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Delays and Reverbs

MODERN

# RECORDING

& MUSIC

NOVEMBER 1985 VOL. 11 NO. 11 \$2.25

# Arcadia

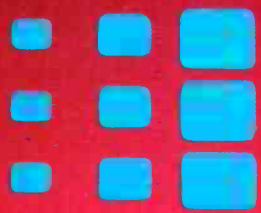
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## PROFILES:

Katrina And The Waves  
Richard Beggs  
Graham Bonnett

## LAB REPORT:

Crown Micro-Tech 1000



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# MODERN RECORDING & MUSIC

NOVEMBER 1985  
VOL. 11 NO. 11

## FEATURES

### 16 KATRINA AND THE WAVES: ROCKING ON INTEGRITY

by Charles Locurto

Their sound is much more than old time rock or motown cruisin' music. It contains a vaguely nostalgic quality sparked with new spirit, and it's rapidly spreading with "Walking On Sunshine" which hit the charts last spring and through their time on the road. *MR&M* spoke to Katrina and the band in Boston while on the road with Don Henley.

### 24 GRAHAM BONNET: A PLACE ON THE CHARTS

by Sammy Caine

Graham Bonnet had a place in rock even before he formed his current band, Alcatrazz. Alcatrazz recently had some success with their LP, *Disturbing The Peace*, produced by veteran rock producer Eddie Kramer. Graham Bonnet spoke with *MR&M* at his home in southern California.

### 28 ARCADIA: AN EXPANSION INTO THE ABSTRACT

by Eileen Schwartz and Rita Wolcott

For some, creative efforts don't stop at mere worldwide superstar success. This is the case with Duran Duran's Simon Le Bon, Roger Taylor, and Nick Rhodes. They've now dubbed themselves Arcadia for their latest effort, *So Red The Rose*. *MR&M* met with Arcadia at New York's Power Station Studios while they were in mixing final tracks.

### 37 PROFILE: JAZZ PRODUCER HELEN KEANE

by Susan Borey

Helen Keane is not only one of the most successful jazz producers, but she has blazed her way through every phase of her career. Among artists she has managed are: Paquito D'Rivera, Tony Bennett, Joanne Brackeen, and Joao Gilberto. Helen took time out to share her insights into and opinions on the production process with *MR&M* while in the midst of producing an album with Paquito D'Rivera.



Cover and spread photos by Norman Parkinson

### RICHARD BEGGS: COTTON CLUB SOUND

by N. Pasquariello

Sound designer Richard Beggs has worked with film director Francis Coppola since the early 70s. *MR&M* met with Beggs to talk about his association with Coppola and the sound for his movie, Cotton Club.

### DIRECTORY: DELAY UNITS

## SOUND IDEAS

### RECORDING TECHNIQUES

by Bruce Bartlett

The Fostex B-16.

### AD VENTURES

by Brian Battles

Here Brian shares how to go for the \$\$\$.

### PRODUCT PROFILE

by Sammy Caine

The ART Model 190 1500 MS Digital Delay.

### POOR RECORDER'S ALMANAC

by Bob Buontempo

This month Bob seriously makes cassettes available to you.

### LAB REPORT

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The Crown Micro-Tech 1000 Professional Power Amplifier.

## DEPARTMENTS

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& MUSIC

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### **Practically People?**

How about more "modern recording" and less of the fashion-plate pop stars? I doubt if most of your readers can gain much practical knowledge from your "publicity department" interviews with these people, and I doubt if they need "fan" material either. Leave it to *People* and get back to recording for the real world.

—Terrill Clements  
Lincoln, Nebraska

*Thank you very much for your letter. We always appreciate feedback from readers, as it gives us an idea of what you, the readers are looking for in the magazine.*

*Although most of the profiles we print are not strictly technical, they are not what we would consider "fan" material either. Think about it: wouldn't it be helpful to someone starting out to hear what the people on top had to do to get their first gig? Besides, doesn't it make reading a whole lot more interesting when the artists talk about things other than recording?*

*Also, please let us point out that the name of the magazine is Modern Recording & Music. Many people affectionately refer to the magazine as Modern or Modern Recording, but we are Modern Recording & Music. We are interested in all aspects of music—writing, performing and recording. We take pride in the interviews our writers and editorial staff does, and not a single one is a "publicity department" interview. Each and every interview is conducted with the artist—whether it be in person or over the phone.*

*Of course this magazine is being published for you, the readers. We try to publish what we think you want to read, but the only way we know is by your letters and feedback. Please let us know exactly what you want in your magazine by continuing to send your letters with questions, comments and complaints. Write to us at:*

*Modern Recording & Music  
Letters  
1120 Old Country Road  
Plainview, New York, 11803*

### **Freelance Correction**

In the article "Freelancing: Who's behind the bucks you make?" the sentence on page 44 "For whatever reason, Boy George and Marilyn didn't care for the results, and scrapped Steve Remote's audio work" was mis-worded. It should have read: For whatever reason, Boy George and Marilyn decided not to finish the project at Man Parrish's house with Steve Remote's mobile studio, but took the Fairlight disc to the Hit Factory for completion and digital mixing. (It wasn't as if they were disappointed with Steve's work; on the contrary they used him as a live sound engineer at the Palladium the following Friday night to do live sound for Spirit in the Sky.)

The author regrets any confusion or misunderstanding that may have resulted from the original wording.

—Rosanne Soifer

**Correction:** A reader service number was inadvertently put in the AKG Acoustics ad in the October 1985 issue of *MR&M*. For any information please contact your professional audio dealer or AKG Acoustics at 77 Selleck St., Stamford, CT, 06902. We apologize for this error.

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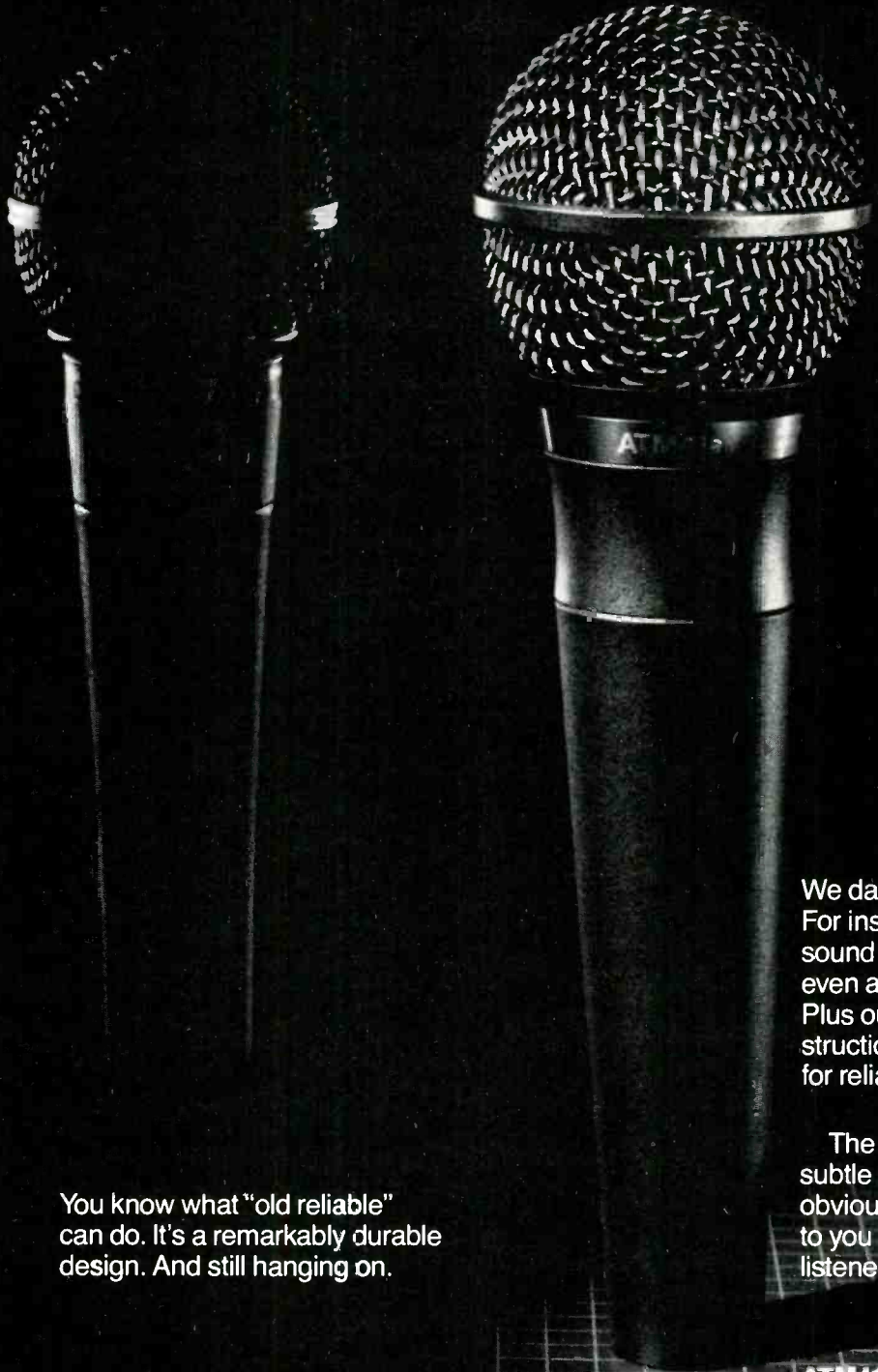
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# Talk Back

## Missing Mirage

I've been a long-time *MR&M* subscriber; it's the best mag of its kind, and I enjoy it very much.

Like most of your readers, I have a small studio (Fostex 8-channel), and like many of you, I write and perform everything myself (in my case, it's mainly just for my own pleasure). Like everyone, equipment and instrument value and performance are crucial to me.

I noticed that, in your 9/85 directory of Keyboard Synthe-

sizers, you missed what has become my single most important instrument acquisition—the Ensoniq Mirage digital sampling keyboard. I remain totally in awe of its capabilities and sound, and given the incredible fact that it lists for the same price as a Yamaha DX-7 (\$1700), it's an instrument that I would heartily recommend to *ANY* small studio interested in unbelievably-real acoustic sounds from a very inexpensive machine. Given the focus and audience of

*MR&M*, I'm amazed that you haven't already reviewed it.

After buying my Mirage (I was only looking for a cheap electric piano!), I wound up selling my piano and drums, and now I have strings and horns and dozens of other instruments to boot, that are virtually indistinguishable from the real thing (and that record very well, too). It does take a while to get the hang of just "how to play" each instrument (keyboard attack, etc.), but with some practice, you can get a *VERY* realistic sound of any acoustic instrument in the world. Combined with my 8-channel deck, I'm now literally a complete orchestra.

A DX-7 is probably a better choice for quick live set-up of most of the synthesized punk music that's out now, but if you want a real acoustic sound, unless you own and play eighty-seven different instruments, you simply can't do better than a digital sampling keyboard. The Mirage is MIDI-equipped, and has a sequencer, and does sampling, and there's already an independent Mirage newsletter, and you can buy software to do visual editing, and there are several companies now making diskettes for it, and so on and so on.

In short, the Ensoniq Mirage has the essential features of any digital sampling keyboard, but at a fraction of the price of any other one on the market. For the "little guy" like me, the Mirage is to digital sampling keyboards what the Fostex A-8 is to multichannel decks. It certainly seems worth a mention in a future issue.

—John Bartelt  
Paso Robles, CA

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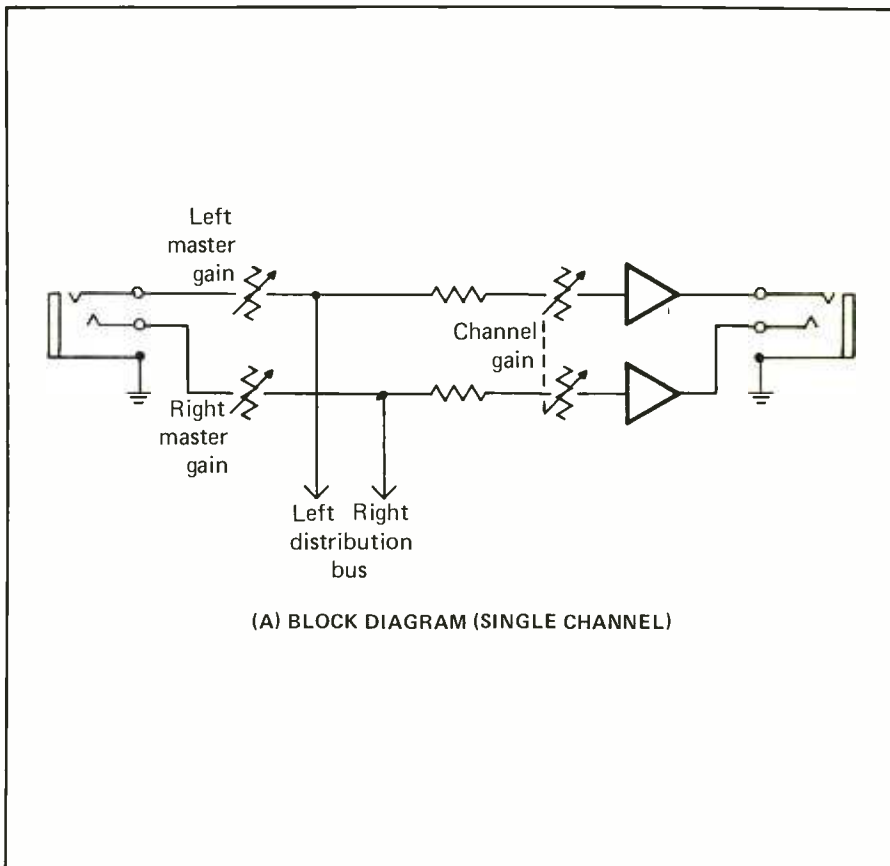
Thank you for the article on the headphone distribution amplifier (July 1985). I have a few questions on how to modify the amplifier so that it can have stereo channels.

1. What size power supply should I use for 6-channel stereo, and in general, how would I calculate the power supply needed for stereo on a per channel basis for more or less than a 6-channel?
2. Would I need separate balance and volume controls per channel or would two volume controls suffice?
3. What is the approximate cost of this project, as originally described and for stereo?

—Name Withheld

We received this reply from Gerry Semanson.

