 ohm resistors in series with the outputs will protect the op-amps against momentary shorts, and also improve the stability of the circuit when driving long cables and other capacitive loads. Cable runs and snakes of up to 200 feet are perfectly reasonable loads for this circuit. The 47 MF non-polarized capacitors on the outputs are intended as DC blocking caps. They guarantee that no matter what might go wrong ahead of this point, no damaging DC voltages will ever get any farther.

None of the component values in this circuit are particularly fussy, so normal 5 percent tolerance resistors will be adequate, and cap values can be adjusted slightly if necessary.

Power

These circuits require a standard ±15V DC power supply, either regulated or unregulated. If you own any contemporary audio equipment, you probably already have several regulated power supplies inside your gear. If you are adding these balancing circuits to existing equipment, you may be able to build them right into the product and share its power supply. Since the circuits draw a miniscule amount of current, you're not likely to overload the power supply. I should caution you, however, that some manufacturers may not honor their warranty when such a modification has been made, so it would be prudent to consult them before doing any work on your in-warranty units. In any case, you can certainly build these circuits as an outboard interface box with an independent power supply. Shielding is not especially critical, but a metal chassis would still be a good idea.

SPECIFICATIONS

BALANCED INPUT
Noise: -110 dBV
Frequency Response: DC to 100 kHz, ±0.5 dB
Maximum Input/Output Level: +20 dBV
THD: less than 0.01%
CMRR: typically 70 dB
Current Required: 8 mA max, at full output into 600 ohms

BALANCED OUTPUT
Noise: -105 dBV
Frequency Response: 5 Hz to 100 kHz, ±0.5 dB
Maximum Input Level: +20 dBV
Maximum Output Level: +26 dBV
THD: less than 0.01%
Current Required: 16 mA max. at full output, 600 ohm load

PARTS AVAILABILITY
Parts for this project are available from Gaines Audio, PO Box 17888, Rochester, New York, 14617, as follows:

Complete parts kit for the balanced input circuit as drawn in Figure 1, $7.95. Printed circuit board only, $4.65.

Complete parts kit for the balanced output circuit as drawn in Figure 4, $9.35. Printed circuit board only, 5.25.

Prices are postage paid. NY residents please add tax. Visa, Mastercharge, money orders accepted.

chris albano

What to Do with MIDI

The Musical Instrument Digital Interface (MIDI) was developed by leading synthesizer manufacturers to be a standard "link" between their many different makes and models. As it turns out, this "link" also works well with other devices, like personal computers, drum machines and, eventually, mixing boards and effects devices. So, the question in everyone's mind is: "What will it do for me?"

Well, because MIDI is nothing more than a standardized data format, it can be used in as many ways as a computer itself. First we'll look at a typical hardware set-up and then discover the many software applications at our disposal.

For those who are not quite sure, hardware refers to the machines (i.e., synthesizer, computer, etc.) and software to the program or set of instructions that run the machines (i.e., your second brain!). So a sufficient hardware set-up might consist of any number of synthesizers, a personal computer and a drum machine.

The MIDI Interface

This set-up is designed for recording or performance, while a much smaller set-up (one synthesizer and one computer), would suffice for teaching, learning or composing.

The most important piece of hardware in any MIDI set-up is the MIDI interface. The MIDI Interface is a small circuit card or cartridge that plugs directly into your computer with DIN cables to connect your synthesizers and drum machine.

This MIDI Interface is the central "shipping and receiving" center for your MIDI hardware. All the information you send from your synthesizer and MIDI drum machine (i.e., key on/off, pressure, velocity pitch bend, etc.) is sent to the computer and then processed. The computer, in turn, processes this information and lets you change, save and/or send it back to your synthesizer and drum machine for playback.

While the MIDI Interface is the most important piece of hardware, it can't do anything without software. Therefore a MIDI Interface is only worth as much as the software applications that support it. So when you're shopping around for your MIDI set-up, be sure to look at the software before you buy the hardware.

MIDI software is currently available in three different types or categories:

Performance—Recording, sequencing and editing software that lets you compose, orchestrate, arrange and perform music in a variety of ways.

Productivity—Music "tools" that help you communicate, transcribe, print and data base your music.

Education—Music "courseware" for learning any musical discipline and for teaching with maximum efficiency.

In the Performance category, software companies have introduced some very exciting products. The already popular multitrack sequencing software will be greatly enhanced in 1985. What these packages will allow you to do is emulate a very sophisticated recording studio. As you can tell from the features, these programs give you a lot for the money, and because this type of digital recording studio is software controlled, your options grow as your needs do.

For the Productivity category, the standard music printing software for MIDI will be given companion packages called Utilities. Utilities will combine state-of-the-art graphics, editing and data basing software to give an inexpensive, yet powerful means of composing, transcribing, and communicating your music, using any MIDI set up.

Some companies have been involved with Music Education Software. Since their introduction four years ago, education software programs have become the standard computer learning tools for schools and universities around the world. Chords, Intervals, Keyboard Training and Record Keeping are just a few of the areas both teachers and students can now access through MIDI.

As MIDI and music software develop, the potential for maximizing performance dollar for dollar will also increase and more and more devices will be built with MIDI.

So hopefully this short look into the many uses of MIDI has shed some light on the questions concerning this new technology. The most important thing to do is ask questions and stay informed, as MIDI and music software are new and promise to evolve rapidly.

MODERN RECORDING & MUSIC

Looks At

Music Software

DIRECTORY OF MUSIC SOFTWARE

The directory that follows is listed alphebetically by manufacturer. Within each listing, we have shown which software is for which computer(s). All the information was supplied by the manufacturers. We asked for pricing on all products, but if it is not there, it is because we were not given it.

It is strongly suggested that any special interests you may have can be best satisfied by writing directly to the manufacturer. A list is at the end of the directory. Please tell them you saw it in Modern Recording & Music.

CHERRY LANE TECHNOLOGIES

IBM

Unison, MIDI interface required-Roland MPU-401, Unison is a phrase based composing system enabling a musician to build up 8-track segments of music virtually any length. These segments may be edited and modified musically and then tied together in any desired order. $149.00.

APPLE II

Connections, MIDI interface required- Roland MPU-401, Connections is an 8-track "linear" style sequencer that enables up to 18,000 notes to be recorded with full Punch In/Punch Out, fast forward and rewind and auto correction facilities. $129.00.

Unison, for Apple II identical to IBM program. All IBM/Apple programs are file compatible between each other and devices like the Roland MSQ-700.

COMMODORE 64

12-Track Recording System, MIDI interface required-JMS, 12-track recording, composing, arranging software with powerful editing and manipulation features. Up to 7600 notes may be stored. $139.00.
Master Keyboard, MIDI interface required-JMS, Master Keyboard permits fast control of a series of connected keyboards. $139.00.
6-Track Composer, MIDI interface required-JMS, 6-Track Composer enables step time input and editing of music. $129.00.
Yamaha DX7 OR DX9 Sound Editor, MIDI interface required-JMS, DX7 and DX9 Sound Editor permits simple computer control change and storage of all sound definition parameters. $129.00.
Yamaha DX7 Sound Library, MIDI interface required-JMS, Sound Library contains 128 new sounds for the DX7. $129.00
MIDI Arpeggiator, MIDI interface required-JMS, The Arpeggiator allows up to 40 chords to be stored and then recalled and arpeggiated.$99.00.
The JMS, (Commodore 64 interface) has 3 MIDI IN, 1 MIDI THRU and 1 Footswitch connector. $195.00.

HYBRID ARTS

ATARI 800 XL

MidiTrack II, MIDI interface required-MidiTrack interface card/cartridge.The 16 track digital MIDI recorder, synchronizer, and MIDI remote control, MidiTrack II, has features that musicians expect from a conventional recorder and a digital computor. MidiTrack 11 uses the Hybrid Arts MidiMate to interface with the inexpensive Atari personal computer.
The MidiTrack II system offers: 16-track Overdubbing; Punch In/Punch Out editing; Auto Locater; full MIDI Channel Assigning; Velocity Encoding; Pitch and Mod Wheel Recording; Program Change Recording; Transpose and Quantizing; Step Editing; and a variety of Sync In/Out Interfaces. As the heart of your keyboard system it controls all of

your MIDI instruments.
MidiTrack II is designed to take advantage of the full MIDI specifications and therefore works with all the different MIDI keyboards and drum machines regardless of manufacturer. MidiTrack II makes it easy for the musician with no computer experience to use MIDI. MidiTrack II comes with a complete and informative user's guide. The Getting Started Chapter explains how easy the MidiTrack II system is to set up. In the Application Notes chapter, an example session explains how to take advantage of MidiTrack II's features. The Glossary explains those computer and MIDI terms in words that a musician will understand. The MidiTrack II system includes: disc; interface card/cartridge, two MIDI cables and MidiTrack II user's guide for a package price of $349.00.

KORG
Commodore 64/Apple IIe

KSQ-800 4 Track MIDI Sequencer, MIDI interface required-MH01A or MH01C card or cartridge, the KSQ-800 program can record four independent musical tracks and control from one to 16 or more polyphonic, MIDI compatible synthesizers while accurately recording notes, durations, velocities, pitch bends, modulations, program number changes and other parameters. Up to 6,000 note storage per song is available with fast disc storage for easy access to 10-15 songs. The program also has likeness to a multitrack tape machine in that unlimited overdubs, real-time editing and tempo control are at the user's fingertips. $99.00 for the program and $195.00 for the interface card.

MARK OF THE UNICORN
Apple Mackintosh

Professional Composer, MIDI interface required-none, Professional Composer is an interactive music notation editor designed to let musicians compose, edit and print out original scores on Apple's Mackintosh PC. This means that musical scores can be composed and entered right on a Mac PC using the Mackintosh "mouse", (a hand-held pointer). This program functions like a word processor, but instead of entering characters, it enters notes. Professional Composer edits in standard musical notation and all music appears on the computer screen as it would on an actual piece of sheet music, including notes, rests, accidentals, beams, chords, ties, n-tuplets, time signatures, clefs, measure lines and note embellishments. $495.00.