For a six channel stereo unit, you'll need an additional printed circuit board with six more IC amps and their accompanying circuitry. This would give you a total of twelve amps



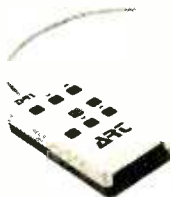
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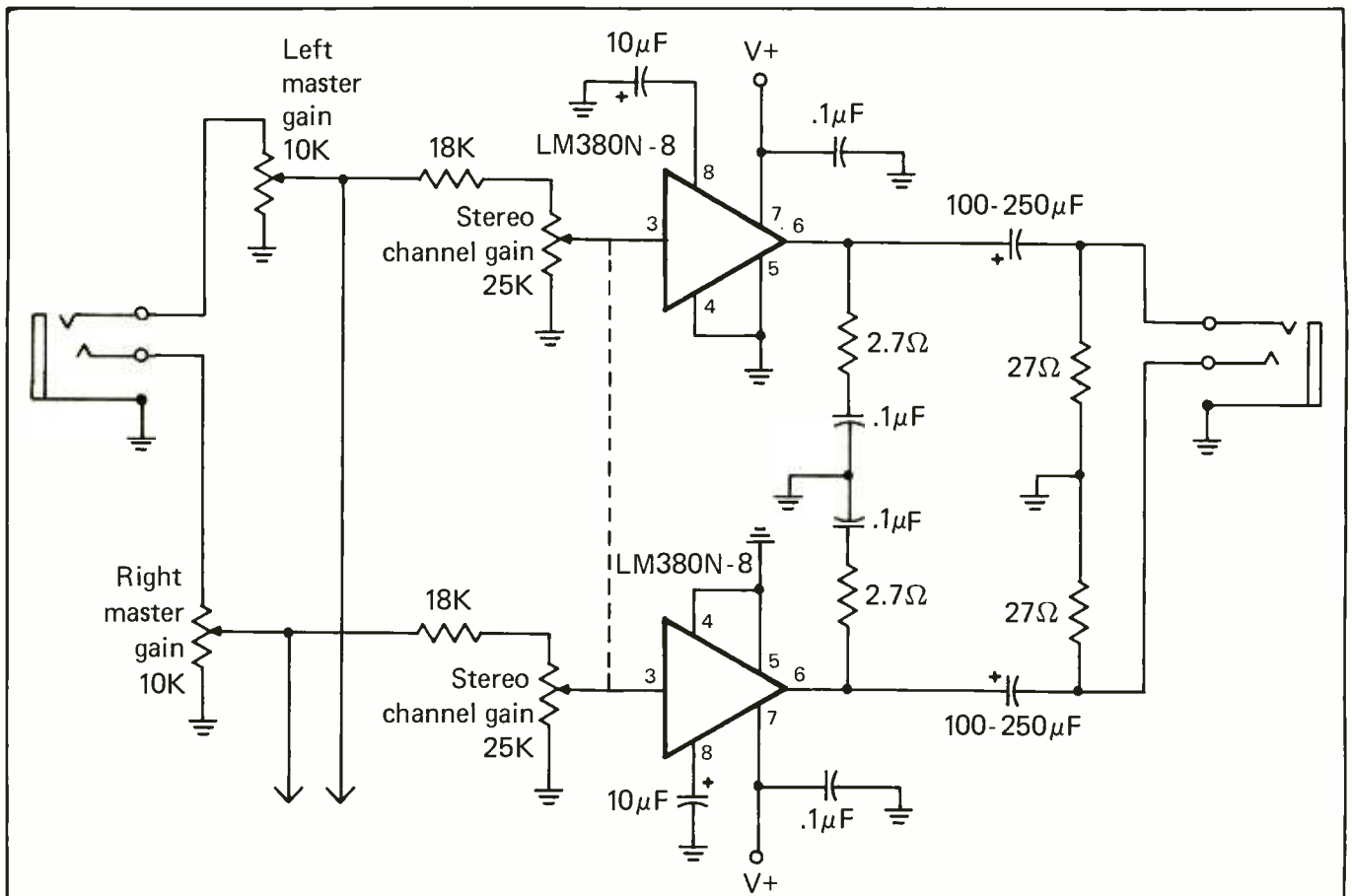
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paired to six stereo jacks. As far as power supply requirements go, it's impossible to determine exact per-channel current requirements without knowing the exact output load. The manufacturer's specs show the quiescent supply current for the LM380N ranges from 7 to 25mA. With peak current capability to 1.3 amps. That's quite a range. Since the output current of the LM7815 voltage regulator is 500 mA., I would add an additional regulator for the additional six amplifier chips (see modified schematic). By the way, if the current demands of these regulators are exceeded, or if the heat sinking is inadequate, their thermal protection circuitry will shut them down.

As for gain/balance controls, I would use separate left and right master input controls, and a dual (ganged) channel gain control (see block diagram). However, if you wanted to adjust balance on each channel separately, you'd have to go with separate left/right controls for each channel.

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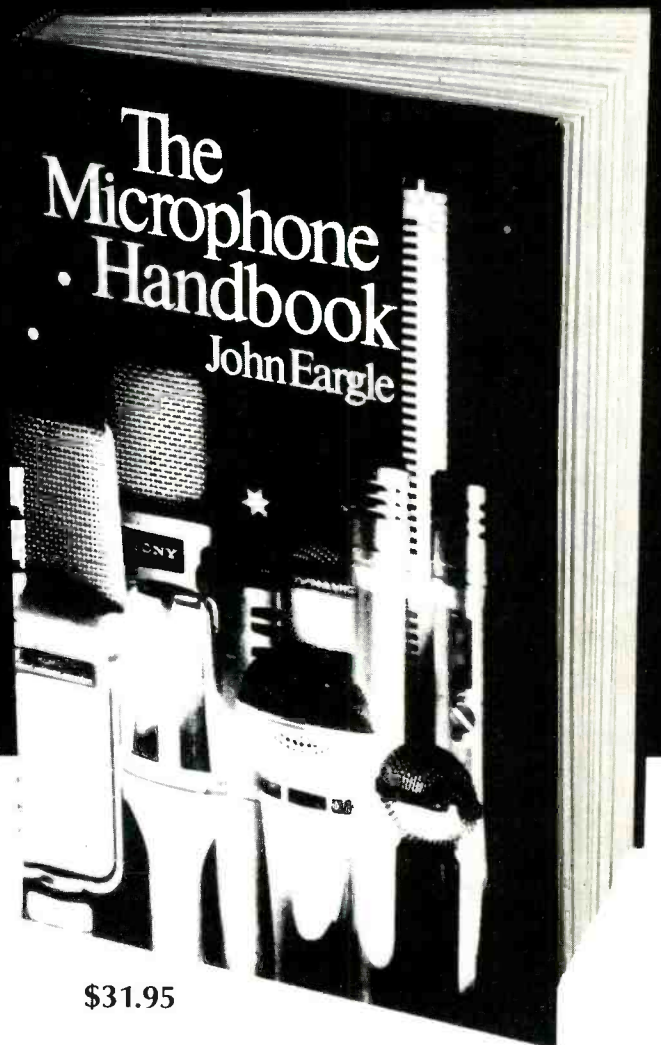
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**JOHN EARGLE,**

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*.



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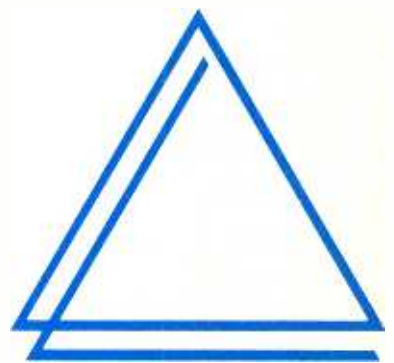
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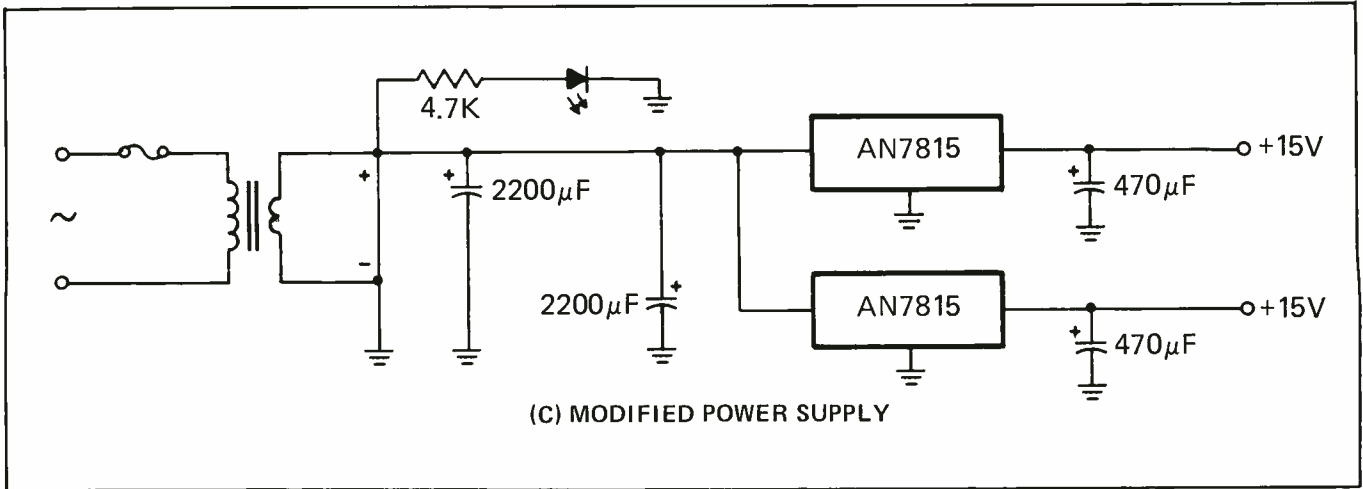
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nents you use. The cost of the unit I built with military and industrial grade components ran about nine dollars a channel. The LM380's were only \$1.38 each, so if you want, you can cut some "cost" corners. For estimating purposes, a Radio Shack catalog will give you a good idea of component costs.

Last but not least, a word of caution may be in order for anyone building a stereo version of this headphone amp. The LM380 amplifier chip was originally designed to power small speakers in radios, phonographs, tv's etc. It may be necessary to attenuate the output of the amps since one amp would be powering one side of a headset. (In the mono version, each amp is powering a set of headphones.) I've used a variety of Sony, Panasonic, and Koss headphones, and haven't "fried" a set yet, but I'm not sure the stereo version of the amp would operate the same way. You certainly would have more output power in the stereo version.

See the original project for information on obtaining the printed circuit board.

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

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

MODERN RECORDING & MUSIC



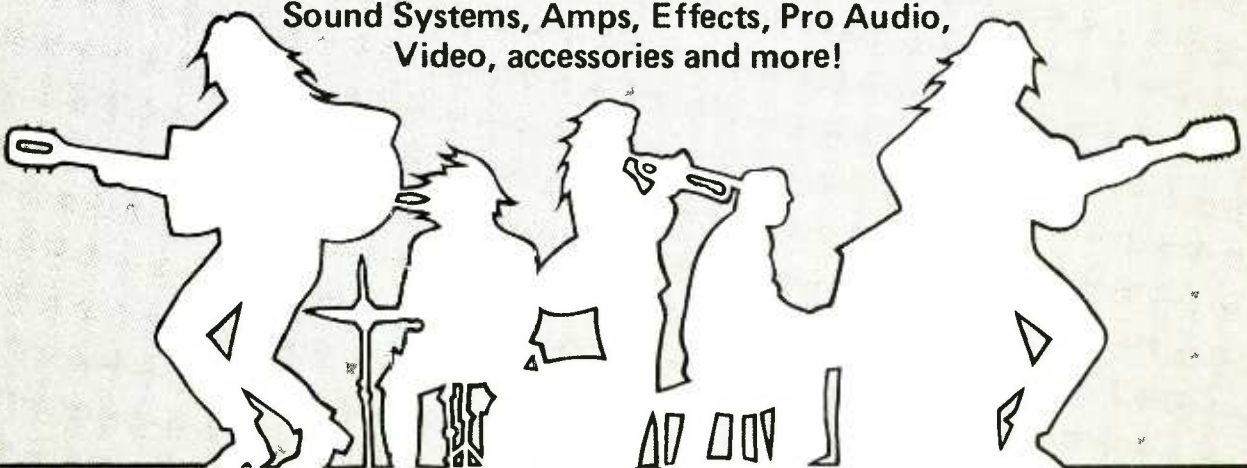
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# Recording Techniques

## Recording With The Fostex 16-Tracker



**L**ike a kid on Christmas morning, I tore into the Fostex B-16: a low-cost portable 16-track recorder. It's ideally suited for small studios, personal multitrack set-ups, and on-location recording.

I couldn't take the time to read the operating manual—unusual behavior for me, because I *write* manuals and always recommend reading them first! I made some mistakes due to not reading the manual: I threaded the tape outside the head shield without first pushing the shield out of the way, so the tape didn't contact the heads. I also threaded the tape on the wrong side of an idler roller, causing the tape counter to work in reverse. As a result, the return-to-zero function didn't work until the tape was threaded correctly.

The operating manual is clear and concise, short but complete, well illustrated, and pleasingly laid out. It reflects the simplicity of operation of the B-16.

Some features of the recorder include:

- 15 ips tape speed with  $\pm 15\%$  variable speed option.
- 30 ips (available only in the model B-16D) which provides response out to 24 kHz, more low-frequency dynamic range, and the ability to bounce adjacent tracks.
- Removable meter bridge.
- Multi-pin connector for video interlock synchronizers.
- Blinking track numbers for record-ready status.
- Real-time tape counter with search-to-zero from either direction.
- Servo control over reel rocking in edit mode.
- Spot erase capability.
- Noiseless punch-in/out.
- Optional remote punch-in pedal.
- Coarse and fine pitch controls with blinking LED for ON status.
- Optional full-function remote control.
- Optional Model 4050 MIDI-to-SMPTE autolocator.
- Optional Model 4030 synchronizer.
- Optional off-tape monitoring system (with the model B-16M) including 16 channels of Dolby C decoding and remote selection of monitoring status.
- Low cost (as low as \$5900).

- Dolby® C noise reduction.
- A stable 3-motor transport mounted on a 1/4-in. alloy plate.

This 16-tracker is good looking. Not as good looking as Heather Thomas, maybe, but it'll do. And at sixty-seven pounds, it is truly portable. We used it for on-location recording (described later) and appreciated how easily it loaded into the recording van.

This amazing machine squeezes 16 tracks onto 1/2-in. tape; you really appreciate the savings after stocking up on several reels. A single 10 1/2-in. reel can contain thirty minutes of music at 15 ips.

Although the track width is about the same as that of a cassette, tape hiss is not a problem—thanks to a high system operating level (320 nW/m of tape flux at 0 VU) and built-in Dolby C noise reduction.

The B-16 is not complete in itself; it requires a 16-channel mixing console with a monitor mixer and cue mixer. You cannot plug microphones directly into the recorder or obtain a monitor mix with the recorder alone. This is true of any studio multitrack recorder. But omitting these functions in the deck saves a lot of cost, and a console is needed for mixdown anyway.

Lacking a 16-output console, we hot-rodged a 16-in/2-out console by



wiring each fader wiper to a separate output connector. Thus we built in 16 direct outputs, each of which fed a separate track of the Fostex. The levels coming off the faders (-10 dBV) were exactly right for the Fostex inputs.

## Electronic Performance

Since the B-16 tracks are so close together, theoretically there is some magnetic coupling between tracks within the tape heads that results in crosstalk. I did hear a little low-frequency crosstalk between adjacent tracks. Is this a problem in practice? No. The crosstalk is down so far in level that it is inaudible during a normal mix. And since the crosstalk is at low frequencies, it doesn't degrade stereo imaging. Nevertheless, I recommend that you bounce to non-adjacent tracks.

There appeared to be some crosstalk on adjacent-channel meters while recording, but this is *sync crosstalk* between the monitor and record sections of the head; this crosstalk does not get onto tape.

I checked the overall recording quality by comparing the tape playback to the input signal (a compact disc). The playback sounded identical to the input signal, except for some slight added hiss (inaudible in normal use) and a very slightly "warmer" sound on playback (more low frequency output). This frequency-response error is not a serious problem because the machine is used for tracking. Any response errors can be EQ'ed out during mixdown. The recording quality is not quite up to digital standards, but it is excellent for such a narrow track width and such a low price.

The tape hiss is so low that, if you accidentally record a track peaking at -10 VU, the hiss is hardly audible. This machine can be a life-saver if levels are set improperly.

The B-16 also is forgiving of excessive record levels: recordings made at +6 VU still sounded clean on playback. This headroom helps prevent accidental tape saturation.

For specifications and measurements, please refer to the B-16 lab test report in the November, 1984 issue of *Modern Recording & Music*.

## Operation

Mark Cohen, Vice President of Marketing and Sales at Fostex, told me that Fostex designers put in all the features they would like to have in a 16-track machine; they tried to

please themselves. This philosophy paid off in a user-friendly machine.

The Fostex B-16 is a delight to use. Its tape-motion logic controls act like a skilled tape operator. I could not make it spill tape accidentally. You can hit "return to zero" followed immediately by "play," and it will do just that. Because of this feature, it's a snap to practice overdubs and mix-downs.

A tape cue button lets the tape contact the heads for audible cueing during fast-forward or rewind. Here's an instance where the tape cue feature is especially useful:

During a mixdown, instruments that play only occasionally should be turned up only when they play. You need to locate the points in time when these parts occur. By fast-forwarding the tape in cue mode, and monitoring only the particular track, you can hear where it starts playing. Then you stop the tape and note the tape-counter numbers where you should bring the track up and down. You then write a cue sheet with times and fader moves.

Automatic switching functions make the unit very simple to operate. For example, the Dolby circuits automatically switch to "encode" mode during recording and to "decode" mode during reproduction. There is no Dolby tone to set. As a result, Dolby operation is "transparent"; you operate the machine as if Dolby weren't there. The Dolby system built into the deck works in "encode" or "decode" mode, but not in both modes simultaneously.

If you need to monitor off-tape as you're recording (say, for video productions), Fostex makes a Model B-16M which has an extra head for off-tape monitoring. The third head also speeds the alignment procedure.

The B-16M includes an external Audio Tape Monitor with Dolby decoding. This monitor has a remote control with a series of track-selector switches. You can't do a monitor mix with this unit (you can't adjust the level of each track independently), but that function is done by a console monitor mixer.

The B-16M can verify that the signal is getting on tape correctly *as you're recording*. If you don't need this function, you can use the Model B-16 or B-16D for a substantial savings. With these models, you listen to a short playback to check the record/reproduce process.

There are no record-or-playback level controls to misadjust; you

simply use your console faders to set levels. Internal trim pots are easily accessible for level calibration.

Unfortunately, one control function is especially confusing: The RECORD button also functions as a tape/source monitor switch. If you don't press the RECORD button, you hear the playback signals of all tracks. If you press it once without pressing PLAY, you monitor and meter the input signals of those tracks that are set to "record ready" status. Press it twice, and you monitor all channels in SYNC mode. Press RECORD and PLAY, and you monitor INPUT on the recording channels and SYNC on all other channels.

This monitor/meter switching was the only function that required a lot of practice and manual reading to master. I might have preferred separate sync/input/repro switches, but omitting such controls reduces the cost of the deck. Once you learn this switching operation, it becomes straightforward.

## Indicators

The large digital tape counter reads out in minutes and seconds, letting you time selections accurately. By fast-forwarding the tape to the end of the reel, you can tell from the counter how much recording time you have left.

The pitch-control indicator light flashes to warn you that the pitch control is in operation. I appreciated this warning because otherwise it would be easy to accidentally record tracks at the wrong tape speed. The pitch-control button is next to the timer-reset button, so it's possible to hit the pitch control when resetting the tape timer.

The record-level meters are easy to use. They are highly visible, peak-reading bargraph types, which accurately read the peak levels being recorded on tape. You simply set them all to a 0-VU reading before recording—unlike VU meters, which force you to set different recording levels for different instruments. The Fostex level indicators change color from yellow to red when 0 VU is exceeded, making them easy to read and set at a distance.

## Field Tests

We packed the B-16 into our recording van and hit the road. We wondered whether it would hold up under constant use. Would its recording quality please demanding clients?

Would it get in the way of the recording process, or would it be easy to operate?

We weren't disappointed. Here's a description of an on-location multi-track session we did with the Fostex B-16.

The first group we recorded was a rock band. We taped a mini omni condenser mic to the grille cloths of the guitar amps, hung another in the damped kick drum near the beater, and clipped another to the snare-drum rim near the center of the drum set. The bass guitar was taken direct.

I listened to the drums. What a set of garbage cans! The tone of the struck tom-toms was "wobbly"; it was "beating" against itself. This indicates uneven tuning around the head. Using a drum key, we evenly tensioned the drum heads and finally got a pure tone from each drum.

The drums still rang too much. I taped some napkins to each head, with the tape on three edges of the napkin, leaving one edge free to vibrate and dampen the ringing. The drums sounded much better—both live and monitored.

As the band rehearsed the first tune, I set the input attenuators and

recording levels. The monitor mix was adjusted to simulate the final product. We recorded the first song and played it back. Three takes later, we had a keeper.

This process was repeated for the remaining songs.

Next we set up the board and tape deck for overdubbing. The singers' headphones were fed a cue mix of the previously recorded tracks playing in sync mode, including a live cue mix of their vocal microphones (mini omni condenser mics with a wind-screen, about 8-in. from the mouth at nose height). After a few practices, we recorded the overdubs.

On some songs we used up only 8 tracks. We were able to use the remaining 8 tracks to record other songs without audible crosstalk between songs.

Back at home, the console and B-16 were set up for mixdown. We patched a dbx 160 compressor in-line with the vocal track and set the dbx for 3:1 compression starting at -10 dB threshold. We also patched in a Biamp spring reverb to add spaciousness.

I soloed the bass guitar. All I can say is, thank God for EQ. The bass had a muddy, mid-rangey sound that couldn't be fixed by fussing with the guitar tone controls or pickup switches. I added +12 dB at 3 kHz, -9 at 250 Hz, and +4 at 80 Hz. The sound improved, but a better instrument would be preferable.

The guitar amps required a little boost at 3 kHz for punch. The drum-kit mic was boosted +6 at 12 kHz (for extra sizzle on the cymbals) and +4 at 80 Hz (to add more body to the toms).

Note that EQ can be applied during recording or mixdown. Since most of the EQ was a high-end boost, it would have been better to add it during recording; boosting highs during mixdown tends to emphasize tape hiss. But since we recorded directly off the console faders (pre-EQ), we had to equalize during mixdown. The Fostex was so noise-free that the added hiss was very slight.

I brought up the bass fader and set its level to peak at -5 VU. Next I brought up the kick drum and balanced it with the bass. Then the drum kit was added, and was balanced with the bass and kick drum. The guitars were brought in left and right, and finally the vocal was put on top.

We practiced the mix several times, using the B-16's return-to-zero function. The accurate tape counter (timer) was used to indicate points in

each song where changes in the mix were required. We wrote up a cue sheet listing several tape-counter times and the corresponding mixer operations. For example:

1:08 Bring up lead-guitar solo to -3 dB

2:11 Add +6 at 12 kHz to synthesizer bell effect

2:42 Start fade, out at 2:53

I heard no tape hiss or distortion at a moderate monitoring level (about 85 dB SPL). Nothing but clean sound from the Fostex.

The final mixes were recorded onto a Revox A77. I added paper leader tape between each selection, and the project was complete.

## Do Sixteen Tracks Sound Better Than Two?

The finished 2-track master sounded no better than live-to-2-track recordings I have done, except that the mix was more polished with the 16-track recording. That's the main advantage of multitrack: the ability to fine-tune the mix *after* the recording session. With a multitrack mixdown, it's much easier to hear what you're mixing because there's no live band sound competing with the monitored sound. And you can practice the changes in the mix until you get them right.

Multitrack recording offers the potential of clearer sound, in that you can overdub instruments without leakage rather than recording them all at once. If you record several instruments and vocals simultaneously, leakage or "off-mic" sounds can yield a muddy, loose sound in the final mix. But when you overdub there is no leakage, so the final mix can be cleaner.

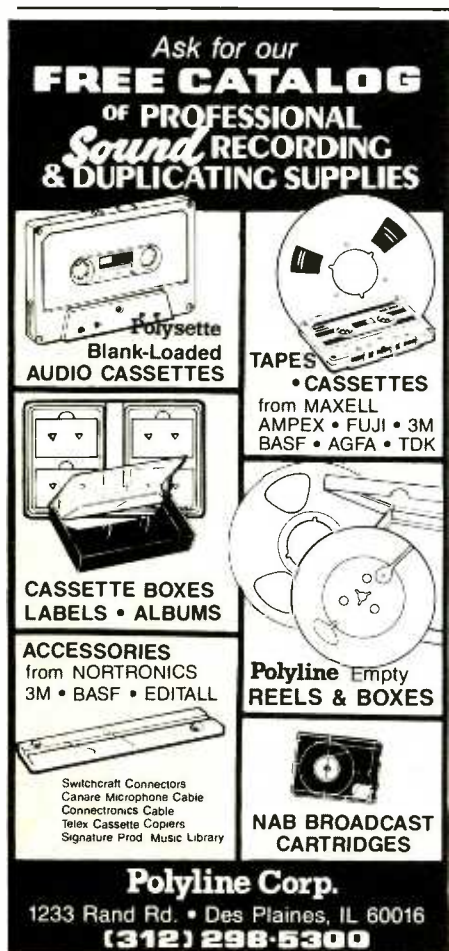
Having 16 tracks available lets you overdub instruments without bouncing or copying tracks; the result is clearer sound because each bounce adds hiss and distortion.

The *tape deck* doesn't create a good-sounding recording—you create it with microphone techniques, EQ, and effects. The job of the recorder is simply to accurately store the sound you created without adding noise or distortion. That's just what the Fostex B-16 did.

## Summing Up

We've arrived at the bottom line. Do I recommend the B-16? Yes. Would I change anything? Nothing that adds to the cost. Can you make professional master-quality recordings with it? Absolutely!

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# Brian Battle's

## Ad Ventures

Autumn rapidly approaches and young recordists' thoughts turn to money. Time to knock off staring at bikinis and biceps, 'tis the season to get your paws on some of that holiday advertising money that's about to be tossed around like so much artificial snow in a shopping mall nativity scene (are *they* up already?!). If you've been faithfully following this column for the past few months you've already gotten a bit of a head start on fattening your bankroll with the money you'll soon be earning from all the radio commercials you'll be cutting. Within the next couple of months advertisers will be separating themselves from more promotional bucks than they do at any other time of year, so if you're going to go for the \$\$, do it now!

I just thought of something: magazines have what's optimistically called a "long life." That is, they get saved and read for a lot longer than, say, newspapers (which line birdcages within 24 hours), so you may well be just coming across this issue in March. In fact, our advertisers are hoping *someone* will. But that's not my problem. The strange thing I deal with is lead time—as I write this it's over 90 degrees and I'm dripping beads of sweat onto my Smith Corona. [Ed: *What, no word processor?*] I certainly hope, however, that I don't suffer the fate of knowing my efforts will be rewarded by winding up as some cockatiel's toidy.

Let's ice the reality break and get back to business. Last time I showed you some methods for identifying potential clients. (Actually I *told* you in June, but that particular column was published in the September issue, which went on sale in August, but...never mind. If I don't get back to the point and finish this piece I'll miss all the January White Sales that begin in December.) Now that you have a fair idea of how to spot prospects, I'll try to help you learn how to close a deal. It's not easy, but it's the single most important part of making money when you have a product or

service to sell, and without the ability to get that client to say yes, you're doomed to an eternal limbo of close calls and missed opportunities. Get this idea into your head: You have an extremely valuable and perfectly legitimate product to sell. In fact, it's a necessity! Professionally-produced radio commercials increase effectiveness of the medium. If an advertiser knows that broadcast advertisements work, he must be made to agree that a better spot will bring better results. Why spend money on air time and fill it with mediocre content? Why buy a Rolls-Royce and install a cheap stereo? Why rent a store with a thousand square feet of front-window space in a busy mall and set up a bland display?

You're on your way over to an appointment with Asinine Al of Asinine Al's Atomic Abbatoir (he's on every station in town), and you know that the cassette in your hand contains the grooviest, hookiest radio jingle you've ever heard—and so far it's just you on acoustic guitar with your rhythm box booping in the background. You're sure Asinine Al will be knocked flat by your outrageous changes and witty lyrics, and that your vivid description of the monumental production job you're planning will have him quivering and slaving and begging you to hire the entire *Live Aid* bunch to play on the final tracks. But, when you get to the part about the money, the COMMITMENT, well, er, uh, gee, it's a terrific little tune, but gosh, I just don't know, the spot rates are sucking me dry, and nothing personal, it's a wonderful tape, but y'know, you really should bring that to somebody big who uses that sort of stuff. I'm not quite in the league. It's kind of over my head, and, um, thanks for coming by. I'm really strapped for extra expenses right now...I really appreciate your trouble, maybe when we grow a little bigger, bye now.

Happens all the time. You know he needs your commercial, but instead of punching up his entire ad cam-

paign with a sharp, professional, results-oriented spot, you've actually wasted time. Yours and his. As a professional you will not waste clients' time, nor will you allow them to waste yours. He'd love to hear your work of art on the air himself, but you haven't really convinced him that your service is essential. At this point his thoughts are that he's making a profit now, you aren't offering any guarantees, and that production cost is just going to eat into his margin. You need to lay into him. You stand there in your business suit with your briefcase and embossed calling card and you're there for a reason: custom-produced radio commercials *work* and you both know it. McDonald's knows it, Coca-Cola knows it, General Motors knows it, Colonel Sanders knows it, Sergeant Flea and Tick Collars knows it—all the major chains and many private businesses know it. You must make it clear that your commercial will sound as good as those national ads, but it costs Asinine Al a lot less since you're a local businessman, too, although nobody but you and Al need know any different. The listener will hear Asinine Al's ad right next to a Stroh's jingle and they'll know he's IT. Your spot radiates high class, top quality, prestige, integrity...and all that helps justify his high prices!

In case you've never put together any kind of musical commercial before, which is probably the case, I'll let you in on a few handy trade secrets next time around that'll give you some idea of what seems to work well in both convincing prospects that your ad will sound great and in catching the listener's ear. You'll also learn a few techniques for producing spots that are easier to revise and edit (you'll do plenty of that!) so your studio time can be used efficiently.

Let me mention that I'm very pleased with the positive mail we've received in response to this column, and if we get a couple more letters perhaps I'll devote an entire piece to both of them.

## Rocking On *Integrity*



Photo by Simon Fowler

**T**heir sound has been called power pop, old-time rock, and motown cruisin' music. But there's more to it than that, something vaguely nostalgic yet infused with a spirit unlike you've heard before. And their sound is spreading. Since soulful Katrina Leskanich and her bandmates hit the charts this spring with "Walking on Sunshine" they've been hard at work on the road: a European tour followed by a two month non-stop trek through the States, with stop offs in Canada and Japan. Now, on a late afternoon early in August, they've come to the Boston Common to open for Don Henley.

"It's hard work, but it seems to be the accepted thing in the industry that you support people," offers drummer Alex Cooper referring to the band's opening slot as opposed to the headlining tour they've done most of the summer.

Opening also brings with it the standard problem of an adequate soundcheck. "You do what you can to get one," bassist Vince de la Cruz says, adding that Henley and his crew have been great in giving the band all the help they can, including tearing down as much as possible before Katrina and the Waves take the stage.



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\*Suggested U.S.A. retail price. In Canada, \$1,795 CDM.





"And," Alex adds, "the advantage is that we wouldn't be able to play places like this: bigger stages, bigger audiences."

"But the part of the stage you're left with makes things difficult sometimes," counters Vince.

"It's true, you get what's left. But it's been a great experience; we've learned a lot and the audiences have been quite fair considering they're really Henley's audience. In fact, American audiences all summer have been good; better than English ones. Give them good songs and energy and they'll respond to it." In England the band finds the audiences more cautious and less open to diverse sounds. "For example," Alex goes on, "after Henley we're supporting WHAM. We couldn't do that in England. It would be instant death on all accounts."

Judging audiences is something Katrina and the Waves know more about than one might suspect from their sudden visibility. They've been together nearly four years, ever since Alex and Vince merged their separate efforts into one band. Several years earlier Vince had met Katrina in a church choir on the American Air Force Base in Norwalk, England, where their fathers were stationed. They soon started a cover band called *Mama's Cookin'*. Alex, meanwhile, had briefly formed an early version of the Waves in the mid-seventies with fellow Cambridge University student Kimberly Rew. Kim subsequently left to join the Soft Boys, a post-psychedelic group that briefly attracted a cult following in England.

But by 1981 both halves of what would become Katrina and the Waves were looking for a change. "We were desperate, so we took on Alex," Vince laughs.

"I was desperate as well," Alex comes back tongue-in-cheek, "so I agreed to take him and Katrina on."