MUSICDATA
Commodore 64

MIDI Sequencer, MIDI interface required-MIDI Interface(MusicData), The basic concept of this program is to link several MIDI keyboards or drum machines to the computer and to create and record multitrack sequences just like on a multitrack recorder. 16 different sequences can be created with each sequence controlling up to 16 independent MIDI channels. These sequences can then be chained together in any way to form complete compositions. Sequences can be of any length and can be synched to tape or non-MIDI drum machines by means of an optional piece

of hardware, (MusicData Synchronizer, $100.00). For each sequence you can assign which instrument is assigned to which MIDI channel. Level of quantization can be controlled to respond to quarter note, eighth notes, etc. up to sixty fourth notes. This allows a most effective entry of program data. The MIDI Sequencer is constructed to use little memory and therefore allows up to 10,000 notes storage when used with a standard Commodore 64. The disc is $150.00 and the interface is $100.00.

OCTAVE-PLATEAU ELECTRONICS
IBM

OEI Music Software System, MIDI interface required-Roland MPU-401, OEI's software program for the IBM PC, is based upon a flexible 64-track digital tape recorder, which has been designed to be easy to use as well as powerful. Status and Menu windows always keep the user informed and the built-in HELP is like having a mini manual right on disc. Each of the 64-tracks may be independently looped, transposed and autocorrected on either playback or record. Up to 60,000 notes can be recorded, with high timing resolution for complete accuracy. Punch In/Punch Out points may be programmed and rehearsed in advance, and multiple takes may be kept and compared before making a final choice. The full-feature Editor makes it easy to examine and change notes and other MIDI events or enter them in step time. Up to ten musical fragments (bass lines, drum fills, etc....) may be kept in instant-access buffers and more may be kept in Phrase Libraries that use names instead of numbers. Anything from a few notes to a complete track can be copied, moved, inserted, transposed, re-quantized or modified in many other ways. Time signatures can be mixed in any fashion. Cue markers allow up to ten different locations to be accessed instantly. Roland DIN drum sync and FSK sync-to-tape is also provided. The program is to be released after the winter '85 NAMM show for under $500.00. (MPU-401 not included.).

PASSPORT
APPLE 11e/+, COMMODORE 64

MIDI/4, MIDI interface required-Passport MIDI Interface Card/Cartridge, MIDI/4 is music software on a disc that allows performers to create their own recording studio. The software operates like a multitrack tape recorder with unlimited overdubs, real time editing, and tempo control. MIDI/4 records all controller functions including key velocity, pitch bend, aftertouch, modulation and breath controls. Four independent MIDI channels and a variable drum clock let you record and playback on four or more different MIDI synthesizer all in perfect sync with the drum machine.$99.00.
Polywriter, MIDI interface required-Passport MIDI Interface Card, Polywriter interprets whatever is played on the synthesizer keyboard and turns it into standard printed music. The program includes 8 different score formats ranging from solo instruments to full orchestra, a "humanizing" factor that automatically fixes small rhythm mistakes, and full capability to edit and change the music once it's notated. Lyrics and chord symbols can also be typed in with Polywriter. $299.00.

ROLAND

Apple (ll+/lle),IBM-PC, Commodore 64

CMU-800R, MIDI interface required-included, (hardware/software pkg.), the CMU-800r hardware is a music synthesizer that creates piano, bass and drum sounds and can be connected to any conventional amp or stereo system. The CMU-800R hardware connects directly to a computer via an expansion slot or bus. The CMU software is a program that allows anyone to enter, arrange and play music through the CMU hardware. The entered musical data can be stored on disc or digital cassette. All music is step-loaded via the computer keyboard making it possible for anyone, regardless of musical skill to create and play entire compositions. $295.00.

Apple (ll+/lle), IBM-PC, (other PC's in the future)

MRC Music Recorder Software, MIDI interface required-Roland MPU-401, the MRC Music Recorder software allows the host computer to act as an 8-track recorder. Any MIDI musical instrument can be interfaced to the computer via the MPU-401. The MRC actually memorizes the performance of the musical data which can then be played back through the MIDI instrument or device. Each track can be assigned a MIDI channel number allowing multiple connection of MIDI instruments, each simultaneously playing separate musical parts of a composition. Many editing, merging, and time/phrase correct features are employed within the MRC's program. $195.00.

IBM-PC

MPS Music Processing System, MIDI interface required-MPU-401, The MPS Music Processing System is to the electronic musician as a word processor is to the writer. The MPS allows musicians to arrange, record and playback music by turning an IBM-PC into a sophisticated 8-track recorder. Single notes, chords, and whole musical passages can be inserted, deleted, merged and lifted by moving the cursor throughout the score. The final score can be printed out in standard musical notation. $500.00.

SEQUENTIAL CIRCUITS

Commodore 64

Model 64 Sequencer, MIDI interface required-none (plugs in expansion port), this cartridge will increase sequencing capacity to 4000 notes. $225.00. Model 964 Sequencer, MIDI interface required-SC's Model 242($99.00) floppy disc version of Model 64 program but requires the interface. $99.00.

Model 900, MIDI interface required-none> This program allows for saving custom programs, stacks and sequences to disc and reloading the factory program stacks and sequences into the synthesizer. $40.00.

Model 910 Expansion Software, MIDI interface required-none, is a threefold program. The first part allows you to create multi-timbral sequences and songs with a total memory of 4000 notes. When a drum machine is added to the system, the 910 provides full rhythm autocorrection. The second section allows you to create and store groups of 100 synthesizer programs. It turns the computer screen into a full synthesizer front panel showing knob and switch values for easy

programming. The third section is called the SuperPatch mode and allows the synthesizer keyboard to be split into as many as three sections. Then you can divide the instruments' six voices among the split sections to play multiple instrument sounds at one time live from the keyboard. The 910 is designed for studio, live performances or home recordings. $99.00.

SIEL
Commodore 64

Sixteen Track Live Sequencer, MIDI Interface required-SIEL MIDI interface Cartridge, this is an apllicative package for MIDI equipped musical instruments, which enables recording, memorization and playback of independent musical sequences. This package also allows control of some functions and parameters such as the assignment of the various tracks to the MIDI channels and their transposition. This enables recording of a performance which can be played back through a system of MIDI compatible instruments (maximum of 16 units) each of which can receive on or more tracks according to the type of assignment. It is also possible to compose SONGS, (16 for each track, or one song with 16 tracks). The program enables you to synchronize the execution of the recording with an external rhythmic unit featuring a normal CLOCK or a CLOCK according to the MIDI standard. The recorded sequence may be loaded on disc/cassette and used along with the metronome function to execute the recording easier. $99.00 (SIEL MIDI Interface Cartridge $149.00.)

SIGHT AND SOUND
Commodore 64

Incredible Musical Keyboard, MIDI Interface required-none, a plastic overlay that fits onto the computer and allows you to play notes on a two octave keyboard instead of the computer keys. A diskette is included with preset sounds (polyphonic) and demonstrates other Sight and Sound software, all of which can use the keyboard. Also included two song books (one easy-play notation). $49.95.
Kawasaki Synthesizer, MIDI Interface required-none, is a two-disc set. The Performer, (disc 1) creates adjustable preset sounds and special effects to use while playing. The Composer(disc 2) is used to modify presets and create, edit, store and retrieve your own sounds and sequences. The program was written by well-known jazz musician Ryo Kawasaki, and includes several of his original compositions. $49.95.
Kawasaki Rhythm Rocker, MIDI interface required-none, lets you play and record synthesized sounds and bass lines over rhythm patterns. You can use several pre-programmed bass and rhythm tracks or ones you create with the Kawasaki Synthesizer. HI-RES color graphics can be generated along with the music which you can combine and control in real time. $39.95.
3001-A Sound Odyssey, MIDI interface required-none, turns your computer into a sophisticated synthesizer with 100 adjustable preset sounds. You can create, edit, and retrieve your own presets and three voice sequences. The program also provides a complete education in sound synthesis through an interesting and entertaining tutorial program. $39.95.

Music Processor, MIDI interface required-none, contains 99 adjustable preset sounds, and lets you play and record melodies with various accompaniment backgrounds. Play your own 3-part arrangements and change presets with a joystick. Tempo, key signature, presets,graphics, etc. can be programmed to change during playback. Display and synchronize lyrics to the music. Sixteen pre-recorded tunes are included. $34.95.

YAMAHA INTERNATIONAL
Apple II+/IIe

DX PRO,MIDI interface required-AIC-2, DX PRO is a software package that has been designed to complement and enhance the features of the Yamaha DX7 synthesizer. DX PRO stands for Program, Recall, & Organize. The Program screens greatly simplify the process of editing, and creating voices for the DX7. All the parameters of a voice can be seen on four screen pages, which are organized as the Envelope, Scaling, Algorithm and Modulation Pages. This is a considerable improvement over the DX7's LCD display. These screens also feature graphic displays which are said to be invaluable for visualizing envelope graphs, scaling curves, etc. The Recall and Organize functions are displayed on the screen as Menu Cards. All selections are made by simply positioning the select bar over the desired command. The functions offer a significant enhancement of the existing voice storage capabilities of the DX7.
The user can select from over 800 voices per disc, either individually or in groups. Once loaded into the DX7, it is possible to rearrange the order of the voices or the names of the voices for each use. To further aid the musician in organizing voices and groups, reference printouts can be made which list the voice names in the synth, and the names of the groups on the disc.
Another feature of this program is the ability to control the program directly form the DX7 keyboard in addition to executing the commands from the Apple II typewriter. This means computer control of the parameters from the synthesizer which uses a convenient template on the keys and defines their special functions. A big help for the musician who is unfamiliar with computers. $195.00.

Apple IIe/Commodore 64
Yamaha 2 and 4 Track, MIDI interface required AIC-2 or CIC card. These software packages combine many of the features found separately in sequencers and multitrack recording systems, making them useful for live performance, studio, composition, scoring or experimentation.
Both the 2 Track and 4 Track packages can use MIDI or non-MIDI drum machines that accept an external clock signal. Some of the other capabilities include synchronized overdubbing and mixing, disc storage of sequences, click track and punch-ins. The MIX feature allows you to combine sequences and continue to overdub new tracks.
The final sequence file can contain dozens of tracks, without the audible degradation often encountered with analog recorded overdubs. This program is said to drive up to 16 MIDI keyboards and an optional drum machine. These programs will also store important characteristics such as pitch bend, tempo, keyboard velocity and up to 128 instrument presets. The 4 Track also can control changes in aftertouch and foot

pedal expression. Musical passages can be from start to finish or as a continuous loop. One other feature of the 4 Track is the ability to transpose a sequence up or down up to 12 halfsteps. 2 Track-$55.00, 4 Track-$95.00 for the program and $190.00 for the interface card/cartridge.