In fairness, their merger was a welcome change for all concerned. *Mama's Cookin'* had come to a standstill, so much so that, "I had my bags packed for the States," Katrina remembers. She and Vince had some vague notion of going to Texas where part of Vince's family lives and starting college as well as another band. Alex was more or less at loose ends, as was Kim who had cut some singles following the breakup of the Soft Boys.

The new group, with Kim coming in on lead guitar, began playing RAF bases, the only gigs available and a

rough beginning. "We were like a square peg in a round hole," remembers Kim. The military boys wanted disco; Katrina and the Waves offered rock. But more playing dates emerged as did a signing with the Canadian Attic label after their manager shopped a demo tape around at a music convention. Attic, which had released a Soft Boys' album, recognized Kim's name and gave a look. The band subsequently cut two albums for Attic, both of which attracted favorable critical attention and were supported by three Canadian tours. Unfortunately, all of that left them without recognition in the States where the albums were never released.

But they were not entirely a well-kept secret. Capitol Records caught on and signed them near the end of 1984. The band re-recorded their best tracks from the Attic albums and sent the work to New York's Power Station where producer/engineer Scott Litt took over. Within months "Walking on Sunshine" had reached the top twenty, the band was uprooted from Cambridge, and it hasn't been back since.

Why the "sudden" success? "Scott knows how to mix a track to make it sound appropriate on the airwaves," Alex says. He adds that Capitol also offered, "the power, the distribution to get us heard. They've been great. They've given us the money and let us get on with it. It's as simple as that."

But before anyone gets the wrong impression, it's clear to Alex that the success of the Capitol album has nothing to do with a different sound, something more commercial perhaps than their Attic albums. "People who say that the Capitol album is more commercial lose sight of the very fact that we'd gotten better as a band. We were tighter, more relaxed in the studio. Two years. That's the main difference." Some reviewers, while much attracted to the Capitol album, have, in fact, mourned the supposed loss of innocence of those earlier albums, complaining of overproduction on the Capitol release. Alex judges this complaint, "Ridiculous. There's really not one more instrument on the Capitol album than on the Canadian albums. In fact, there's perhaps a little less guitar overdubs, and one track, *Machine Gun Smith*, is the same track as on the Attic album, right down to the freaky guitar solo that Katrina does at the end."

"I did that with my eyes closed, not knowing what I was doing," Katrina

explains with the same self-deprecating humor shared by the Waves. And why, in her view, did the Capitol album do better? "Meat," is her simple answer. "Capitol gave our stuff a bigger, ballsier sound." Not more commercial in her view, but, "Al is such a huge, fat drummer, and that didn't come across on the Attic records. Plus, there's better quality reverb on the voice."

So the Capitol album did what the Attic albums didn't, and that suggests another question: Has their success with Capitol influenced them? Are they now beefier in live performance than they once were? Are they, well, more Capitol-istic? "We really just play one way," Katrina insists. "We've always sounded basically the same since we started out. And we're not really influenced by the record. When we go in we do it just the way we've always done it live. If anything we were trying to make the recording sound like we do live. We still have people coming up to us and saying that we sound better live than on our records, including the Capitol album. We sounded this way even when we were playing through a couple of Bose speakers with absolutely nothing mic'd up."

Their sound isn't the only thing that's remained the same about Katrina and the Waves, and herein lies the key to understanding them. They're pleasantly low-key, remarkably lacking the need to trot out their egos and their successes. But don't mistake casualness for lack of direction—or lack of strength. They have a keen sense of themselves that hasn't changed since they've been together. Capitol may have taken them under its corporate wing but the result wasn't high-tech rock, and more importantly, not a change in the band's soul. Capitol simply captured Katrina and the Waves as they had always been: their collective spirit deep in the heart of rock 'n' roll, their feet anchored firmly on the ground.

Not that some haven't tried to change them. Early on the problem seemed to be the band's image. As Kim points out, "We've always been a rockin' and rollin' band wearing jeans and tee-shirts." Hardly the stuff of slick mid-80's success. Suggestions that Katrina transform her girl-next-door beauty into something more rockish went for naught, as did an attempt by producer Vangelis (*Chariots of Fire*) to introduce them to the finest in technology. Vangelis





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came across the group several years ago, liked their sound and generously invited them to record in his plush home studio that contained first-class everything. "Maybe it was mainly the environment. The rug was this thick," Katrina complains, marking a generous gap between her thumb and forefinger. "He had statues with-out arms on the piano. I was afraid I'd sweat or drop something on the rug."

Kim puts it in a different way. "Vangelis' music is very much mood music and the studio is very much a mood studio, soft lights, thick rug, the rest."

Whatever it was, although they much appreciated Vangelis' efforts, the results were unacceptable. "The sound," Katrina says, "came out sanitized and clean and all that. It just did nothing for me. It's better if we go in (to the studio) without an outsider, like we've always done."

Where they've gone in the past, Alaska and Greenhouse studios in London, is unlike anything that might find its way into Vangelis' heart—or home. According to Kim, "It's really a fine studio, but it's a little basement tucked beneath a railway arch and the walls are

covered with carpet nailed to hold it up." He seems delighted by the decadence of it all.

Katrina likes it even better. "You have to stop the vocals half-way through if a train comes." Her eyes dance at the prospect of recording their second Capitol album there later this year.

Her studio work, past and future, contains another unique feature. "I'm very much influenced by 50's and 60's music, as you can tell, obviously. They used to let mistakes go and I really admired that. I like to sing it once. If I have to sing it two or three times it's just going through the motions, and you can tell."

And so they go, at their own pace, coming at their audiences without gimmicks, unimpressed by high-tech, by synthesizers, drum machines and the like. Their reliance on themselves has gotten them this far, and although it doesn't feel like overnight success to any of them, things have happened a bit fast. "It does feel kind of weird to be on your second single," Katrina muses wistfully, referring to "Do You Want Crying," written by Vince and

released at the beginning of August. "It's a thing you dream about and hope for. And now I wonder whatever happened to the first single. All I can remember is sitting a lot on a tour bus."

They understood too that there's still a lot of work left, and little time to savor that first success as it becomes but a memory. As Alex puts it, "We still have to go out there every night and show people what the band's about."

And on that journey they are, perhaps, approaching some uneasy terrain: no longer new enough to receive the uncritical deference accorded a beginner; not established enough to count on a bedrock of fan support. All of this might be expected to leave its mark, but here again the band's sense of proportion wins out over what would be understandable anxieties. "I know you're only as good as your last record. But if the second record isn't a hit, life goes on, you know," Kim says when asked about the pressures for continued success.

For Katrina there's too much to be done now to worry. "Really, I think that's the way people on the outside

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think about you. When you're in the group I don't think you think about things like that. You just get up in the morning, look at the calendar and figure out what you have to do, when you get on the bus, when soundcheck is, do the gig, go to bed. It's just a day at a time."

Too much to do, but much they've already accomplished. In addition to "Do You Want Crying" there's a third release planned, "Red Wine and Whiskey." Both releases were agonized over by the band, and by Capitol and its promotional reps. The problem was one that more bands would like to have: there are so many good tracks on the album that it was difficult to decide which ones to release. Videos have been completed for each of the new songs and even here the band's been its usual self. The director for each video has been someone the band knew, felt comfortable with, and to whom they could trust scripting and production.

And they're by no means slowing

down. The songs on the Capitol album are two or three years old and the band's been writing steadily during that time. For the first album Kim did most of the writing, but more recently Katrina and Vince have joined him. For their Boston performance, a short thirty-minute set, there are several new songs including "Tears for Me" and "Plastic Man," both of which seem destined for the second album. Of course time has to be found to fit in another trip under that railway arch. It'll have to come after more touring in the States, a trip to Sweden where they're a top ten band, perhaps to Australia for the same reason, and even two weeks vacation thrown in—possibly.

Along the way they recognize that criticisms and suggestions for change may come. Something again to do with their image, or perhaps the simplicity of their studio work and their live performance. You can imagine the scenario: the usual

charming suspects crowd into the band's dressing room trying to convince them to spruce up the act. Nothing much, just a few things tastefully in tune with the times to prevent the group from sliding: a laser light show, a little choreography, a David Lee Roth mannequin floating above the stage behind clouds of manufactured smoke.

And you can imagine as well the band's response. Katrina laughs, the Waves unceremoniously give the outsiders the boot. When the room is cleared they look to each other, their heads beginning to nod in shared knowledge: they understand who they are, where they're headed. Without a word Alex moves to the drums and soon loses himself in an incessant beat. Vince comes in behind him with solid basswork, then Kim with some subtle opening riffs, nothing overwhelming, just right. And then Katrina begins to wail.

Alone again, they're out on their own path, evoking rock's roots.



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# GRAHAM BONNET

## A PLACE ON THE CHARTS



Photo by Diana Lynn

**Graham Bonnet with Alcatrazz, (from left to right) guitarist Steve Vai, drummer Jan Uvena, keyboardist Jimmy Waldo, Graham Bonnet and bassist Gary Shea.**

**G**raham Bonnet had a place in the annals of rock 'n' roll history even before he formed his current band, Alcatrazz. He has recorded LPs with hard rock heavies Rainbow and the Michael Schenker Group. Two and a half years ago after turning down offers from UFO and Ted Nugent, Bonnet formed his own band. He started with Alice Cooper alumni Jan Uvena on drums and Jimmy Waldo and Gary Shea (keyboards and bass respectively) from the partially successful supergroup, New England. With the addition of Swede guitarist Yngwie Malmsteen to the lineup, Alcatrazz was ready to record their first LP, *No Parole From Rock 'n' Roll*. Malmsteen then used Alcatrazz as a vaulting board for his solo career and was replaced by former Frank Zappa sideman Steve Vai. Vai now writes most of the music along with Bonnet who writes all of the lyrics.

The band was recently signed by Capitol records and released *Disturbing The Peace*, which gained mild success on the Billboard charts. It was produced by veteran rock producer Eddie Kramer whose credits include Jimi Hendrix, Led Zeppelin and Kiss.



*Modern Recording & Music* spoke to Graham Bonnet at a time when he was getting some much needed rest and relaxation at his home in Southern California.

**Modern Recording & Music:** How involved are you in the actual recording process?

**Graham Bonnet:** Well I don't get so involved behind the desk or anything like that. The only person that really does is Steve [Vai] because he's really into recording itself. He has a studio in his house, and all that kind of stuff. It's something I never really got into because I don't have the patience for it. I don't have the concentration that most people need to be producers. All I basically do is write the songs and go in and sing them and do the best I can.

**MR&M:** How did you get started as a professional singer?

**GB:** When I was nineteen I got my first recording contract. That was 1968. I was nineteen or twenty, I can't quite remember, and I was signed to record for Robert Stigwood. He was my manager when the Bee Gees were very big, and the Bee Gees

wrote a tune for my cousin and I, which went to number three on the English charts, but it wasn't released in the US. My cousin and I recorded together for about two or three years, and then we split up. I lost all contact with the Bee Gees and I tried to do some things on my own, but it died a miserable death. I signed with different record labels—everything was terrible. At one point I lost my voice—I had a bad throat problem. In

1974 or 1975, when I was messing around doing nothing, I joined up with Dick James Music in London, and I did a silly film with him and wrote some music for the film. That sort of got me back on my feet again. After that I joined a company that managed Status Quo, an English rock band, and Micky Moody, (who later joined Whitesnake as a guitar player) and I had some hit records in Australia and England. Then in 1978

**But now with synthesizers it's great because you can get all kinds of different sounds. It's sort of a cheap way of getting a recording session together.**

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I joined Rainbow. I was with Rainbow for about two years and I decided to leave because Cozy Powell left and the music wasn't really progressing the way I wanted it to. I wanted to do something a little bit different. So I recorded another solo album which did okay in Europe and I had another hit in England in about 1979 or 1980—it went to number five. Then I joined the Michael Schenker Group, which was very short lived. There are a lot of stories about that that I won't go into. So I found myself out of work again, so I decided to get this band to-

guitar became secondary and the singing took over. A lot of early black singers obviously influenced me—like Ray Charles, Muddy Waters, Brownie McGee and Sonny Terry—people like that.

**MR&M:** How do you classify the music you're doing now with Alcatraz?

**GB:** It's very hard to put in a category. I hate doing that. It's rock 'n' roll. It's not quite pop music. I like to play every kind of music I can. Otherwise, I think it becomes a little bit boring. It's okay playing to your-

**MR&M:** How do you feel about the way synthesizers have changed the music industry and the way music is made?

**GB:** In the 60's you used to have to go to the studio with a huge orchestra to get some kind of dynamics on the record. You'd have the basic tracks, the guitars, bass and drums, and some oohs and aahs, and then you'd get the thirty or forty piece string section. But now with synthesizers it's great because you can get all kinds of different sounds. It's sort of a cheap way of getting a recording session together. There are so many things you can do with synthesizers, it's incredible. You can do the whole bloody rhythm section with a keyboard. Soon there will be no vocals. All the vocals will be done on synthesizers. It's a bit worrisome sometimes. But I think what I'd like on the next album is to go back to basics—even more basic sounds—the kind of thing John Lord does. You know the basic Hammond type of thing. Real keyboards and a real grand piano. But obviously on stage it's great. Synthesizer stuff on stage is very important. It makes the sound very big, and there are lots of great effects you can do with them.

**MR&M:** How do you go about preparing to record an album? Where do you do most of your writing?

**GB:** Everywhere. I have a cassette machine around all the time and I sit down with my guitar and start playing away and an idea comes to me and I just switch on an old cassette machine and sing into it. That's how a lot of things start, very simply. And then Steve also has arrangement ideas that he plays for the band and that he puts down in his studio and we all get together and sort of mess around for a while and see what happens. We put all of our ideas together and then sort out the good things from the bad things. A lot of tunes came out of Steve's rhythm track ideas and I just sang along with the band at rehearsals. We recorded every rehearsal so if any melody did come to mind we would use it. A lot of things are by accident during rehearsal and some of them are worked out when we go into rehearsal.

**MR&M:** Do you know the actual sound you are looking for for your voice or do you just leave that up to the producer?

**GB:** I leave it up to the producer most of the time, but certain times I say 'take the echo off' or 'I don't need

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***It's nice to be back on a big label. It gives you a feeling of importance when you walk into the big lobby and they're playing your record and you see the posters up on the wall in the elevators, it's great.***

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gether called Alcatraz about two and a bit years ago and we started up in my garage in Calabasas, California. Three of us got together—Jimmy Waldo (bass) and Chris Shea (keys)—and we looked around for different members which took a long time, but we had our first album out about a year later.

**MR&M:** How do you feel about being back on a major label again?

**GB:** It's nice to be back on a big label. It gives you a feeling of importance when you walk into the big lobby and they're playing your record and you see the posters up on the wall in the elevators, it's great. And you have the promotion—they're behind us one hundred percent. They are very pleased with us. When we first got together they really weren't quite sure what we would do, but now they really like it.

**MR&M:** Who were your major influences when you were first starting out?

**GB:** A lot of people. Going way back to when I was a kid—very young—Buddy Holly, the Everly Brothers, Elvis Presley, and a lot of instrumental groups in England because I started out as a guitar player more than a singer. But the

self all the time and saying, 'God, that's great,' but sometimes it's nice to appeal to other people and do something sort of off the beaten track, something a bit unusual. The thing we've done on this album is that we sort of drifted away from what was expected from us. It can get tedious doing the same old blood and guts kind of riff and things and singing the same way. I like to experiment and that's what being a musician is I think...experimenting a lot.

**MR&M:** Is that what brought synthesizers so predominantly into your music?

**GB:** We decided that we wanted to get away from having guitar over everything. You find that most so-called heavy metal bands have 200 million watts of guitar over everything. You'd think it's the most important instrument in the world, and you don't hear anything else. We decided to make a different kind of sound for this album to say 'this is the new Alcatraz.' It's not the old Alcatraz.' We're trying to be a little bit like Rainbow and Michael Schenker. We all know our musical tastes and limitations and now we can sort of start to play what we like. And hopefully other people will like it.



reverb on that...don't squash it up like that.' I like to hear a natural sound from the voice. Unless it's a song like "God Blessed Video," where I double-tracked it. It's more like an instrument when you double-track, it smooths everything out, it does sound more like an instrument than a real voice. I do a lot of harmonies, too. But basically I leave it up to the record producer to sort out my vocal sound. I just like to be in tune more or less and put some soul and feeling into the track.

**MR&M:** Are you concerned with sounding commercial? Do you want to sound as commercial as possible and still be true to your own music and true to yourself?

**GB:** Oh, yeah. I want to sell more records, obviously. In the past I've made records that have probably been okay—good rock 'n' roll, but not a lot of people buy them. Rock 'n' roll audiences are very small compared to the rest of the world, but I don't want to sell records to the Barry Manilow audience either. We're talking about good rock 'n' roll and it would probably appeal to more people than we have been. For instance, with Rainbow, our audiences are a very strange age group. The youngest autograph I signed when I was in Rainbow was for an eight year-old girl and the oldest was for a guy probably about sixty. So it's a big audience. Whereas with Alcatraz, our audience has been sort of sixteen to twenty and that's about it. We need to reach a few more people I think.

**MR&M:** So you're not concerned with selling out or exploiting yourself to be commercial? It's more important to sell and do what music you want to do.

**GB:** Yeah, I mean I'm a musician, I'm not just a commodity. I like to play all kinds of music. Music is easy to me. I mean I'm not a music snob. I don't say you should play this...I think that's a really silly attitude.

**MR&M:** Is there a typical lyrical theme that goes throughout the record or are there eight or ten separate, distinct songs?

**GB:** It's all over the place. Most of the songs are written from observations or things that have happened to me or whatever. They're usually a story...there's sort of a story there somewhere. Either a book I've read or somebody's life story or something. They're all just observations from different walks of life if you like. I think that's what good song-

writing is, and I should think I sometimes write pretty good songs. I really think about what I'm writing lyrically, because its got to sound good as well as read good. It took a long time...I may change a word here and there. It's funny, when you write them, you don't actually sing them and then when you sing them, they sound different. Some words are wrong, like you can change an "and" to a "then" or something and they sound pretty different with the voice. It's funny, it can sound pretty weird sometimes, but that's the way I like to do it. Eddie Kramer (the producer for this album) is very good with that. He wanted to change one word and I said it did sound funny but it read okay on the paper...it looked great...

and it changed things. Then Americans started to sing with English accents—it's weird. I'm waiting to see if something like that happens again. They changed the whole bloody world—the way you wear your clothes and hair.

**MR&M:** Between the first album and the second album the music and the lyrics are somewhat similar, yet the albums are totally different sound wise and production wise. Do you attribute that to Eddie Kramer or is there anything else?

**GB:** It has a lot to do with Eddie because he tidied up the band to no end. The first LP was too rough and too messy. Eddie heard it and he didn't particularly like it. He thought we needed cleaning up and I think he



*It can get tedious doing the same old blood and guts kind of riff and things and singing the same way. I like to experiment and that's what being a musician is I think... experimenting a lot.*



but when I sang it, it sounded different. You have to watch out for things like that.

**MR&M:** Who do you listen to? Who do you think is doing innovative things in the studio?

**GB:** That's very hard. I haven't liked a lot of stuff recently. This is a terrible thing to say, but there's nothing in the recent few years that makes me say 'I really like that.' The last thing I heard that I thought was good production-wise was the last Yes album. The production was great—that's the type of production that I like. But there's nothing I like in the top forty right now—it's terrible. I'm waiting for something to happen like the Beatles again. When the Beatles happened, the music scene was just like this—it was really boring, and everything was the same. Then the Beatles came along with their long hair and really funny accents and sang with English accents which was unusual because everybody sang with American accents. I do, everybody does—You can't sing rock 'n' roll with an English accent. But the Beatles did it

was right. So a lot of the sound was his doing.

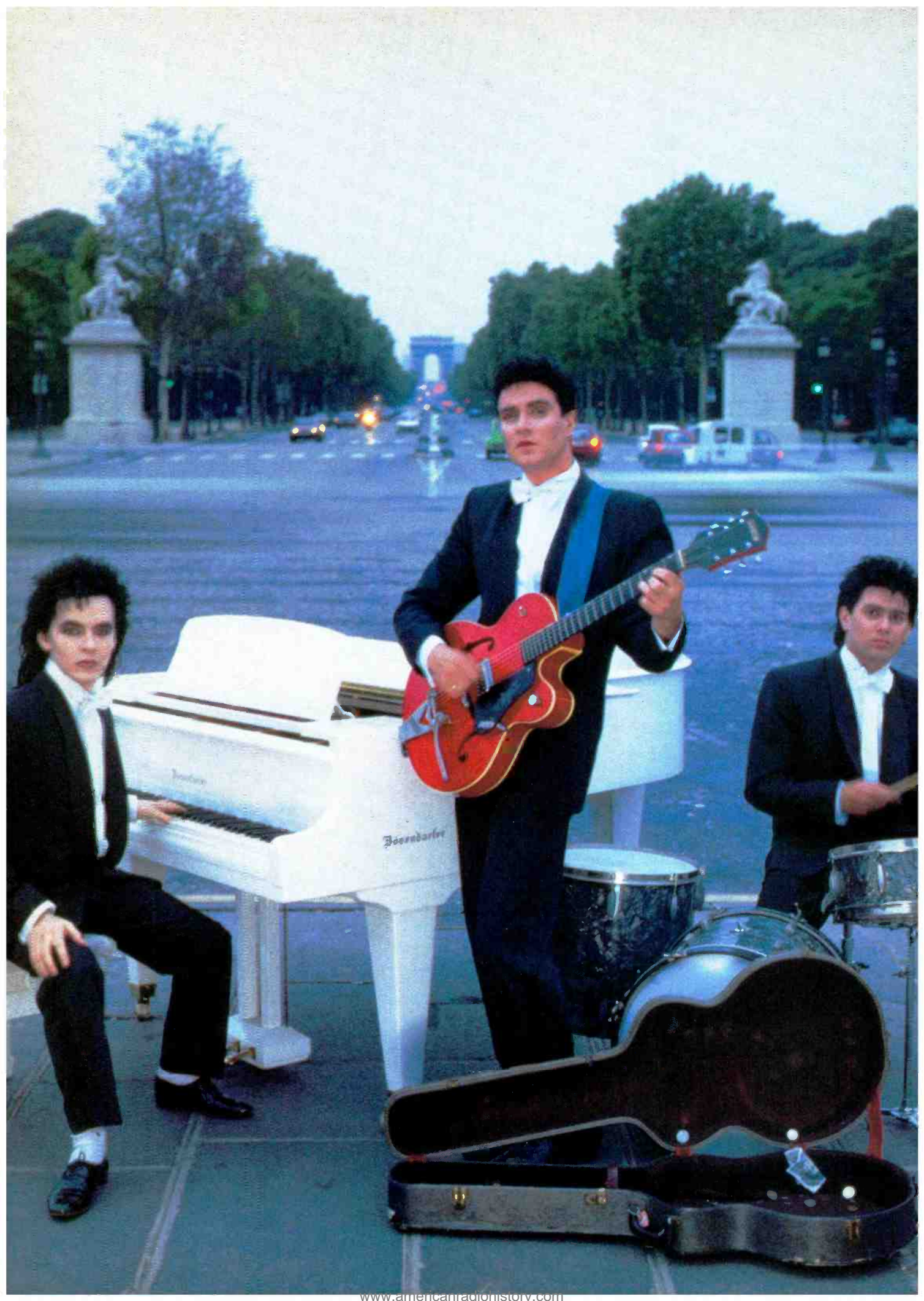
**MR&M:** How is your music—yours personally and Alcatraz—evolving? Is there a particular direction it's going in or is it a "wait and see" situation?

**GB:** I think it's "wait and see" (laughs). I think our next album will be better than the last two.

**MR&M:** What are you aiming for in the future?

**GB:** Well—going back to the Beatles again—they were the one band that could get away with playing something like "When I'm Sixty-four" and then also playing "I Am The Walrus." What kind of band were they? They did everything. I would like to be in the kind of position where I could play anything and no one would say 'What direction are you going in?'. They had it made. So I don't think we really know what's going to happen on the next album—I don't think anybody really does, unless you're very mechanically minded. I'm not, I'm just a silly musician who doesn't really know what's going on in my life anyway.







eileen schwartz and rita wolcott

# Arcadia

an

EXPANSION

into the

abstract

For certain people, success *isn't* everything. From that belief springs the birth of Arcadia, a collective ef-

fort of Duran Duran's Nick Rhodes, Simon Le Bon, and Roger Taylor.

Elegance, energy, and perseverance have sky-rocketed Duran Duran to the top of today's contemporary music scene. At the same time, their elaborate and high-tech sound has earned them well deserved credibility among fellow musicians.

The members of Duran Duran, however, have not been content to just sit back and savor the group's success. Each has obviously experienced a desire to pursue some higher level of personal achievement.

In 1984, guitarist Andy Taylor and bassist John Taylor took time off to embark upon an ambitious solo project, *The Power Station*. Their album of the same name turned out to be a collaborative effort between the two Taylors, singer Robert Palmer, and Chic's Tony Thompson. It was a phenomenal success.

While John and Andy were working on their LP, the remaining members, keyboardist Nick Rhodes, drummer Roger Taylor, and lead singer Simon Le Bon, seized an opportunity to begin work on their own project. In time it came to be known as Arcadia, a name which suggests a scene of simple pleasure or quiet.

The album, entitled *So Red The Rose*, is intended to achieve an atmospheric, abstract quality and is due to be released at the end of the year.

Musically, Arcadia is in complete contrast to the previous work done by Duran Duran and The Power Station. Duran Duran, under all the glitz and glitter, is essentially a high-tech modern dance band, while The Power Station possesses a powerful funk-rock fusion style. Arcadia is the polar opposite of both.

For this LP, Nick, Roger, and Simon teamed up with outside mu-

MR&M spoke with Arcadia at The Power Station in NY during the final mixdown of some of the tracks.

**Modern Recording & Music:** Why did you decide to do the Arcadia project at this time?

**Nick Rhodes:** Actually, Simon and I have been talking about doing a project together for a few years. We were going to do cover versions and then we said, "Well, we'll talk about it when we have time one day." John and Andy were starting to talk about The Power Station thing and how they would really like to do it. We

them. When he came back from Europe, we recruited him. We thought it would be great for the three of us to work together and still have a very different sound. That's how it developed.

**Roger Taylor:** The Power Station was only a very small thing for me really. I came over to New York for a week and they asked me to come down to the studio and try a few overdubs. I actually ended up playing on only one track, which is "Some Like It Hot," so it was only a small involvement. After that I went back to England for a while. Nick and Simon were starting this project and John and Andy were off with The Power Station so for a while I was sort of stuck in the middle. I've been with these five guys for five years and two of them went off in one direction and two of them in the other and I was left in the middle with nothing really to do.

**MR&M:** How did you feel about that?

**RT:** It was quite strange for a while. I went through a bit of soul searching during that period. Then one day the phone rang and I think it was Nick or Simon and they asked me to come down and play on a few tracks of the album. I said, "Yeah, I'm not really doing anything, I'll come and play a couple of tracks." It just worked so well that I ended up playing on more or less every track on the album except one. I became a full-fledged member, I suppose, after that. We just worked so well together. We had the same ideas of what it should sound like. What I did fit particularly well with the songs they were creating.

**MR&M:** How would you describe the style of music on this album?

**Simon Le Bon:** It's a little bit ethnic, but not in a folky way. People tend to think of ethnic as being African as well, but in a gypsy way. There are a lot of Eastern influences, some traditional musical influences, and a sort of a South American type of feel in a lot of the songs.

**NR:** A lot of it is more atmospheric than anything we've ever done before. It also has elements of jazz here and there. It's a lot more free form in places, a lot more abstract than most of our previous work.

**RT:** It's a lot more esoteric than anything Duran's ever done. All the tracks work very well together. I think there have only been two or three albums ever made that have had that. Pink Floyd has made a

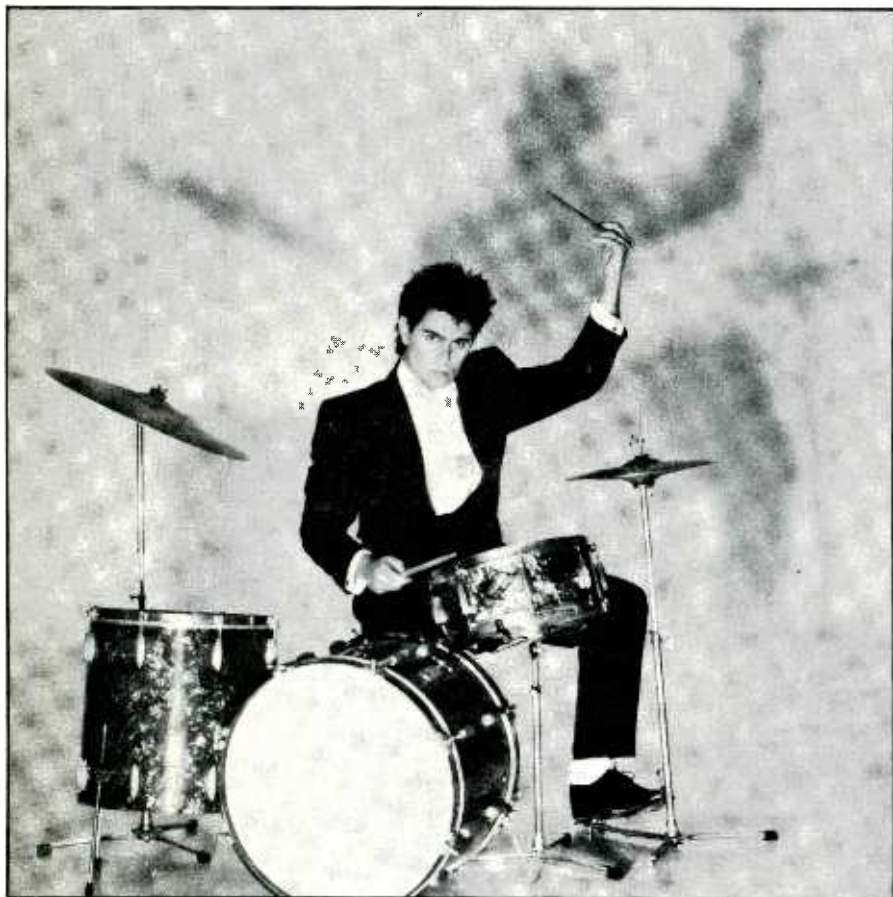


Photo by Norman Parkinson

sicians who had won their respect and admiration long before Duran Duran came into being. Among those included on the LP are noted guitarists such as Masami, Pink Floyd's David Gilmour, and Carlos Alomar who joined David Bowie on the "Let's Dance" tour. Others who lent their talents to the album include bassist Mark Egan, percussionist David Van Tiegham, and Roxy Music's Andy MacKay. Together they have created an album which they hope "will interest people with its fresh and modern sound."

*So Red The Rose* was recorded in Studio de la Grand d'Arneé in Paris and mixed in various New York studios including Soundworks and The Power Station.

thought it would be a good breath of fresh air for everybody to do something different, so we decided to take this break and finish the two projects, Arcadia and The Power Station, to the extreme. I think at all times, and with this project particularly, we've moved on a lot. It's radically different than anything Duran Duran has ever done or, in fact, probably the polar opposite of The Power Station.

We're just finishing up mixing at the moment. What happened initially was that Simon and I were writing all the songs together. I was basically writing music and Simon was getting the lyrics together. We were writing in quite a classical way. Roger was working with The Power Station, doing a few little bits for



couple and Roxy Music has made one.