The Manufacturers

Cherry Lane Technologies
110 Midland Avenue
Port Chester, NY 10573

Hybrid Arts
P.O Box 480845
Los Angeles, CA 90048

Korg c/o Unicord
89 Frost Street
Westbury, NY 11590

Mark of the Unicorn
222 Third Street
Cambridge, MA 02142

MusicData Inc.
8444 Wilshire Blvd.
Beverley Hills, CA 90211

Octave-Plateau Electronics
51 Main Street
Yonkers, NY 10701

Passport
625 Miramontes St. Suite 103
Half Moon Bay, CA 94109

Roland
7200 Dominion Circle
Los Angeles, CA 90040

Sequential Circuits
3051 North First Street
San Jose, CA 95134

SIEL
105 Fifth Ave.
Garden City Park, NY 11040

Sight and Sound
3200 South 116th Street
New Berlin, WI 53151

Yamaha International
P.O. Box 6600
Buena Park, CA 90620

The following Orban product was inadvertently left out of our November Directory of Delay lines. Their full address is also reproduced, as it actually was in that Directory. Write directly to them for further information on this product.

Orban

111B is a Dual Spring Reverb with twang and boing noises greatly reduced by a limiter, when operated in the floating threshold mode. Complex frequency response and decay time curves are used to simulate natural reveberation. Controls include a quasi-parametric midrange tone control and bass control for each channel, as well as input and output attenuation and tuning/bandwidth for each channel. Dimensions-3½ x 19 x 12 inches. Weight-10 lbs. Price-$899.00.

Orban Associates Inc., 645 Bryant Street, San Francisco, CA 94107

shelton leigh

Computers— A Musician's Guide

It's the year after the year of the computer and there's more hardware and software available for lower prices than ever before. You can get a respectable 64k computer system for under $1000 and that's just the beginning. Every major electronics manufacturer is now making computer gear, and competition is fierce. Hardware prices are nearing rock bottom and cottage software industries are flooding the marketplace with a wide variety of cheap homegrown software. This may sound too good to be true. But remember, cheap doesn't mean inexpensive or cost effective—it means cheap. So, before you run out to buy new hardware or software, let's look at some basic computer questions.

What You Really Need

There are two fundamental questions you must ask yourself before you buy any kind of computer equipment. The first is, "What do I really need my computer to do now?" and the second is, "What will I need it to do in the future?"

It is important to note that you should never ask a computer to do something for you that you can do faster or better by yourself. For example: If you do less than 200 jobs each year, a computer accounting package will be a waste of your time and your money. You can keep more accurate books with a "one-write" checkbook system than you ever could with any computer-based accounting software. And, in most cases, it would take longer to boot-up the system than it would to enter your transactions.

However, computers make great file cabinets. So, if you have 500 ¼-inch masters lying around your studio and you want to put all of the titles, artists and clients into a database, a computer *is* the answer.

The Demo Studio Analogy

My favorite approach to the "What will I need in the future?" question is the famous demo studio analogy. The Teac 80-8 was the first really affordable semi-pro 8-track tape recorder circa 1976. With it, a mixing console and a 2-track for mastering you had a respectable demo studio for under $15,000.

This demo studio existed for only one reason: to take musical idea from your head and put it on tape for someone else to hear.

If your 1976 vintage recording studio can still take your musical ideas and put them on tape for other people to hear, it's still valid technology.

Computers are exactly the same. If you need word processing, data basing, spread sheeting and color graphics, and the computer you own will run software that performs these functions now, it will still perform these functions in the future.

You can add all kinds of equipment to a personal computer to make it more professional, just as you can add all kinds of equipment to an 8-track studio to make it more professional. You can add a rack of signal processing, dbx, better reverb, even a digital patch bay, but you'll still have an 8-track demo studio when you're done. Does it pay to add lots of gear to your 8-track studio? After all it's just for making demos, isn't it? Yeah, it's for demos but you say you've recorded four top 10 hits and three dozen on-air jingles right there in that little 8 track room. It's still a demo studio... isn't it?... hum?

If you have an Apple II+ with 64k of ram, two disk drives and an Epson FX-100 Printer, you have a computer that can perform every known computer function on a respectable, however, limited basis. Other systems like the IBM PC or Compac are equally versatile. However, each system has its own set of limitations. You can buy all kinds of add-ons to overcome the limitations of these computer systems, or you can buy a better computer.

MIDI And The Computer

Musicians have gone MIDI crazy. In fact, the whole industry has gone MIDI crazy. I've seen everything from MIDI reverb to MIDI patch bays. I'm not going to comment on the MIDI protocol in this short introduction to computers, just a word to the wise.

MIDI is a convenience. It was never intended for anything more than hooking up two or possibly three synthesizers together on stage. Its sequencer/editor capabilities are questionable at best. Some commercially available MIDI computer hardware/software combinations work well and might be considered semi-professional in nature. However, the bulk of the MIDI applications programs for Commodore and Apple II computers are for hobbyists not professional or semi-pro musicians. Be extremely careful when buying a computer for this particular function. A dedicated device such as a MIDI sequencer is almost always a better choice. One notable exception is the Yamaha Personal Composer program for the IBM PC. It is impressive, however, it also carries an impressive price tag.

E-Mail And Other Good Stuff

If you are looking for a reason to justify a computer purchase, you might need Electronic Mail. Electronic Mail is just like mail from the post office except it's all done by computers. You'll need a modem (modulator/demodulator), a peripheral device ranging in price from $60 to $600 and a computer, of course. Buy the highest quality stand-alone modem you can afford. You may change computers, but your modem will be with you a long time. There are many electronic mail services and music oriented bulletin boards. XNET/

has special bulletin boards for every instrument as well as classified ads and ures of special interest to musicians. (For info: NET/MUSICOM P.O. Box 2365, Halesite, NY 11743, 516-549-0811.) Larger, less specialized services like Compuserve and the Source also have special music oriented boards.

Some Hardware Tips On Cassette Tape, Floppy Disks and Winchesters

No serious desktop computer uses cassette tape for back up. Don't buy a computer without some kind of disk drive. Most computers use specifically formatted floppy disks to store data off line. More expensive computers offer a fixed hard Winchester disk drive with larger storage capacities.

The type and size of the floppy disks used by the computer disk drives is an important part of your purchase decision. What do your friends' computer use? If you want to trade software and use each others computers, they must have compatible disk drives and data formats.

Printers

If you are a normal person, doing normal computer stuff, you probably don't need an expensive printer. Remember, all printers are mechanical devices. Since there have been few great advances with this technology in recent years, your printer may cost more than your computer. Most people can make do with a medium quality 100 to 160 cps 9x9 dot matrix printer. Make sure the printer you buy has both a paper tractor and a friction feed platen. It should also have some kind of graphics capabilities (good for music printing). If you need your work to look typewritten, you'll need a letter quality daisywheel printer. Letter quality printers tend to be more expensive than dot matrix printers. They do not print graphics and they operate much slower than the average dot matrix printers. One last note on printers: If you need a letter quality and a dot matrix printer buy one of each. Stay away from the two in one matrix/daisywheel combos. They are far more trouble than they're worth.

Software

You must always keep in mind that computers are brilliant idiots. They will do anything for you, as long as you ask for it properly. The proper way to ask a computer to do something for you is in the form of a computer program. The generic name for computer programs is "software." The computer software you buy will tell your computer hardware what to do. Although most personal computers come with some sort of system software resident in Read Only Memory (ROM). (When software lives in ROM it's called firmware...get it?) When you buy a computer, you will always need to buy additional software.

Do not confuse operating system software like UNIX, or programming languages like Applesoft Basic with high level programs like Databases, Spreadsheets or MIDI Sequencer Programs. If you have a question about what software will or won't do for you, call the author of the software package. If the author or distributor of the software can't answer your questions or, they don't have a user support telephone number, Don't Buy The Package!

Turnkey vs. Hobbyist

You've all seen those fantastic TV commercials for Apple's Macintosh computer: "the computer for the rest of us" or "the computer you already know how to use." This is all well and good. However, until high level languages like Basic and Pascal are introduced, the Mac will only be as powerful as the pre-packaged software that is available for it. This means that if you can't use the available software for your computer applications, you can't use the computer.

On the other hand, you can write anything you want for the Commodore, Apple II and IBM PC computers. And, there are tens of thousands of pre-packaged software programs available for them. The Apple II and the IBM have expansion slots which you can fill with home brew or commercially available peripheral cards to make all sorts of wonderful things happen in and around the studio; tape machine control, MIDI, SMPTE, or any other function that would benefit from computer control.

Beware of Computer Stores Selling New Units

I got quite a laugh the other day when I tried to buy a Macintosh for my secretary. I called up a local computer store and asked, "....are these computers new in a box or have they been burnt in?" "New, of course!" said the proud salesman. "Sealed in a box, factory fresh. We only sell brand new units!" Watch out for these guys. They sell computers and accessories for list price and don't know any more than you do.

They will always try to sell you an annual service contract sometimes called an "extended warranty." They will courteously point out that a service call is $152.95 and if your computer were to break more than once, the service contract would pay for itself. What hooey!

It's one thing to buy a burnt-in and tested unit from a retail store, but if you're going to get it in a factory sealed box, you can buy it much cheaper somewhere else.

The least expensive way to buy a new computer is brand new in a sealed box from a discount store, or via mail order. When you get it home, read the manual, then turn it on and leave it on for 90 days straight. This is called Burning-In your computer. (A service computer retail stores used to offer their customers.) Since a computer has no moving parts, it has only three enemies: Heat, dust and static. If components are going to fail from defects in materials or workmanship from the manufacturer, they will do so within the first 90 days of constant use.