**MR&M:** Speaking of Roxy Music, it's been said that Duran Duran was influenced in the early years by Roxy Music and Chic.

**NR:** Being influenced by Roxy Music and Chic has never been one of my more believable aspects of what's been printed. I grew up liking Roxy Music a lot and David Bowie and people like that, but I don't really think we ever made any songs that particularly sounded like Chic or Roxy Music. I think it was just the fact that Roxy Music was always very modern with a certain style about them which was really nice, and Chic was always very danceable.

**MR&M:** Simon, you and Nick worked on the song "The Chauffeur" together. Was that a starting point that led you into this project?

**SLB:** Kind of, yeah. Well, we did that together. I don't know if you have it in America, but on the B-side of the song called "Union Of The Snake" is a song called "Secret Oktober." That is one that Nick and I did together as well. We're a very good team, totally complimentary to each other in the truest sense of the word. We're very different, but we do compliment each other. I tell him how great he is and he tells me how great I am (laughs).

**MR&M:** Nick, you mentioned the music being more abstract. Your book of photos, *Interference*, was also an expansion into the abstract. Is this project another step in that direction?

**NR:** Well, *Interference* is a project that I've been working on and never had time to finish. Towards the end of last year I had about a month so I thought, "All right, I'm going to get the book out and do the exhibition that I've been planning." I did it in Europe. I haven't yet done it in America and Japan, which I'm going to do.

You know I've always looked at things as not just being music. I don't really think of myself as a musician as such. I think of it as much more multiple than that because I like taking photographs and I've done production work as well, along with some directing on films. I just think all of them are so closely linked together. I don't see why you have to be confined to one thing.

In regard to this project, we just said to ourselves that we're not going to be confined to the boundaries of the five musicians in Duran Duran.

**MR&M:** So was there more of a sense of personal freedom?

**RT:** On this album, I've been given

complete freedom. A lot of the drum tracks have been put down with just me, the engineer, and the producer in the studio. With Duran, it's always been quite confined.

With this thing, we've just done what we've wanted. I think it's benefited for that because nobody knows drums better than a drummer, or keyboards better than a keyboard player, and to have that complete freedom means that the end product is a lot better. Personally, I think I've

## Two of them went off in one direction and two of them in the other and I was left in the middle... with nothing really to do. **RT**

learned a lot from that, just by exploring myself a bit more. I found things I never knew were in me, just because I had been left alone to come up with my own ideas.

**MR&M:** When you go into the studio, does Alex (Sadkin, producer) suggest ideas to you or do you already have your own concepts in mind?

**NR:** We always have our own concepts, but Alex is a great overseer. He has to be the most patient man in the world. If it needs it, he'll spend whatever time it takes to get the sound of finger-click. He's a real perfectionist. It's really nice to work with someone like that.

**RT:** I'll go in and put a rough drum track down and he'll sit down and examine every cymbal crash and every roll and say, "Well, I think that should sound more like that or that crash should be a couple of bars early."

**SLB:** Alex likes to sit there and let you do all the doing and then he just says, "Well, I think you can do better than that."

**MR&M:** How did working with Nile (Rodgers) differ from working with Alex?

**RT:** They both work very differently. With Nile, you'll go and put a drum track down and he'll say, "Boom, that sounds fantastic." It's very much like the first take is the best take for him. With Alex, you put down a track and eight hours later you'll be doing the same thing, with very minute changes, which is good.

**SLB:** I think Nile was absolutely excellent for Duran. He made something special out of "The Reflex" which we couldn't possibly have done

without him, with that sort of remix job. Now I may be alone in the band thinking that. There has always been different ideas going around, but that's my personal opinion. You know they want us to look around and always be aware of what's new because it's always nice to find a style, somebody's style, when they're absolutely new. I suppose for Nile, he really broke it with David Bowie and "Let's Dance" and that was *the one* for him. It would have been so much

nicer to have been David Bowie and had Nile when he was unknown. I still think he is one of the world's finest producers though.

**MR&M:** Can you describe the writing process for this LP?

**SLB:** We wrote it all in the studio. We didn't try and write it and then go in and record because there were only two of us. We didn't really prefer to do it that way so we went in there, put work to the piano, vocal, then bass and drums. We worked with piano click track, drums, bass, and then rewrote the instrumentation around that until it was right. It did grow rather than get structured and written straight away. We did take a long time in the studio—over three months—that's a long time, but that's the writing process as well. And we did come up with new music. With Duran we've always written it together in a room and then gone into the studio and totally rearranged it. It's usually up to the individual when he gets in there as to exactly how he will approach something. Well, not with me. Obviously, you need a melody to write a song around.

**MR&M:** Simon, Nick was quoted as saying that he felt your lyrics for this album are the strongest to date.

**SLB:** It's actually very immodest to say so, but I believe that's true as well.

**MR&M:** Do your lyrics have their usual dream-like quality or are they more structured?

**SLB:** No, they're more direct, a lot more specific... a lot more, I think the word is *honest*, actually. I wasn't trying to hide things. I wasn't trying to camouflage ideas, feelings, emo-

tions, and attitudes behind imagery. The imagery is still there. The dreamlike quality is there in certain forms, but the actual subject of each song is much more identifiable. I go from one image to another to create a kind of impressionistic sort of song. This album is not like that at all however. There is ambiguity but not in that kind of way, not about the main subject of the song. I think it's very important to do that now. I'm just sick of people asking me what a song is about!

**MR&M:** How did you go about recording the album?

**RT:** I would listen to the really rough things that Nick and Simon had done and I would actually fit the drums to the song afterwards. It's always a lot better than just going into the studio and putting a drum track down when you don't even know what the song is going to sound like.

**MR&M:** Did you improvise a lot while recording?

**NR:** Mostly I work out major melodies first. The way it's broken down is that I've written the music, Simon's written the lyrics, and Roger's written the rhythm. I've had a really free range. With Duran I tend to work with Andy, but now I've just had it to myself. It puts a lot of

pressure on me, but at the same time I like having the freedom to say this part's going to sound like this or like that. You can give something more piano to sound really atmospheric instead of sounding very plastic.

**SLB:** I would say, instrumentally, about eighty-five percent of the music is improvised in the studio.

**MR&M:** Do you do a lot of pre-programming?

**NR:** Yes. On some of the synthesizers—I used the writing page on the Fairlight for a couple of songs. One song on the album called "Keeping Me In The Dark" was done like that. Generally, I still like playing a lot. We use SMPTE which means you can sync up anything at any time. I put down so many parts that I have to program some of them.

**RT:** I've never really gotten into pre-programming. I've always just found a really good sound on the Simmons and stuck with that because we really only use them as tom toms. The next time we go out, I think I'll probably try a few different things...maybe try triggering the Simmons from the actual kit or have a pick up on the head so that I can switch from Simmons to acoustic.

**MR&M:** Does your live equipment differ greatly from your studio equipment?

**RT:** Not really. The only thing different for me is that I have an acoustic drum kit set up with the Simmons incorporated into it. I have three Simmons pads, whereas in the studio it would be a separate thing. I'd do the acoustic drums first and then do the Simmons as overdubs.

**SLB:** Well, some things just can't travel. In the studio I use Neumann mics—U-87s or U-57s—it has a nicer crisper sound that suits my voice. Live, I use a Nady radio body with a Shure head.

**MR&M:** Is there any equipment in particular that you enjoy using?

**NR:** The Fairlight synthesizer is my favorite. I first used it on *Seven and the Ragged Tiger*, but since then it's been updated a lot. This album is pretty well covered with Fairlight.

**RT:** I prefer using a basic acoustic drum kit, except this time it was tuned to be very live sounding. Before, I always used drums that were quite dead. The engineers have always bullied me by saying that I've got to deaden the sound down. This time I went into the studio with very open live drums. Apart from that I used the Simmons as overdubs. We used some Linn on the album, mainly for pulses. We never actually used the Linn to sound like a drum kit though. We set up percussive things that would later be triggered through synthesizers so you could hear synthesizer playing the rhythm of the original percussion track.

**SLB:** The biggest difference, of course, is that we recorded in 32-track digital.

**MR&M:** Do you prefer digital recording?

**SLB:** I do and I don't. I love the quality, but there are a few drawbacks. We found that it's a little bit unstable at the moment. You find clicks appearing on tracks occasionally and you must be careful if something needs cleaning. We used the 3M digital multitrack and that had to be cleaned absolutely each day. Obviously, the technology is still pretty well in its infancy. It does need developing. Of course we used the Solid State Logic desk, which is amazing and very easy to use.

**NR:** I love recording digitally because you get rid of all that horrible hiss which I always hear on everything. I hate it.

**MR&M:** What kinds of sounds do you like to sample?

**NR:** I sample really bizarre things. Whether it be weather effects or the whole Chicago symphony orchestra

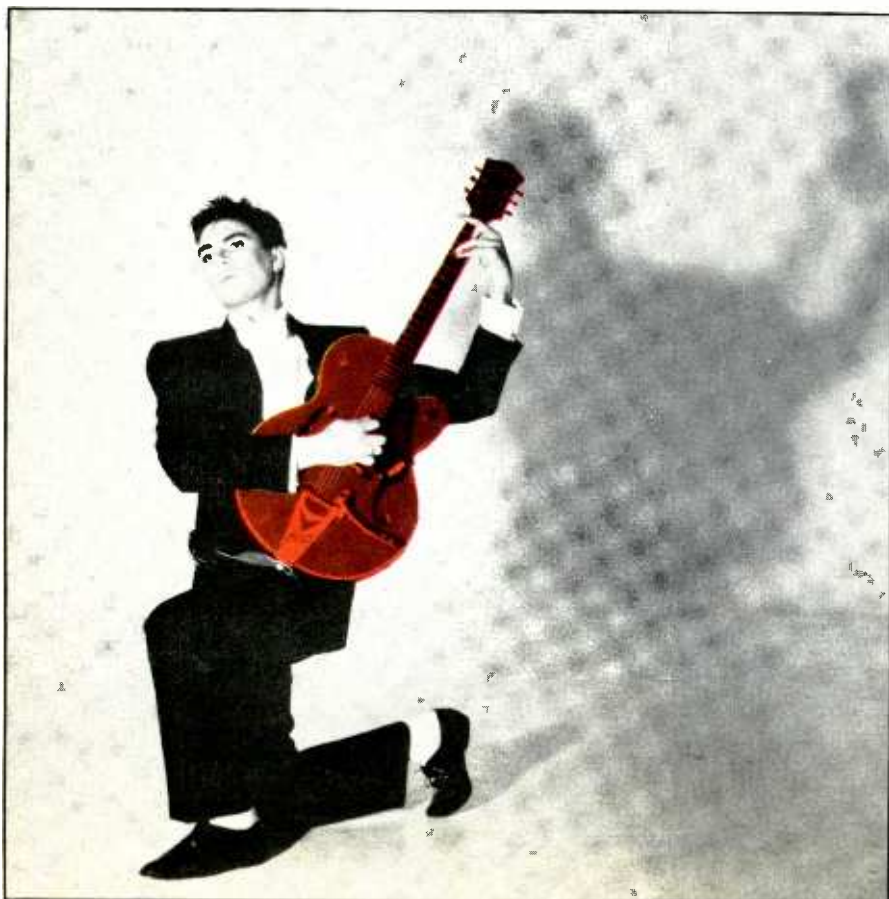


Photo by Norman Parkinson



with Frank Sinatra. I sample bits of cellar tapes and people hitting big plastic bottles. We've used samples for everything and added them to drums, vocal effects. There is a hell of a lot of sampling.

**MR&M:** How did you recruit some of the musicians you're using on the album?

**SLB:** Phoned up their managers! No, really, we chose David Gilmour because he is just one of the world's greatest guitarists and the three of us agreed to it. We picked Carlos Alamar because we felt he had something that could add to the album. Andy Mackay, to us, is a bit of a legend in his own lunchtime anyway, so we really wanted to have him on the record.

**NR:** Most of the musicians on the album are people that we've always respected. Mark Egan was actually Alex's choice. We said we wanted somebody who could play really good fretless bass and was a bit more avant garde and maybe rooted in jazz, so he picked Mark Egan. He's played with all sorts of people from Miles Davis to Gil Evans and he's really quite incredible.

**MR&M:** How about Masami?

**NR:** I chose Masami.

**MR&M:** Do you have an interest in Japanese music?

**NR:** Yeah, I had a lot of Masami solo albums that he'd done a long time ago. I just always thought he did really interesting things, particularly if it was this sort of Eastern thing set off against more Western music. He worked out great. We used him very early on with Mark and percussionist David Van Tiegham. David has worked with people like Laurie Anderson. His percussion rack is just incredible. It consists of bottles and little kiddie's toys and he's even got a vibrator in there. It's quite amazing.

**RT:** When you've worked with the same people for five or six years, you start to wonder what it would be like to play with a different bass player or a different guitarist. It's the same with Power Station. I think they had to go out and discover what it was like to play with different people. It's being in a position to pick whatever musician you want to work with. I think it has broadened our minds a lot.

**MR&M:** Roger, was there any musician that you worked with more closely?

**RT:** I think Mark Egan was the closest. He actually participated in



Photo by Teri Munt

**Acardia's Nick Rhodes (l.) and Simon Le Bon (r.) at Soundworks Studios.**

some of the songwriting in a way because some of the bass lines were so melodic and important to the songs. David Van Tiegham was important as well.

**MR&M:** What musicians have had an influence on your careers?

**RT:** I think Tony Thompson is probably one. From the days when he used to play with Chic, he was always one of my favorite drummers. Andy Newmark is another. He's played on the Roxy Music albums. He's sort of the subtle end of drumming, whereas Tony's the very strong, powerful end.

**SLB:** For me, there's a list the whole length of my arm. Lyrically—Patti Smith, Jim Morrison, Peter Gabriel, even people like Leonard Cohen. Lyrically you tend to get influenced by very strange things—not just songs, even poetry...T.S. Eliot, Shakespeare—even that kind of thing influences me.

We're not influenced by anyone while we're making the album, however. We concentrate on what we're doing and try to get it to sound original. I came out of the studio and I was very surprised at what was going on, especially being in France as well. The music is so different. We went to a club one night and they were playing loads of Suzi Quatro and things like Devil Gate Drive. It was really odd.

**MR&M:** Can you describe the atmosphere while recording this album? Did it differ greatly from the atmosphere of a Duran Duran recording session?

**NR:** There's something about Duran ones that are always sort of

tense. But a nice tension, not like a bad vibe. Everybody's really aware and sharp generally, whereas the Arcadia ones have been actually a lot more relaxed, a bit more slow, but in some ways they've been more delicate.

**RT:** I don't want to take anything away from Duran, but there has always been this thing where we've been going into the studio with a lot to live up to. It's like, Duran has got to be better than the last album: it's got to sell more copies or as many. Whereas with the individual things, we've had nothing to live up to. We've been completely open minded about everything. There's no pressure because it's an outside project. If it's successful, it's successful. If it's not, it's not. We've all got the Duran thing to come back to, which hopefully will be successful for a few years to come. The relaxed vibe has been good for the music.

**MR&M:** Did you use a more free-style approach to recording this album?

**NR:** Duran's never been that heavily formatted, we are just somehow lucky with how it all falls together. If you heard the first time we try to write a song together, you wouldn't believe it. Even now, the noise that comes out is just unbearable. But suddenly after a few hours it starts. Somebody catches on to something else and it's like a jigsaw trying to fit the pieces in. It all just works somehow. With "Wildboys," we wrote two songs, one which we haven't released yet which is called "Don't Look Back." That was the one we were going to release as the single and it's so different from

"Wildboys" you wouldn't believe it. That's what we started writing, and suddenly in the last three hours of the set time we had, we started to write "Wildboys," and that was it.