A Used Computer is a Great Buy

If you know what you're buying, used computers are all over the place. I just picked up another Apple II+ for $395 with one disk drive. Some uninformed people are trying to ditch their "old-tech" because they're afraid of what's coming. You can take advantage of this. Check out *Computer Shopper* magazine or your local newspaper's classified ads for some amazing bargains.

1/4 Notes

MAKING TRACKS

Dave Grusin, who wrote the music for the 1983 Academy Award winning film *Tootsie,* has also done the scoring for Paramount Pictures' *Falling In Love,* starring Robert De Niro and Meryl Streep...Producer **Jimmy Bowen** was at The Castle mixing tracks for MCA recording artist John Schneider. Bob Bullock and Steve Tillisch were at the board...David Gruen was in at Skyline Studios in New York laying tracks with producer **Rick Derringer.** Tom Edmonds engineered with help from Roger Moutenot. Producer **Hilly Crystal** was also in mixing some new songs by the Egyptians for CBGB Productions. Eric Calvi was at the board with Moutenot assisting...**Peaches and Herb** were at L.A.'s Mad Hatter tracking and overdubbing an LP for Don Ralph Productions. Greg Wright produced with Carl Lang and Duncan Aldrich at the board...The **Thompson Twins** completed overdubs for their upcoming live LP at New York's Sigma Sound...producer Reggie Thompson was in at Quadrasonic Sound in New York doing a remix for Jamaica Records' **Bob Marley & the Wailers** album which contains some never-before-released material. Hugo Dwyer engineered with help from Matthew Dasha...**Culture Club** did some recording at Sunset-Bernet Sound Studios in Dallas while the band was in town at the beginning of their U.S. Tour. The session was engineered by Bobby Dennis, with assistant engineers Bill Foshee and Ace Bowen...**Andy Paley** has been producing **Jonathan Richman & The New Modern Lovers** at Bennett House Studios in Nevada City for Rough Trade Records in the U.K....**Dizzy Gillespie** was at Bearsville Studios in New York laying tracks for a new Japanese release on King Records. Tom Shepard produced with Larry Swist at the board...Richard Alderson was in producing *The Fugs Reunion Concert From The Bottom Line* at N.Y.'s Midnight Modulation...**John Sebastian** was also in at Skyline working on a new album for Musart with producer Sergio Andrade. Cisco DeLuna engineered for the project...

VIDEO VIEWS

Barbra Streisand completed her first music video for "Left In The Dark" from her *Emotion* album. The video was directed by J.S. Kaplan and produced by Teri Schwartz for Robert Abel Entertainment...**Ray Manzarek** shot various L.A. locations for his video for the **Doors'** song "L.A. Women." The video features an appearance by bassist/vocalist **John Doe** of **X.** It will also feature unreleased footage from the group's private film archives...Editing was completed on a 30-minute upcoming video for the **Grateful Dead.** The video was directed and produced by Len Dell'Amico and contains a mix of concert footage and instrumental performance video clips. Glenn Lazzaro edited the piece for National Video Center/Recording Studios...John Sayles was at **Bruce Springsteen's** last three concert dates at the Sports Arena to head up a three-camera shoot for "Born In The U.S.A."...

& MUSIC...

LOS LOBOS: ***How Will The Wolf Survive?*** [Produced by T-Bone Burnett and Steve Berlin; engineered by Mark Linett; recorded at Capitol Recording Studio, Reggie Fisher Recording Studio, Producer's Workshop, and Warner Bros. Recording Studio, Los Angeles, CA.] Slash/Warner Bros. 25177-1.

Performance: **Spicy**
Recording: **Hot**

In this age of synthesizer madness, drum machines, and techno-overkill, it's so refreshing to hear an album with such unabashed emotional romp and verisimilitude. The LP? *How Will The Wolf Survive?* The band? Los Lobos, a Mexican-American quintet from Los Angeles. The results? Lots of good-time, soul-shakin', gut-rockin' party music, and *very* few spaces left on the dance floor.

Los Lobos swings mainly around the talents of David Hidalgo, who handles vocals, guitar, accordion, lap steel and percussion, and Cesar Rosas, the group's other vocalist and guitarist. But that's not to say the other numbers of Los Lobos merely fill up space. Saxophonist Steve Berlin, bass player Conrad Lozano and drummer Louie Perez are all adept musicians and play a major role in the band's success.

Now, don't let Los Lobos' Spanish name throw you. The group is not a hopped-up Mariachi Band in big sombreros and gaudy Mexican cowboy garb. On the contrary. Produced

by T-Bone Burnett and Berlin, much of what is heard on *How Will The Wolf Survive?* reflects a colorful cross-section of American music with, yes, liberal doses of South-of-the-Border spice added for good measure.

For instance, there are swatches of R&B, blues, country, Tex-Mex, and basic rock sewn together on all but a couple of tracks. And thanks to Burnett and Berlin, very few of the seams are evident.

Songs such as "Don't Worry Baby," a slick little rocker with chugging guitar riffs layered under some seriously sinister vocals; "Evangeline," another chili pepper that explodes with rock 'n' roll rhythm and fervor; and the title track, more subdued than the other two, but wonderfully crafted nevertheless, are all first-rate numbers. Add to them "A Matter Of Time," a great R&B ballad with lots of bass and richly textured guitar; and the pretty instrumental, "Lil' King Of Everything" and you've got yourself one fine record. If that's not enough, there's always "Corrida #1" and "Serenata Nortena" for the tequila crowd. In short, *How Will The Wolf Survive?* is a crisp, superior-sounding record, with the proper licks up front when they ought to be up front, and instrumentation that's clean and sprightly and very well-defined.

How Will The Wolf Survive?, recorded and delivered in the best tradition of Ry Cooder and others of the same ilk, is an excellent record—one of the best to surface last year. Look for Los Lobos to play a big part in the re-vitalization of homegrown, rootsy, rock 'n' roll. And in the very near future at that.

—robert santelli

DEEP PURPLE: *Perfect Strangers.* [Produced by Roger Glover and Deep Purple; engineered by Nick Lagona; recorded at "Horizons," Stowe, Vermont with Le Mobile Studio.] Mercury 824003-1 M-1.

Performance: **Revitalized heavy metal**
Recording: **Distinctive**

Since Deep Purple was already a rock legend, Ritchie Blackmore, Ian Gillan, Roger Glover, Jon Lord, and Ian Paice took a risk by re-forming. If the comeback failed, it could have tarnished their shining hall of fame star. But if it succeeded, it could enhance the current-stifled heavy metal/hard rock genre. But it should also be duly noted that their individual sole careers—Blackmore with Rainbow, the others under their own names—were slowly deteriorating, so "art" was certainly not the *only* reason for this reunion.

Only Roger Glover, as a producer, had been keeping up with the times. Even though his solo album, *Mask*, was an underacknowledged gem last year, his production of Judas Priest, Michael Schenker, and Ian Gillan have earned him a tag as a blossoming producer since he departed Purple in 1973. Glover is listed as the main producer of *Perfect Strangers*, whose title may ring true for the quintet, which recorded nine albums together from 1969-73, and never could re-form after that despite numerous rumors.

Perfect Strangers is one of the better realized heavy metal albums to appear since Purple's 1973 *Who Do We Think We Are!*, the last with this classic lineup, simple because the group's members know how to utilize their instruments to forge a distinctive sound. Lord's dronal keyboards offset the stern rhythm section and Blackmore's speedy guitar riffs for dramatic flair. The group is not afraid to open "Knocking At Your Back Door" with solo keyboards and layered guitar before breaking into its familiar and heavier ways. And even if there is a "Smoke On the Water" aura present, the only apes are Purple's *own* memorable riffs.

Keyboards are generally a no-no for heavy metal, but Deep Purple employs Lord's work in legion with adventurous Blackmore licks and Gillan's chilling vocals to come up with a varied album that includes both speed-demon tracks ("A Gypsy's Kiss") and surprisingly calmer tunes ("Wasted Sunsets"). Considering the sterility of many of the new heavy metal groups (some which are platinum-plus sellers), Deep Purple's *Perfect Strangers* is a welcome comeback, not only for its material, but for Glover's refreshing production approach that dares not to dwell on a perfectly clean sound in an era that relishes sterility. Deep Purple still has some raw edges, a welcome unusuality in this technological decade.

—bob grossweiner

JEFFREY OSBORNE: *Don't Stop.* [Produced by George Duke; engineered by Tommy Vicari; recorded at Le Gonks West, Ocean Way, Fantasy Studio "C," Fantasy Studio "D," and Soundcastle.] A&M SP-5017.

Performance: **Soulful pop**
Recording: **Extremely clean**

Former L.T.D. drummer and then frontman Jeffrey Osborne is an extraordinary ballad crooner, best exemplified by "On the Wings Of Love" from his eponymous 1982 solo debut. But for some reason, producer George Duke keeps trying to transform Osborne into a diversified funk singer at the expense of his slower, more powerful tunes. *Don't Stop*, Osborne's third album, sounds so good and so clean that it turns out to be more a collection of isolated songs with some famous name-dropping guests than a cohesive album.

The title track, which features Syreeta Wright on sumptuous backing vocals and Michael Sembello's stirring guitar, contains inspirational lyrics within its fusion of pop, rock and R&B. Whereas L.T.D. was an R&B group, Osborne has sought more of a pop marketplace through which to achieve greater commerciality. "Let Me Know" and "Crazy 'Bout Cha" are ballads, but not as distinctive as "On The Wings of Love," while the rest of the tunes are either mid-tempo or faster tracks with catchy choruses ("The Power"), stylized pop vocals ("Is It Right") and fun funk ("The Borderlines," with its pronounced bass undulations). And the soulful funk of "You Can't Be Serious" is a whimsical tale of a UFO sighting.

While the tracks each have their individual strengths, the album on the whole lacks continuity. And with the undistinguished chorus of Pat Benatar, James Ingram, Shalamar's Howard Hewett, Kenny Loggins, Debra Laws, and Joyce Kennedy on "Live For Today," one gets the impression that this was a typical Los Angeles celebrity session without much substance.

Unfortunately, *Don't Stop* is too polished, with no rough edges, and at times, Duke's production sounds too perfect for its own good. Whereas Donna Summer or Diana Ross can enliven a similar production with their personalities, Osborne has yet to become as charismatic on vinyl as he is on stage, where he can make a run for Teddy Pendergrass's heartthrob audience. Considering that Pendergrass started out as a drummer too (for Harold Melvin and the Blue Notes), Osborne's progress bears watching.

—bob grossweiner

FRANKIE GOES TO HOLLYWOOD: *Welcome to the Pleasure Dome.* [Produced by Trevor C. Horn; engineer and production assistant, Steve Lipson; engineered by Stuart Bruce; no studio listed.] ZTT/Island 7 90232-1-4.

Performance: **Gleefully decadent (when focused)**
Recording: **Erratic**

Conceptually, this is great. An audacious plot, densely and wittily crafted by big-deal Brit producer Trevor Horn, it contains some of the most willfully subversive pop currently consumed by a mass audience. Both Frankie Goes to Hollywood's music and the deliberated hype that surround it are a calculated attempt to infest pop music. But *Welcome To The Pleasure Dome* is textbook evidence of what happens when concept outstrips talent and greed supersedes all else.

On the other side of the pond, Frankie are the biggest thing since that other group from Liverpool. Their first two singles, "Relax" (about avoiding premature ejaculation) and "Two Tribes" (about doing the same with nuclear holocaust), are natural hits. "Relax" is the definitive Britdance track, the soullessness of all involved counteracted by Holly Johnson's sleazy vocal and more hooks-per-minute than Abba. But the 12-inch of "Two Tribes" (not the shortened 7-inch version here) is Frankie's essential track, the Ennio Morricone-meets-Phil Spector sound complemented by a simultaneously chilling and side-splitting announcement that the missiles are on their way. Its flip, a cover of Edwin Starr's "War," is deeply felt and the version on *Welcome To The Pleasure Dome* features a hysterical cameo by a Reagan impersonator who sings the praises of Che Guevara, George Jackson and Malcolm X. One imagines the impressionist's real-life counterpart is probably not a big fan of these men.

Then there are the other covers. "Ferry Across The Mersey" and "Do You Know The Way To San Jose?" are straight camp but the band's take on "Born To Run" is intriguing. The arrangement and production are a fascinating restructuring of this most American of songs. The almost claustrophobic sound of Springsteen's original is now a spare, punky backing, and the song works this way even if Johnson couldn't sing this song well if his next royalty check depended on it.

But the rest of the double LP holds no such surprises, a fatal mistake if Frankie are to live up to their "those outrageous, unpredictable Frankies" hype. Take away old singles, covers, pretentious spoken sections, and directionless instrumentals and less than one side's worth of new material remains, none of it worthy of newsprint. Even Trevor Horn, whose talent almost rivals his own assessment of it, can't save these scraps. Horn and Frankie Goes To Hollywood have a pretty good idea; too bad it only works on four songs, not four sides. That a band whose talent can't carry them over the length of a single LP has the nerve (not to mention the ability) to *debut* with a double set that screams rip-off at every turn is ample evidence that some serious manipulation is going on here. Don't fall for it—the anti-Frankie backlash starts here.

—jimmy guterman

JOHN McLAUGHLIN: *Mahavishnu.* [Executive producer, Albert Koski; produced by John McLaughlin; chief engineer, Jean Louis Rizet; second engineer, Laurent Peyron; recorded at Ramses Studio, Paris.] Warner Bros. 25190-1.

Performance: **Dynamic**
Recording: **Dynamite**

It's been eight years since the name Mahavishnu Orchestra has appeared on any marquees or record labels. That seminal fusion ensemble, which shook up the music world in the early '70s with its classical virtuosity, rock dynamics and jazz spontaneity, disbanded in 1976 after going through a number of personnel changes.

The constant force through all those editions of the Mahavishnu Orchestra was, of course, guitar virtuoso John McLaughlin. Although subsequent editions of the MO paled in comparison to the sheer firepower of the original unit, this latest outfit recaptures some of the dynamic spirit that Messrs. McLaughlin, Cobham, Goodman, Laird and Hammer once generated.

The key here is the presence of drummer Billy Cobham. Regardless of the situation or setting, McLaughlin will always be brilliant. He's proven that from Miles to Mahavishnu to Shakti and beyond. But in spite of his awesome guitar prowess, he can't hold a band together like Billy C. And it appears that Cobham's recent work with Bobby & the Midnites has made Cobham an even better team player.

From the opening strains of "Radio-Activity," the lead cut on side one, Cobham's contributions can be felt. His patented double-bass thumping propels the band out of the gate and all the way down the home stretch. This muscular number instantly states the case that Mahavishnu is

indeed back with a fiery vengeance. On the blazing uptempo "East Side West Side," Cobham drives the band through an imposing labyrinth of chord changes with his deft drumming. His solo on "Pacific Express" is as explosive and exciting as ever.

Most of this album is a virtual manifesto for the Synclavier digital guitar synthesizer. McLaughlin uses it almost exclusively (with the exception of some nasty Les Paul licks on the ultra-funky "Nightriders"). Part of the problem with this prevalence of Synclavier, however, is that it's often difficult to distinguish exactly when McLaughlin is playing, since the instrument rarely sounds like a guitar at all. The attack on the strings is delayed, there is no discernible picking sound, and the timbres that McLaughlin programs into the Synclavier further disguise his playing. On "Radio-Activity" he affects a sound that is not unlike the electric violin of his Shakti-One Truth Band partner, L. Shankar. On "Nostalgia" and "East Side West Side" his guitar sounds more like a Mini-Moog, prompting first-time listeners to assume that it's keyboardist Mitch Forman and not McLaughlin playing those lightning fast lines. On "Clarendon Hills" he perfectly echoes Bill Evans' soprano sax sound and on "Pacific Express" he mimicks a flute.

Then he slips you a curve. Just when you realign your thinking about what the guitar can do, presuming that the flute sound on "When Blue Turns Gold" is more Synclavierized McLaughlin, you're surprised to learn that it is in fact a real flute, beautifully played by Indian virtuoso Hari Prasad Chaurasia.

It all takes some getting used to, but melodically, harmonically and rhythmically it's all there. While Forman and bassist Jonas Hellborg (let's hear more of him on the next album) perform mostly support functions, a majority of the album's compositions are geared toward the interplay between McLaughlin and Miles alumnus Evans. This talented young reedman proves to be a formidable alter ego for the legendary guitar star. They double up on rapid unison lines and occasionally stand toe to toe trading wicked fours, most notably on "East Side West Side." On that scorcher, Evans plays Charlie Parker to McLaughlin's Dizzy Gillespie: two hearts, one beat.

This is an auspicious beginning, recorded *before* the group went out on tour. You know the next one's gonna be smokin'.

—bill milkowski

TOTO: *Isolation.* [Produced by Toto and Greg Ladanyi; engineered by Greg Ladanyi; recorded at Record One, The Villa, and The Manor. Strings recorded at Abbey Road.] Columbia QC 38962.

Performance: **Sharp**
Recording: **Concise**

Isolation is a classic example of how a group of collaborating session musicians can use the studio not only for recording but as a base from which to arrange and write material to fit the occasion. Although David Paich is the primary writer of most of the cuts, it is apparent from listening that each group member contributed equally to achieve yet update the trademark Toto sound.

Instrumentally, the group's virtuosity is amply displayed in a state-of-the-art musical setting. The guitar textures, placed either above mellow background rhythms or over aggressive, sustaining leads, are equalized and blended so well that the natural guitar sound itself is often indecipherable, felt rather than heard. The synthezizer tandem of Paich and Steve Porcaro works together at achieving the best possible voice settings and riff arrangements, and new vocalist Fergie Fredricksen has gracefully stepped into that important role to take the bull by the throat.

Toto's ear for production and engineer Greg Ladanyi's mixing and recording abilities have always consistently proven their inherent instinct for and knowledge of rock recording techniques. For example, Jeff and Mike Porcaro's tight drumming and bass playing is captured in a way that most rock bands, and producers as well, can only dream about: The bass drum-bass guitar interplay is warm yet sharp, and the groove the pair establishes is always top notch. The hallmark Toto harmonies also keep up with previous standards and have been beautifully recorded and blended with the lead singer's debut performance. (The group's vocal treatments themselves are well executed though a bit overbearing at times.)

The London Symphony Orchestra was utilized on two cuts and its incorporation into the basic tracks by this refined rock band is superior, to say the least. Even the high vinyl quality commendably aids the performance, most notably as the guitars wail through the fade-outs while

jumping from left to right, drawing attention to the smart separation.

Although this album will probably not have the mass appeal of the group's last effort, *Toto IV*, *Isolation* is a step forward for these tasteful musicians and producers.

—james corona

THE J. GEILS BAND: *You're Gettin' Even While I'm Gettin' Odd.* [Produced by Seth Justman; engineered by Steve Marcantonio; recorded at Long View Farm, North Brookfield, MA.] EMI America SJ—17137.

Performance: **Inspired**
Recording: **Ambitious**

When Peter Wolf split from the J. Geils Band, more than one rock critic began to dig the group's grave. Wolf, they reasoned, was the band's soul force, its flashy frontman, its lead singer and only media personality. With him gone to pursue a solo career the J. Geils Band would either wither away into obscurity, or simply fall apart.

Statements such as those were obviously premature and way off the mark. For with the release of *You're Gettin' Even While I'm Gettin' Odd*, the J. Geils Band has beaten the odds. It has dug deep to uncover musical ambitions and attitudes that were never able to surface under Wolf's domination, and with them carved out a brand new direction. In other words, the J. Geils Band lives!

Things, however, definitely are different. Gone, for instance, is the over-reliance on standard R&B riffs and super cool street smarts to motor songs. With keyboard player Seth Justman handling most of the lead vocals and having full say over songwriting, production, and arrangements, the J. Geils Band has embarked on an adventure into polyrhythms, thickly layered melodies and complex arrangements. And judging by the songs heard on *You're Gettin' Even While I'm Gettin' Odd*, the move was indeed the right one.

Side one's "Concealed Weapons," "Wasted Youth," and "Tell 'em Jonesy," and side two's "The Bite From Inside" are innovative productions that soar with sophistication and truly highlight the *new* J. Geils Band. You can hear the determination of the group to set new standards for itself; you can feel the labor that went into the recording of these tracks.