**MR&M:** Why did you choose to record at Studio de la Grande d'Arnée?

**SLB:** Because we like Paris and I wanted to improve my French!

**RT:** Actually, we had to spend a year out of England for tax reasons. Paris was the nearest and most obvious place.

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

**RT:** Obviously, Alex has to be happy with all the equipment, but it's always down to us in the end. We have to be happy with the vibe of the place and the situation.

**MR&M:** You recorded *Seven And The Ragged Tiger* in Montserrat and didn't care for the atmosphere too much. Nick was even quoted as saying that he gets inspired by people, not palm trees.

**RT:** Yes, I think we've learned from our mistakes. I think it's quite unrealistic to just go off to a desert island somewhere and become inspired. For some people it works. The Police always do that. For us it just didn't work because we always need constant feedback. We like to have people come in the studio and ask them what they think and get honest opinions. When you're secluded and the only people around are natives who haven't heard any of our sort of music, it's very hard to get that feedback. It's good to get around to clubs and hear what the latest good dance records are. I think from now on we'll always record in cities.

**MR&M:** Do you plan on releasing a video for this album?

**NR:** We'll be doing a video when the music's finished. That's the most important thing, but we're trying to keep everything based around the project very modern and very new. I'm hoping to have a totally new approach to videos. I think they're getting so sterile. If I see one more man spitting fire or running up and down beaches with top hats...

**MR&M:** Will this video be like your previous videos for Duran Duran?

**SLB:** I'm not totally sure. We may go minimalist on it because it may be time for a change. Certainly we're not going to come up with another Duran video for this stuff.

**NR:** We've always been a step



Photo by Norman Parkinson

ahead with the Duran videos, but I think we need to keep doing that. It's probably going to be quite cinematic but in a more delicate way, rather than brazen fireworks with an overlit set.

**RT:** I think it'll be a lot more simplistic, it may be a lot more atmospheric if you like, creating the visual atmosphere to go with the music. It *won't* be that constant chopping and editing, throwing in all those images.

**MR&M:** Do you feel videos play a big part in the success of an album?

**RT:** It's become that way because of MTV obviously. I think America is probably the only place where it's so important. In England it's not really that important. Radio is basically the main thing in England that breaks a record. There is one major radio station called *Radio One* and if you get on that, it means you've got a hit record nationwide. Here there are millions of stations. There's one TV program in England called *Top of the Pops*, and if you get on that—they usually don't show a video, you go and perform—then you've got a hit record everywhere. So videos aren't really that important. You very rarely ever see a video on TV in England. There are no twenty-four hour video stations.

**MR&M:** So you actually gear your videos toward the American audience.

**RT:** Yes, definitely. Apart from that, we find them quite interesting and a good artistic outlet. We can play at being film directors for a few weeks of the year, so we find it fun. I think it's quite disturbing that it has become such a big part of music, especially in America. Personally, I listen to a record and if the record inspires me, I get my own mental ideas of what the song is about. My imagination starts running away with me. Then I'll see the video for it on MTV and no matter how good the video is, I'm always slightly disappointed. It just doesn't live up to your imagination half the time. I think they're trying to get too many ideas across, giving you *too much* rather than just suggesting things.

**MR&M:** If the album is successful, do you plan on doing a tour?

**SLB:** I think if it's not successful we'd be more likely to tour, to give it a kick in the backside. We wouldn't do a Power Station type tour, seventy cities all over the US. That would be very unrealistic.

**NR:** I think we'll be starting Duran before the end of the year, but if we have a chance, then I'd love to do a few dates.



**RT:** I think we'd go for smaller crowds. I think it's better to do smaller venues and lock a few people out rather than do big ones and have them half empty.

**MR&M:** Do you think people will be comparing this project to Power Station or Duran Duran?

**SLB:** Well, I'm sure they'll compare us to Duran Duran because it's quite comparable soundwise. I'm singing on it. I'm sure that we will be set up in competition with Power Station. It's a very personal thing—it's like taking two friends and setting them up against each other. It could, were we not very strong people, be a potentially quite dangerous situation. We're strong enough to be able to cope with it, strong enough to be able to read what we see in the press and take it with a pinch of salt. We know ourselves better, so we should be okay.

**RT:** Every question you get in interviews asks how we think this album stands up in comparison with Duran or Power Station. We didn't do it to compete with them. Duran's got enough competition as it is without giving ourselves competition.

**NR:** I don't compare them and that's what really matters. They'll have a job comparing us to Power Station because it really is totally the opposite thing. You'd never think we were in the same group, which is great! I think that's what makes Duran work, polar opposites which come together to form something very special. I think both these projects will end up being great. Power Station really wanted to do this very heavy dance music and we wanted to do something a lot more atmospheric. I think we've both succeeded.

**MR&M:** So actually this project is really a way for you to get your own musical influences across, without being too concerned with its overall success.

**NR:** I'm concerned with the success of it. When you make a record, I think it's very important that it communicates with people and that people like it. I mean I don't believe in the ultimate self-indulgence just for the sake of it. At the same time, it's very easy for all these groups to make all these terribly obscure albums. To me, I think that could be done in three days. I think it's very easy to write a straightforward sickly pop song that's really vile and it's quite likely to be a number one hit. I think the art of it is to

try and combine something which does relate to people, but also make it new and interesting and put a lot of different things in it that people haven't heard before. We never know with anything we do whether it's going to be successful. Somebody turned around to me the other day and said, "With Duran Duran you know when you release a single it's going to be in the top five every time," which is a lot of rubbish. I never know. Okay, we've had a certain amount of success, but it's true with "Wildboys" I hadn't a clue as to what was going to happen. With "The Reflex," the record company in America didn't even want us to release it, they thought it was much too obscure to put out as a single. They wanted to release "Save a Prayer" from the album before, which is silly. "Reflex" was our first number one here, so you never really know. They were convinced that it might not even chart, but we had confidence in it. I think it's very much the same with this whole project.

**MR&M:** When do you plan on going into the studio with Duran Duran?

**RT:** There's no set date. People still have things inside them that they

It's the same thing with Andy. When Andy put the guitar on "View To A Kill," I was so shocked. I had this vision that it was going to be quite a rhythmic thing and then he put down something that was a cross between powerful guitar and rhythm guitar. It sounded great.

Usually, I'm heavily involved in sorting the whole thing out in the first place. Andy and I then try to give each other enough space to move in. Andy usually puts his parts down before me unless there's a sequence or electronic pulse that Roger can play to. After that, Andy puts down his guitar and then I put down the synthesizers. Then he often ends up redoing his guitar and I end up redoing my synthesizers if it's too much or not balanced.

**MR&M:** What do you expect to come out of this project?

**NR:** I hope that people like it. I know that I'm going to be very happy with it which I guess is the most important thing. I think it's broken quite a lot of new ground which is sort of exciting. When this is finished, I'll be excited to start the new Duran Duran album. I'm already thinking about it and it'll be interesting to see what the five of us do together

***I think it's very easy to write a straightforward sickly pop song that's really vile and it's quite likely to be a number one hit.*** **NR**

want to go and do. Andy, I think, is probably interested in doing some soundtrack work. He'll feel stifled if he's forced back in the studio with Duran and he still hasn't done what he's got to do. So basically it's when everything is out of our systems.

**MR&M:** Do you think Duran Duran will stick to the same format now that its members have expanded in two totally different directions?

**NR:** It's very hard to say what anything will sound like. To me, "The Reflex," "Wildboys," and "View To A Kill" all sound totally different. Maybe some people think they sound similar. I'm not really sure what sort of sound it will be. We never quite know until the five of us are in a room. It even happens when we're in the studio. When we write a song, nobody ever knows what I'm going to put down, *ever*. They wait and then have to see.

after these separate things.

**SLB:** I hope it (Arcadia) will get through to people, I hope it will make some impact. I don't see it as competition to Duran Duran but I certainly think it is, in a personal way, as important. It's obviously not my bread and butter, I don't expect it to be as successful as Duran Duran has been in the past. It would be nice if it was.

**MR&M:** Do you still feel that Duran Duran is your first priority?

**RT:** Definitely. I think it's everybody's priority.

**NR:** Of course. It's a very special group and I think we've got a long way to go yet.

**SLB:** I guess. It doesn't come before *everything* else. I mean this personal project comes before Duran Duran. It *has* to. There comes a point when you certainly don't want to become a martyr to the music business.

## Alex On Arcadia

Alex Sadkin is the perfect producer to draw out the remaining untapped talents of Arcadia, which is Duran Duran's Simon Le Bon (lead singer), Nick Rhodes (keyboards) and Roger Taylor (drums). Instead of planting ideas in the young musicians' heads, this producer hears them out *first*. "A lot of times I think I gave them ideas that sort of set up their own ideas so it's just like a back and forth type process," Alex explains.

"You have to feed something to them first. But if they do come in with an idea cold, then I've got to indicate to them which way I feel it will work... and it will bounce right back off of that," Alex adds. "What I like to do is let somebody have *their* shot first and then I give them feedback on what I think about it. I don't just say, 'I think you should play this synth part here.' I like to see what they could come up with *before* I give my opinion."

Sadkin is a veteran producer who has worked with the likes of Foreigner (Agent Provocateur), The Thompson Twins, Grace Jones and The Talking Heads. In the past few months he has been involved in a "never ending" mix for the Arcadia project.

The original recording for their debut LP, "So Red The Rose," was done in Paris at Studio de la Grande d'Arnee and the mixing began in New York at the Power Station Recording Studio. All recording and mixing is being done on SSL consoles and 3M digital multitrack recorders in the various studios involved.

After some time the mixing was moved to Soundworks Studios (also in New York) which was one of the few places in New York granting a lockout that had the equipment required. "Well, we couldn't get a lockout or enough time at the Power Station so we were making such slow progress. Each day it took us so much time to set up and get back to where we were the night before. Some days we were actually behind the previous day's work and it didn't even pay to work," Alex explains.

Working with engineers Larry



Alex Sadkin (producer) and Ron Saint Germain (engineer) at Soundworks Studios in New York.

Photo by Cheryl Lynne

Alexander and Ron Saint Germain, Alex says he does like digital recording, and, though there are some problems, he is beginning to like it more and more. "There were a few problems; mysterious noises would appear and disappear, and sometimes they would appear and then *not* disappear! And we also had a problem when the tape got scrunched, but it was right before the beginning of a song so we were lucky," Alex recalls.

For the drum mic'ing most of the mics were slightly off-axis, using a close-mic'ing technique. "The studio in Paris was really dead, so one time we had to put plywood all over the walls to make the room sound really live," Alex laughs. Most of Roger Taylor's drum sounds on the album are analog drums with a small amount of digital percussion from a Linndrum. "With Roger, we demoed the songs with the Linndrum to get the feel and work out the chords. Then Simon would sing and Nick would lay down his synth track. Roger then went back and played his drum part using the high-hat of the Linndrum as a click track. And at the same time we layed down the rhythm tracks. This gave us some digital percussion. Some of that stuff actu-

ally remained and ended up on the record... As for outboard gear, we rely heavily on the AMS and the Lexicon."

With all the guests appearing on the record (David Gilmour, Masami, David Van Teigham, Steve Jordan, Mark Egan, Andy MacKay, Grace Jones and others), you would think there would be some problems with each setup. Alex found no problem since they simply went for a live feel with each of the tracks to keep a sort of spontaneity.

Japanese guitarist Masami "created an incredible atmosphere with imagery and strange sounds he got using the Roland GR-700 guitar synthesizer." Another guest on the record, drummer David Van Teigham—who has drummed with Laurie Anderson—has "an unusual broken style that you could never dance to."

Future plans for Alex Sadkin include setting up his own production company based in both New York and London, which he feels are the two most important cities for recording music. According to Alex, "The music scenes in those two cities are great. You go out to a club, and there is some great music being done every night. It's very inspiring."



# Jazz Producer Helen Keane



Photo by Susan Borey

**F**ive times Grammy winner Helen Keane is not only the most successful female record producer in jazz—she has been a trailblazer in every phase of her career in the entertainment industry. At age nineteen, Helen became the first female talent agent at MCA. While there, she discovered Harry Belafonte and encouraged him to replace his pop repertoire with the folk songs that made him a star. After leaving MCA to join CBS television as Director of Variety Casting, Helen was responsible for bringing Carol Burnett, Jonathon Winters, Dom DeLuise, Artie Johnson, and George Gobel into the limelight. Helen left CBS after seven busy years to open a home-based personal management agency. Her agency flourished, thanks at first to dance clients such as Alvin Ailey, and it was during this formative period that she met jazz pianist Bill Evans. Her success as his personal manager, and later as his producer, attracted a distinguished group of artists seeking to benefit from her considerable talents as a manager or producer or both to Helen.

Among the artists she has produced are Tony Bennett, Joanne Brackeen, Joao Gilberto, Chuck Wayne, Joe Puma, Mark Murphy, Clark Terry, Steve Kuhn, Morgana King, Philly Joe Jones, Kenny Burrell, Paquito D’Rivera, Keith McDonald, Adam Makowicz, and the all-woman jazz quintet, Alive.

In the middle of producing an album with Paquito D’Rivera, Helen took time out from her very busy schedule to share her insights into and opinions on the production process, the special attributes of jazz, and the unique challenges of being a woman in the recording industry.

**Modern Recording & Music:** How did you become a producer?

**Helen Keane:** I managed Bill Evans for eighteen years, and when he was signed to Verve Records in the early 60s, Creed Taylor [who went on to start CTI Records] was his producer. I naturally attended the sessions as Bill’s manager. This was not my first experience in a recording studio. I had been involved with recording artists on and off for many years, and what I learned after Creed Taylor became my mentor was that I had been producing records long before I officially became a producer. It seemed to be sort of a natural extension of my duties as Bill Evans’ manager, simply because the manager knows a great deal about what the artist plays, how the artist plays, how the artist thinks. To me it’s a natural extension of the job of managing to be the producer. Early on, Creed began asking me questions like “Do you like that tune?,” “Did you like that take?,” “What did you think of that bass solo?,” “Is that a good piano solo?,” and as we progressed he said, “You’re producing. You’re a producer. This is what a producer does,” and he relied on me more and more—very openly. He even began to come to sessions late and would call up and say, “Go ahead; you start without me.” I wasn’t getting credit as a producer, I certainly wasn’t getting paid for it, but when he was ready to leave Verve to go to A&M Records (that’s before he started his own label), he called me up and he said, “Look, I’m going to get you a contract as Bill’s producer with MGM, because I’m leaving, and when I make it official, I will open the door for you and just explain that you have really been producing with me for the last two years at least.” So that’s how it happened, how I *officially* became a producer.

**MR&M:** Did you have musical training?

**HK:** As a child I had the typical musical training: I played piano, and I did a lot of choral singing. I took piano lessons for a few years. I was not talented at all, but I did learn a lot about music.

**MR&M:** Has your classical training helped you produce jazz? Do you see a closer link between those two genres than between rock and jazz?

**HK:** There’s a closer link in terms of the creativity involved. It takes much more talent to be a great jazz or classical musician than it does to be a great rock musician. That’s why we equate jazz with classical music. It’s much harder to play. There’s no similarity in the music, although jazz

**MR&M:** Do you take part in the arranging of tunes?

**HK:** No, I do not do the arranging.

**MR&M:** So the artists bring in tunes already arranged. Is there a lot of leeway in the studio as far as changing the arrangement?

**HK:** That’s what jazz is. You change a lot of things on the date. It’s very possible to change an arrangement completely on the date. It’s also possible to change a lot of things in the mixing. You can drop certain instruments when you don’t want them and bring them back when you do want them, which is changing the arrangement. We did that today on two of the tunes. But Paquito [D’Rivera] runs that part of it. If I disagree, we’ll go over it again and



**The truly great musician isn't arrogant. They have temperament, in the healthiest way, and they're very humble people.**



is improvisational and classical music was originally improvisational.