There are, however, two noticeable flaws in the album. One is the weak and, at times, corny lyrics that are found on a majority of cuts. Lyrically, "Eenie Meenie Minie Moe" is downright ridiculous. It's almost as if Justman and his brother Paul spent so much time and effort on the melodies and arrangements that they had exhausted themselves by the time they got down to writing the words.

As for the second problem, well, Seth Justman is no Peter Wolf when it comes to lead vocals. Wolf *is* missed here because Justman has a difficult time projecting himself enough to stay out on top of the music. If the J. Geils Band is to march to even higher heights than it did with Wolf, then Justman and drummer Stephen Jo Bladd (who also sings lead on a couple of songs), must gain the strength and confidence to sing harder and with more punch. When that happens, the J. Geils Band will really be in full gear.

—robert santelli

HUSKER DU: *Zen Arcade.* [Produced and engineered by Spot & Husker Du; recorded and mixed at Total Access, Redondo Beach, CA.] SST 027.

Performance: **Passionate**
Recording: **Two Mack trucks colliding at 85 mph**

MINUTEMEN: *Double Nickels On The Dime.* [Produced and engineered by Ethan James; no studio credit.] SST 028.

Performance: **Inspired**
Recording: **Adequate**

These two double LPs from California's hardcore label SST are staggering evidence that some of the most exciting and inventive new American music isn't coming from the major labels. The DIY recording method lives: digital recording and 64 tracks are no substitute for power and passion.

Husker Du's *Zen Arcade* is a tour-de-force through a variety of rock styles. Only "Recurring Dreams," the intentionally unlistable instrumental that ends this double set (it clocks in at a ridiculous 13:47 and sounds like an outtake from Lou Reed's *Metal Machine Music*) is extraneous. *Zen Arcade* alternates between hardcore punk and straightahead rock 'n' roll (with the occasional solo piano piece for weirdness points) and on such songs as "I'll Never Forget You" and "Newest Industry," the band's politics are as focused as their music. All but two of the tracks are first takes, which gives the album a decidedly raw feel. But spontaneity is not used here as an excuse for recording laziness, in that any extra production would be mere clutter. Minor squabble: this doesn't include their epic cover of the Byrds' "Eight Miles High" (it was released as a single last summer) that is as furious an updating of psychedelic styles as you'll ever hear.

Double Nickels On The Dime is another story: 45 songs are compressed onto two discs and the band seems more interested in getting everything out than presenting it correctly. The Minutemen, whose repertoire was once confined only to hardcore punk, has expanded their styles much the way X did on their groundbreaking *Wild Gift*. But X got around to arranging their songs.

The song titles tell half the story: "Political Song For Michael Jackson To Sing" and "Do You Want New Wave (Or Do You Want the Truth)?" slam at their targets effectively, but never follow through on their insights. Most of the songs here are fragments clocking in at under two minutes in need of imposed structure by either producer Ethan James or the band. Perhaps a producer who understands this kind of music, say Jeff Eyrich, could help construct these songs better. There is a genuinely great record here somewhere, but the Minutemen don't seem to know how to get it out.

Not that *Double Nickels On The Dime* isn't worth hearing; even a poorly crafted Minutemen record has much to offer. Neither *Double Nickels* nor *Zen Arcade* are for the faint of heart. Neither has much commercial potential; neither leave the listener feeling anything approaching good. But they do make you think and *force* you to listen, which sets them apart from most music being made today.

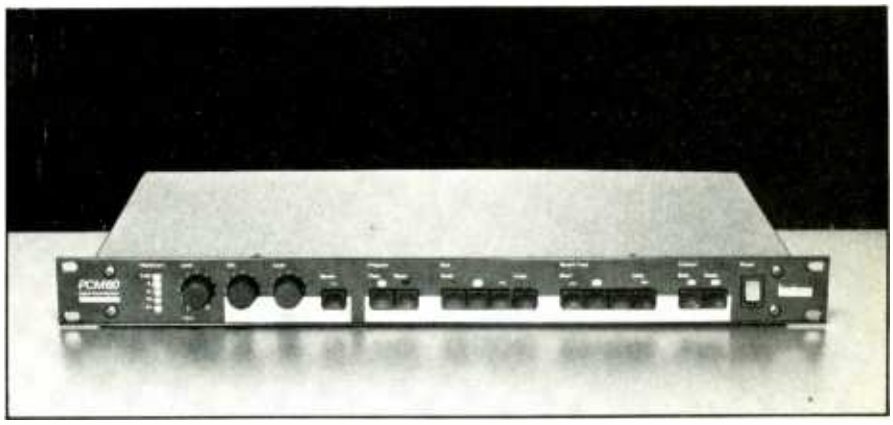
(Both double records are available for $10.00 each from: SST Records, P.O. Box 1, Lawndale, CA 90260.)

—jimmy guterman

The Market Place

what's new in sound and music

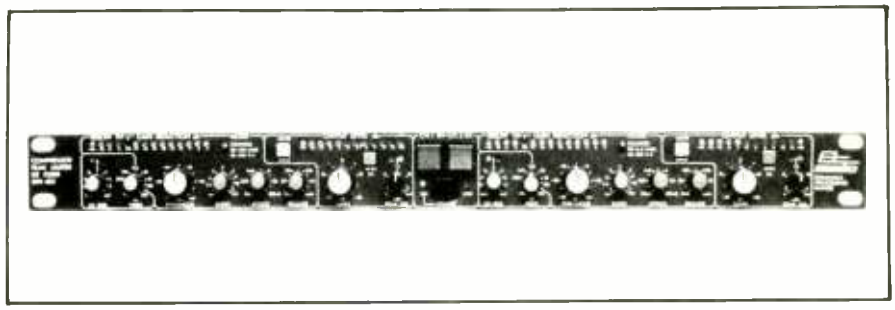
LEXICON PCM 60 DIGITAL REVERBERATOR



Lexicon's new PCM 60 Digital Reverberator, is a high-performance, low cost digital reverb designed for use by small studios and live performances. It incorporates advanced digital audio processing circuitry for natural-sounding high quality reverberation. The PCM 60's design is based on the digital processing technology that Lexicon has developed for their more sophisticated large studio systems. The result is a product with some quality and a relatively low price. The PCM 60 features two main reverb programs: Room and plate, from which users can tailor reverberation characteristics on the basis of size, reverb time, and bass and treble contouring to produce a wide variety of distinct reverberation effects. Rotary knobs are used to set input gain, reverb mix, and output level. A front panel by-pass mode with optional footpedal control is included. The PCM 60's controls are easy to use, offering flexible operation and logical layout. Front panel LEDs light to indicate selected functions, and a five segment headroom indicator has been included for precise input level monitoring. For compatibility with the widest range of audio equipment, the PCM 60 has a balanced/unbalanced audio input, two unbalanced (single ended) audio outputs, and an effects loop-all using standard ¼-inch phone jacks. Input and output sensitivity select push-buttons on the rear panel can be set for high- or low-level inputs and high- and low-level outputs. The list price is $1495.

Circle 30 on Reader Service Card

BROOKE SIREN COMPRESSOR-PEAK LIMITER-DE-ESSER



Brooke Siren's new DPR402 Compressor/Peak Limiter/De-Esser is the first in a series of dynamic signal processors being planned by Brooke Siren. The space-efficient design combines two channels of compressor/limiter, de-esser, and peak limiter in one standard rack space. The flexibility of the design allows all these units to be used at the same time or separately. A rear barrier strip allows connections for side chain insertion, pre-emphasis strapping, conversion of the compressor to an expander, and other frequency conscious compression effects. The compression ratio is adjustable from 1:1 to infinity with variable and auto positions for attack and release control. The de-esser section is frequency selective from 700 Hz to 20 kHz broadband or HF with the additional facility of splitband limiting using the de-ess filters of both channels. The peak limiter has a variable threshold with switchable fast and slow dynamics. Each channel has an LED meter for gain reduction and output level. It is also possible to monitor the side chain insertion signals. The DPR402 can be linked for stereo operation and in addition to the barrier strips on the rear panel, XLR-type input and output connectors are standard. The list price is $1395.

Circle 31 on Reader Service Card

CROWN MICRO-TECH 1000 STEREO POWER AMPLIFIER

The Crown Micro-Tech 1000 is a miniaturized yet high-technology power amplifier for professional sound reinforcement and studio monitoring. This amplifier provides enormous power within a low-profile package. The Micro-Tech can deliver 1000 watts of continuous average power in mono mode at less than 1 percent THD, into 1 or 4 ohms. A parallel mono switch combines the outputs of both channels to make a monophonic amplifier capable of 1000 watts into 1 ohm. By adding an internal jumper for the bridge mono configuration, the user can obtain 1000 watts into 4 ohms. In stereo mode, the Micro-Tech provides 250 watts per channel into 8 ohms, or 350 watts per channel into 4 ohms. The grounded-bridge patented Crown circuitry allows extreme voltage swings without putting output transistors in series: this provides lower distortion and greater reliability. Reliability is further enhanced by a redundant power supply. The Micro-Tech 1000 uses an Output Device Emulator Protection (ODEP) circuit which simulates the output transistors. With this circuit, the amplifier can detect and compensate for overheating and overload. The unit is also protected against output shorts, open circuits, mismatched loads overall overheating and high-frequency overloads. Efficient heat sinking and a self-contained forced-air cooling system prevent overheating and prolong component life. The direction of airflow can be reversed, if necessary, to work with the rack cooling system, a feature unique to Crown. The dust filter located on the front of the unit is easily removed for cleaning or replacement. Inputs are balanced ¼-inch phone jacks with adjustable gain. Outputs are 5-way banana jacks for minimum power loss. Hum and noise are 105 dB below rated output (A-weighted). Harmonic distortion is less than 0.05 percent from 20 Hz to 1 kHz and increasing to 0.1 percent at 20 kHz delivering 250 watts into 8 ohms, per channel. I.M. distortion is less than 0.05%, and slewing rate is greater than 13 volts per microsecond.

Circle 32 on Reader Service Card

TELEX PH-20 HEAD-WORN MICROPHONE

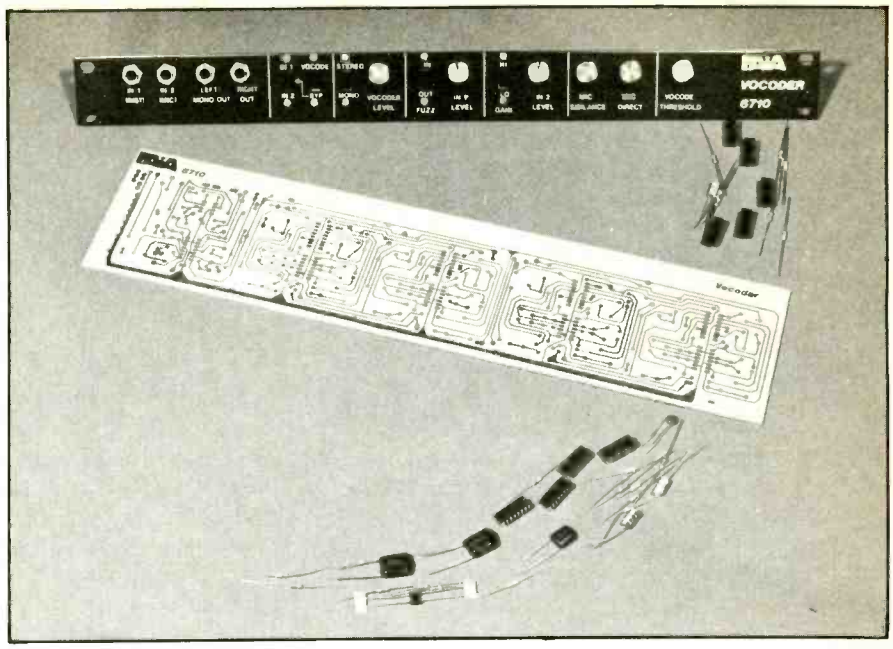
Designed for hands-free vocal delivery, the Telex PH-20 Head-worn Microphone utilizes a close-talking, noise cancelling, omni-directional, electret microphone, with a 20 Hz to 20 kHz frequency response curve for a variety of applications, including music, public address systems, audio-visual applications and computer speech recognition. The PH-20 has a stable, split-piece headband that mounts securely on the head for a comfortable, dependable fit. Split-proof foam temple cushions provide long-lasting comfort while averting fatigue. A reversible swivel mount and 180-degree adjustable boom provide a custom fit for proper mouth-to-microphone distance and the option of wearing the mic on the right or left side of the head. Included with the PH-20 is the PS10 power supply. The small, rugged PS10 supplies in-line power to the PH-20 through a 1.4 volt calculator type battery or can be switched to phantom power from an external source. The PS10 is unobtrusive, lightweight and includes a handy belt/clothing clip, with a 5 foot cord. The matte black finish and slender design of the PH20 give it a subtle appearance, allowing professionals on stage and in front of the camera to look their best. Also available is the PH21 Head-worn Microphone, without the PS10 power supply, and the PH-22 Head-Worn Microphone that connects directly to Telex Wireless Microphone Systems, without the PS10. The list price for the PH-20 is $195. with the phantom power module.

Circle 33 on Reader Service Card

PAIA ELECTRONIC 6710 VOCODER KIT

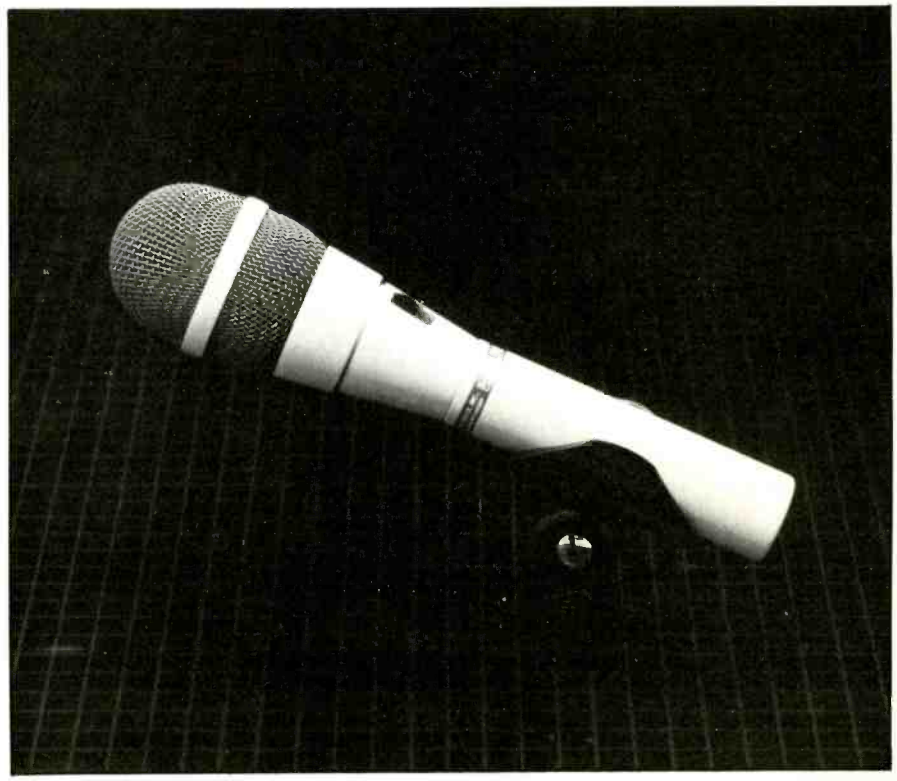
The PAIA 6710 Vocoder (designed by *Modern Recording & Music* author Craig Anderton) features mono/stereo operation, eight band resolution, low noise (typical 60 dB S/N ratio, unweighted), instrument channel fuzz option, high/low mic channel gain for mic signal, and a unique threshold control that alters the vocoder's sensitivity to low level signals. The kit includes all components, circuitboard, and rack-mount front panel but requires an external regulated ±15 volt power supply capable of providing ±75 mA (PAIA 4771 or equivalent). The Vocoder is available in kit form for $99.95 (plus shipping/handling) directly from PAIA; a demo cassette is available for $5.

Circle 34 on Reader Service Card



ELECTRO-VOICE PL78 MICROPHONE

Electro-Voice's new PL78 cardioid condenser microphone offers exceptional gain before feedback for both vocal and instrument live-performance applications. The new microphone, model PL78, achieves heightened gain before feedback through smooth, peak-free frequency response, a fine-tuned cardioid pick-up pattern and innovative transducer positioning. Placing the transducer element close to the front of the microphone reduces unwanted background and reflected sound and minimizes feedback problems. The PL78 is designed for use with a variety of musical styles and applications. The microphone's high output sensitivity boosts vocal and instrument sources of low signal strength, while the highest sound pressure levels are reproduced without overload or distortion. In addition, this microphone limits undesirable proximity problems associated with close mic'ing. A sophisticated internal network of filters rolls-off low frequencies, eliminating excessive bass that can cloud vocal performances, delivering crisp, clear sound. Because proximity effect is controlled, not absent, performers may select a range of tonal colorations simply by varying the distance between mouth and microphone. The condenser design also offers very low handling noise. The PL78 can be powered with an internal 4½ volt phantom power source. The PL78 features an ON/OFF switch to mute the microphone and conserve battery life and a built-in Acoustifoam pop filter. Weighing less than 11 ounces, this mic offers a slim profile and balanced design for performing comfort. The microphone features a no-dent Memraflex grill and a rugged, diecast case with a non-reflecting epoxy finish. The PL78 comes packed in a soft, protective gig bag with an accessory clamp for stand mounting convenience. List price is $170.



Circle 35 on Reader Service Card

CONNECTRONICS CORPORATION SECK AUDIO MIXERS

The SECK 62 and the SECK 122 offer 6 or 12 input channels with two outputs in a unique, low profile, portable package. The total unit, which is fully metal encased, is only two inches deep. The rugged design is enhanced by the use of a virtually indestructible, double-sided, fiberglass printed circuit board and by the elimination of any wired connections: no wires are used, as all the input and output connectors are mounted directly onto the circuit board, resulting in higher reliability than many conventional mixers. The microphone/line input switch on each input channel selects either a low impedance or high impedance input. Both are electronically balanced, and together cover a wide range from -55 dBm to +10 dBm, with 25 dB margin of overload above this. The comprehensive three band equalization offers ±15 dB of shelving at 45 Hz at the low end and ±15 dB shelving at 11 kHz at the high end with ±15 of sweepable control from 330 Hz to 6.5 kHz in the mid range. Each channel has two pre-fade auxiliary sends for monitoring, foldback or special effects and two post-fade sends to feed effects or for specialized house P.A. or recording. In addition, each channel has a pre-EQ insert point to cater for extra limiting, delay, etc., on any individual input. A solo is provided on all the inputs, the four master auxiliary sends and the auxiliary returns. The solo signal is also shown on the two 12-section, bar-graph meters which when not showing the soloed signal, display the stereo output: a switchable peak-hold facility is included in the meter circuit. A Solo Active LED is lit when 'solo' is selected. Each of the inputs can be panned to fully left or fully right and are controlled by smooth, full-throw 100 mm faders. The master output faders are closely placed to ensure precise stereo operation. The SECK 62 can be rack mounted with optional rack mounts. Carrying cases are also available to enhance the portability of these units, which are fitted with carrying handles which can also be used to tilt the mixer to the correct angle for easy use. All the connections are present at the top of the front panel, providing a virtual patch bay with easy access for signal routing.

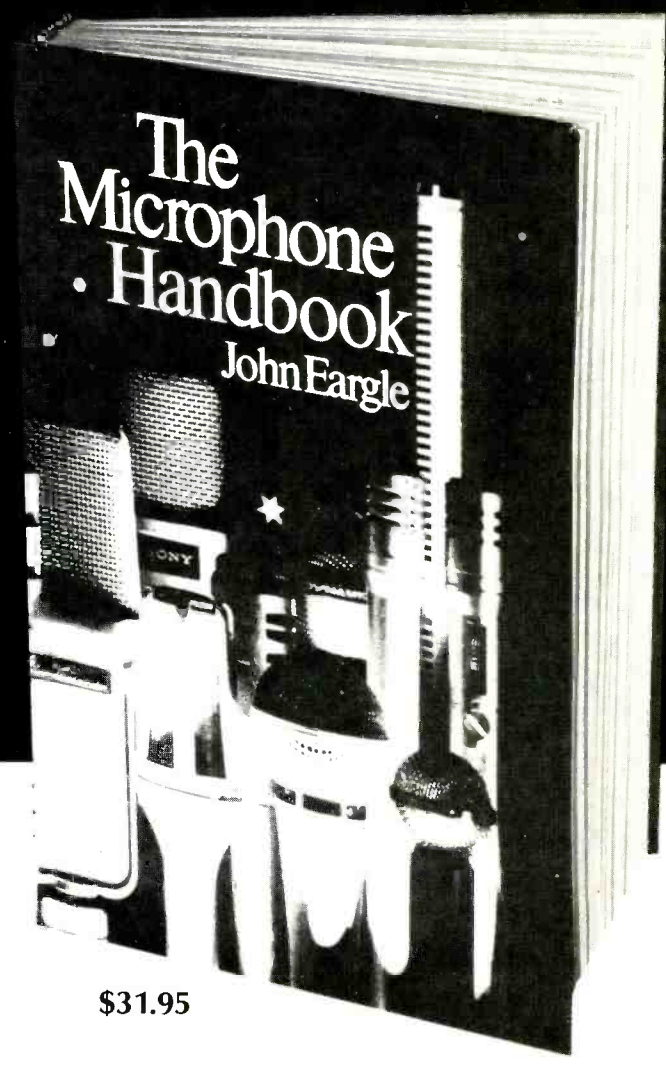
Circle 29 on Reader Service Card

MICROPHONES!

At long last, all the questions you ever asked...all the problems you ever grappled with...are answered clearly and definitively!

The Microphone Handbook

In 256 fact-filled pages, liberally sprinkled with over 500 illuminating photographs, drawings and diagrams, John Eargle covers virtually every practical aspect of microphone design and usage.



$31.95

Completely up to date, this vital new handbook is a must for any professional whose work involves microphones. Here are just a few of the topics that are thoroughly covered:

- Directional characteristics–the basic patterns.
- Using patterns effectively.
- Microphone sensitivity ratings.
- Remote powering of capacitors.
- Proximity and distance effects.
- Multi-microphone interference problems.
- Stereo microphone techniques.
- Speech and music reinforcement.
- Studio microphone techniques.
- Microphone accessories.
- And much, much more!

THE MICROPHONE HANDBOOK. You'll find yourself reaching for it every time a new or unusual problem crops up. Order your copy now!

JOHN EARGLE,
noted author, lecturer and audio expert, is vice-president, market planning for James B. Lansing Sound. He has also served as chief engineer with Mercury Records, and is a member of SMPTE, IEEE and AES, for which he served as president in 1974-75. Listed in *Engineers of Distinction*, he has over 30 published articles and record reviews to his credit, and is the author of another important book, *Sound Recording*.

ELAR PUBLISHING CO., INC.
1120 Old Country Road, Plainview, NY 11803

Yes! Please send _____ copies of **The Microphone Handbook @ $31.95** per copy. (New York State residents add appropriate sales tax.)

☐ Payment enclosed.
Or charge my ☐ MasterCard ☐ Visa

Acct. # _____ Exp. Date _____

Name _____
(please print)

Address _____

City _____

State/Zip _____

Signature _____

Outside U.S.A. add $2.00 for postage. Checks must be in U.S. funds drawn on a U.S. bank.

If you aren't completely satisfied, you may return your copy in good condition within 15 days for full refund or credit.

Classified

- **PRODUCTS**
- **EQUIPMENT**
- **SERVICES**

Classified Rates
$1.00 per word.
Minimum $25.00.
Copy must be received at Modern Recording & Music, 1120 Old Country Road, Plainview, NY 11803 by the 15th day of the 2nd month prior to cover date (for example, the April issue closes February 15th). Payment must accompany order. Phone numbers count as 1 word. Zip codes are free.

DISPLAY ADVERTISING
$40.00 per column inch.

AMEK CONSOLES
MATCHLESS-SCORPION-ANGELA
Also: Revox PR99's, Fostex Pro, AKG, ADA Efx., Symetrix, Klark-Teknik, Micmix, NEI, AB Systems. Used: Tangent Series 16, Scully 280B Servo, AKG 414's & more! **ERS Inc. (412) 221-2737 or 221-7025.**

SOUND EQUIPMENT SELLOUT
Mics, Signal Processing, Power Amps, Multi-Way Speaker Stacks. Call for list. **(301) 926-4800.**

RUSSELL CARTER—ENTERTAINMENT ATTORNEY. Recording Contracts, Publishing, Songwriter and Management Agreements; Copyright Registration; Incorporations. Free initial consultation. **842 First National Bank Building, Decatur/Atlanta, GA 30030. (404) 377-9900.**

GUITARS/FREE DISCOUNT CATALOG Martin, Ovation, Guild, Dobro, Fostex Multitrack, mandolins, banjos, accessories. Mandolin Bros., 629-MR Forest, Staten Island, NY 10310. (212) 981-3226. Visit our showroom.

SONGWRITERS RESOURCES and SERVICES is a non-profit organization dedicated to the education and protection of songwriters. For free information, write or call SRS, 6772 Hollywood Blvd., Hollywood, CA 90028; (213) 463-7178.

COMPLETE PROFESSIONAL STUDIO IN DELAWARE VALLEY AREA
16 track MCI, etc., etc., etc., too much to list. Owner ill, will sacrifice everything, including musical instruments. Best buy ever. $40,000 takes all.
(305) 739-6204

Piano Technician's Guide for the Piano Owner. Protect your piano investment. This book explains how your piano works, and how to keep it working. $3.00 Ppd. **Bookman House, P.O. Box 271804, Houston, TX 77277.**

LEARN RECORDING ENGINEERING by top pro instructors. Check with us before deciding. Send for free brochure. **JTM Workshop of Recording Arts, Box 686, Knox, PA 16232. (814) 797-5883.**

FREE your copy of yesterday's prices on the industry's leading Pro Audio and Stage Lighting Equipment and Accessories. Mixers, amps, equalizers, mics, lights, dimmers, lamps, gel and much more. Check our prices before you buy. **All-Pro Audio and Lighting, P.O. Box 3992, Centredale, RI 02911.** Big Savings from the Smallest State.

PA SYSTEM: 3 pair Bose 802, Adcom GFA-1 400w amps, Sunn SPL 2216 mixer, Shure/EV mics, 16/3 snake, stands, cables. $4900. **(405) 353-8234 eves.**

Advertiser's Index

January

Information service

To receive manufacturer's information about products advertised or editorially mentioned in this issue...Circle the numbers on the card to correspond with the key numbers at the bottom of the advertisement or editorial mention that interests you.

Please include $1.00 to cover postage and handling.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Card expires four months after cover date of issue

Please print or type

Name _____

Address _____

City _____ State _____ Zip _____

Please send inquiries to:

Mardata
P.O. Box III
Deer Park, NY 11729

SUBSCRIBER SERVICE
CHANGE OF ADDRESS

Planning to move? Please let us know six weeks in advance so you won't miss a single issue of MODERN RECORDING. Attach old label and print new address in space provided. Also include your mailing label whenever you write concerning your subscription to insure prompt service on your inquiry.

MODERN RECORDING
1120 Old Country Road
Plainview, NY 11803

Attach Label Here

New Address Here *Please print*

Name _____

Address _____

City _____ State _____

Date ___/___/___ Zip _____

"Let there be time . . ."

A VISION OF THE FUTURE.

DeltaLab's *All New*

CompuEFFECTRON®

We took our time and did our homework before we decided to introduce a unit with spiffy lights and displays. The reason . . . ? Lights and displays, in and of themselves, do not improve sound quality or performance. So, before we could justify it, we made sure that our "new concept" of fancy features made a significant contribution to the overall sonic performance.

The result . . . the CompuEFFECTRON. It is the first digital delay unit whose microprocessor actually operates directly on the signal in "real time", to create effects once considered impossible.

Just look at some of what you get!

- Touch Panel Controls — everything at your finger tips
- 20kHz Bandwidth at all Delays (up to 1.7 seconds)
- 128 Preset Programs (Effects) with instant accessibility
- Sequence Programming with remote accessibility
- Record, Play and Repeat with "full" edit capability
- Over 100-to-1 flange ratio (virtually unlimited)

Real time processing also allows you to switch from effect to effect with no annoying "glitches" . . . instantaneously, upon command. And, it is possible to set up a new effect while using another. No one else offers such capabilities. The CE 1700 is truly a "vision of the future".

Hear one for yourself . . . Visit you local dealer and check it out!

DeltaLab

Music & Electronics . . . Naturally!

At Tascam, Your Music Drives Us to Extremes.

At TASCAM, we're obsessed with your music. We're driven to providing the technology that will give you back everything you put into your sound. With advanced recorder/reproducers that focus on your specific needs, delivering the ultimate in signal quality, dependability and multi-track versatility.

We built our 8-track 38 for the professional who demands uncompromising quality at a very economical price. You get full 8-track flexibility, plus the exacting precision of TASCAM-built heads, with sync response equal to repro response.

If your next step in audio is video, our SMPTE-compatible 8-track 48 can move your music right into the picture. Balanced/unbalanced, the hard-working 48 features full microprocessor 3-motor servo control for fast recording and editing.

For rugged sophistication, our SMPTE-compatible 58 is built for rapid, high-torque tape shuttling. The 58 is the industry's first ½" 8-track with the engineering depth of a 1" machine. Its unique Omega Drive provides the ultimate in tape to head contact, assures superb tape path stability and eliminates tape stretch and bounce.

Each TASCAM 8-track is part of its own series, allowing you to easily build a complete system with outstanding half-tracks and four-tracks engineered to the same stringent TASCAM standards. For even broader needs, our 85-16B moves you into full 16 track production.

We've carried our technology to extremes, so that wherever you want to go with your music, we've got a system to take you there. See your TASCAM dealer today, or write TASCAM, TEAC Professional Division, 7733 Telegraph Road, Montebello, CA 90640, (213) 726-0303.

Nobody makes a broader line of professional recorder/reproducers than TASCAM.

Circle 11 on Reader Service Card