**MR&M:** What do you think of Wynton Marsalis’ crusade to orient jazz lovers with classical music?

**HK:** There’s nothing new about what Wynton Marsalis is doing. He’s just getting a lot more publicity. He makes it seem as though he discovered it. He didn’t. Keith Jarrett has performed with symphonies for years. So did Chick. So did Bill. So did Kenny.

**MR&M:** How do you prepare for producing an artist?

**HK:** I’ll give you an example—Adam Makowicz, the well known Polish pianist. I produced his last album. I spent an afternoon in his apartment, with Adam, the guitarist, the bass player, and the drummer, listening to the material, taking notes, asking questions so I could familiarize myself with it. I did not ask for tapes. I don’t do that. I spent three or four hours there that day getting it into my consciousness so that when I walked in to do the date I was familiar in my musical mind with what was going to happen.

I’ll say, “Well, I don’t think you should have dropped the piano there; let’s try and leave it in; let’s try it both ways.” He was right, absolutely right. I agreed immediately today, taking the piano out at the beginning of a few of the solos. So that’s rearranging, isn’t it? But you see, the musician, the leader of the date—in this case Paquito—the leader is in charge in terms of the music for the most part. I get involved if I hear something that I think should sound another way; then we discuss it. But mostly the musical arrangements are handled by the leader. And in this case our pianist did one of the string arrangements, and he composed one of the tunes. Very often in Paquito’s case he won’t do all the arranging; if he feels that there’s someone else who has a strength he lacks, that person will do the arrangement of that tune.

**MR&M:** After you’ve familiarized yourself with the material, is there a procedure that you loosely follow during the session as far as which parts you lay on at one time, or would you rather try to record many things at once?



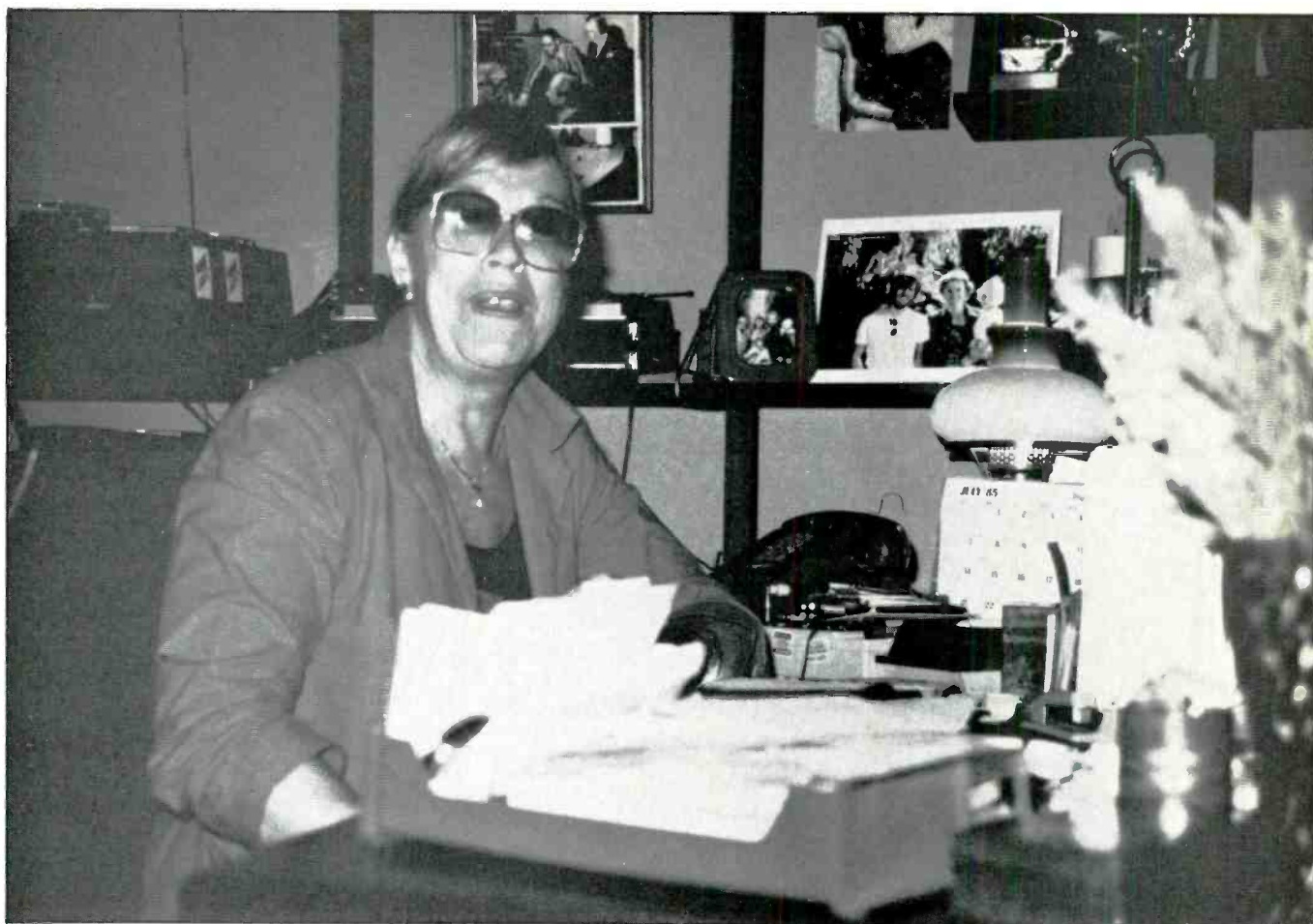


Photo by Susan Borey

**HK:** Well, this is the difference between jazz and rock 'n' roll. We do almost everything simultaneously. We put the strings on afterward on this date, but I have been on many string dates when it was all done at the same time. Sixty-six musicians all playing at the same time, all being recorded at the same time. The miracle of modern technology is marvelous, but the pop world has had to use it, because they can't do it any other way. In jazz we don't have to do it that way: they can play the *whole thing*. It was easier in terms of filling up the room to put the strings on later, physically easier to do it later. Actually, that is the only reason they were done later. Pop people just can't imagine recording being done that way, and I said to Ron Saint Germain, my engineer, the other day, "I wanna see some pop musicians—not the big stars, but the middle line rock 'n' rollers, who think they are the greatest in the world—come and sit in on a jazz date." We did this album in four days. We mixed it in three.

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And it's finished, and it has strings, and it's big.

**MR&M:** How much do you find yourself working with synthesizers?

**HK:** Quite a bit, but only for effects, only for texture, only for embellishment, only for a cushion here and there or little overlay. It's not the major voice at all, and we work it in so that you almost can't hear it. It just fattens the sound. We use the DX7, which is a wonderful instrument.

**MR&M:** Do you have any thoughts about the use of synthesizers today in contemporary music?

**HK:** No, I think they're wonderful. I think they should be used. I think they certainly don't replace a string section. They certainly don't replace brass. They don't really take the place of the live sound. They really and truly don't, or we wouldn't have had a roomful of string players, if we could—in our hearts—use a synthesizer and say, "That sounds just like strings." It doesn't. Certainly it's been a godsend to the pop world. It

has helped us a little; we take advantage of the technology, but the pop world has been saved by synthesizers, by electronics generally. I know I sound very cynical. I have no bitterness about the fact that those people make a lot of money. Tennis players make too much money. Get it if you can, is my motto, but I do get upset when I see great artists work the way the musicians worked the last two weeks on this date, and turn out a jewel of a recording in this length of time, and then have the record company pressure me because I might be going over budget. That makes me angry, because I know what pop people do. I don't know if you do.

**MR&M:** Spend months and hundreds of thousands of dollars.

**HK:** The lack of professionalism is what I think bothers me. The lack of real musical ability and the notion that it's there when it really isn't. And the arrogance about it, that bothers me. The truly great musician

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isn't arrogant. They have temperament, in the healthiest way, and they're very humble people.

**MR&M:** For you, what does pre-production entail?

**HK:** Getting the levels, talking things over with the musicians. We don't rehearse there, but we have to run it a few times so the engineer can get the balance. The engineer takes about an hour and a half to get ready.

**MR&M:** Are you very much into the technology of recording, or do you rely on your engineer for the mechanics of technology?

**HK:** I rely on him tremendously, because I am not interested in getting totally into the technology. I keep up on every new thing, and I know what it is and what it can do. But you see, with this kind of music, you don't resort to much of that at all. We didn't use any of that this time. It was the pure music, not one gimmick was used. It was done just the way it should have been done. Nobody was out of tune...

**MR&M:** Do you feel that you influence the direction of the music you produce, or is your presence more transparent?

**HK:** Both, if that's possible. I'm an influence in that I think I make the musicians feel very good about what they're doing, and it's very important for a producer to be able to produce an atmosphere of high relaxation, of extreme productivity in a very relaxed way. It's a very subtle thing, and I learned that with Bill [Evans].

I've noticed that the people I work with all of the time, that's Kenny [Burrell], Art [Farmer], and Paquito, will turn to me and ask how I like a solo. That's a very good feeling, to be shown that kind of respect.

**MR&M:** What do you find to be the most difficult aspect of producing?

**HK:** The most tedious is when you get tired during the mixing. As you feel more tired, you have to really work at listening. That never happens when you're recording because there's so much going on. You can go twelve hours and not even notice it. Of course, I have to watch the clock because of the budget. Let me say that *that's* the thing I like the least. I don't find any real difficulties anymore.

**MR&M:** Do you prefer using digital recording techniques, or analog?

**HK:** I love digital, it's noiseless, for sure.

**MR&M:** How do you feel about the quality of the record-making process

once you let the tape out of your hands?

**HK:** I go right through to the mastering session, and reject test pressings like crazy.

Elektra has the worst pressing plant in the world, that I've ever heard. I mean, it was unbelievable, on the last two Bill Evans albums, that both times I had to force them to change plants. It's very exposed

**HK:** I was lucky. I had an executive position with the largest talent agency in the world when I was nineteen, and I was the only woman agent. You can imagine how I was spoiled. The only thing I didn't get was the pay to go with the so-called lofty position I held.

When I finally officially became a record producer, I was surprised to find that I was the only woman. That



**Outside of the classical music pressing plants, nobody does the job properly anymore. With pop it doesn't matter, because it's such a smear of sound you can't hear all the surface noise and distortion.**



music—acoustic piano, acoustic bass, and drums. It's got to be quiet. With the first Kenny Burrell album for Blue Note, they didn't even send me a test pressing, and of course I had to be just evil, because they almost had it out and had to pull it back. The noise was just unbelievable!

I really think there are people who are hearing impaired in quality control in these record companies. These people have hearing damage from all the noise and they don't even hear it any more. They don't hear all that bacon frying.

**MR&M:** What can be done about this serious problem?

**HK:** Digital recording, compact discs. That's the only solution. I just hope the stuff doesn't get too dry. Outside of the classical music pressing plants, nobody does the job properly anymore. With pop it doesn't matter, because it's such a smear of sound you can't hear all the surface noise and distortion.

**MR&M:** Has being a woman posed many problems in your career?

was twenty years ago, and I am still almost the only one in jazz. In the entire industry, there are only seven or eight, and I think it's a shame. I think part of it has been the fault of the record companies. They have never encouraged women to get into this field. They just don't put women in control rooms.

On the date with Paquito, assisting Ron Saint Germain at Right Track was Moira Marquis, and assisting her was Debby Cornish. I had two women with me, and it was a thrill. So that's where the breakthrough is. The big record companies are not opening it up, but the recording studios are, and I'm very happy about it.

I think some women are remiss. Women who get to be product managers in the big companies, or who get in the A & R departments should push harder. Take a course. Sit in on someone else's session. Knock on the door of the boss and say "I can do it. Let me do it." Of course, they'll have to knock awfully hard.



# Richard Beggs

n. pasquariello

## Sounds Off On The Cotton Club



Sound designer, Richard Beggs, holds the distinction of having worked with film director, Francis Coppola, longer than any current member of the legendary Zoetrope filmmaking team. Their association began in the 1970s on the massive *Apocalypse Now* production. At the time Beggs was busy recording audition tapes for nascent San Francisco rock bands (coincidentally, in his recording studio in the basement of the Coppola's Zoetrope company building).

By the early 1980s, the working relationship proved mutually rewarding enough for Richard Beggs to come on as Coppola's regular Sound Designer. Since that time he has worked in that post-production capacity on every Francis Coppola directed feature film; usually doubling as Re-recording mixer, as well.

In addition, he has been re-recording mixer on seven other generally more conventional theatrical features with other directors. Most recently Beggs has been doing the sound design and the mixing of Coppola's first cable television show: *Rip Van Winkle* for HBO's *Faerie Tale Theater*. This marks Beggs first assignment using only video (no film) sound materials, a characteristic of a craftsman always open to exploring new technological territory.

As part of the Coppola/Zoetrope post production team, Beggs helped implement a number of Coppola innovations in the use of feature film sound production. These include: use of 2-inch 24-track video technology in the sound mixing process and an automated sound mixing board. (Both innovations were introduced in 1977 on *Apocalypse Now*.)

The Coppola/Zoetrope team is vaguely known in the film industry for being an innovative—sometimes “crazy-bunch” for their willingness to take risks. Perhaps, because of this, general recognition of their contributions to making the job of the filmmaker an easier, less costly one, has been slow to come. Indeed, a recent editorial piece in the industry bible, *Variety*, compared Coppola to Lee De Forest (inventor of television) who, in his lifetime, never received recognition for his contributions to communications technology nor society at large. It would be nice to think that this interview might help set the record straight about the Coppola team’s efforts to modernize an industry all too prone to technological lethargy. (Because of Richard Beggs’ unique relationship to director, Francis Coppola, the interview that follows tends to concentrate on their work together.)

**Modern Recording & Music:** Can you give me some examples of creative interaction between you and Coppola on *Cotton Club*?

**Richard Beggs:** He basically leaves me alone. I pretty much work by myself. We talk initially about some directions or concepts or feelings and then I come up with a group of ideas and rough them in. We’ll have a screening, he’ll make a few notes and say: ‘Yes, no, maybe.’ I will work on that information. Sometimes, we will disagree but we invariably resolve the problem by mutual agreement.

**MR&M:** What was your greatest challenge while working on *Cotton Club*?

**RB:** The fundamental mixing problem on *Cotton Club* was the music/dialogue issue; how to play it [the club sequences] successfully. We were faced with a difficult problem because the actors didn’t loop their lines as if they were in a noisy environment.

**MR&M:** Is that because of a mistake in shooting?

**RB:** No. It’s because of extremely complicated production techniques. It’s a trade off between artistic

intent, technical requirements and limitations, and good craftsmanship.

When the lines were originally performed the background sounds (band, crowds, etc.) were relatively low, not at all what you would expect in a loud night club, so the actors tended not to project. The loops were performed similarly. Francis was also striving for a certain quality of performance. Performance is the primary goal. Technical or craft issues fall into place to support the performance.

How can you have crowds and blaring music at peak level and still have this dialogue remain intelligible? It’s very difficult. So, the actors act in an environment that will be quite different on the screen. You would have to say to them: “OK, you have to speak loudly because you’re in a loud club.” It’s hard to get them to do it and be natural so it’s let it go to be solved later in post.

It’s hard to explain. But when it’s costing \$75,000 a day in just extras, it’s hard to ask somebody: “Could you do a take where it looks like you’re talking a little louder?” Nobody wants to hear about it.

Ninety-nine percent of this movie is looped. Almost everything you hear with the exception of three or four scenes is looped.

**MR&M:** Well, doesn’t that solve the problem relating to the background sound in the nightclub scenes?

**RB:** No, it doesn’t, because theaters duplicate their original performance unless Francis wants the performance to change. This was the big problem in *Rumblefish*. Michael Rourke spoke in a virtual whisper, *soto voce*, voice almost all the time even if you were at the other end of the block.

*Cotton Club*’s problems were similar, if not so severe. Whispers and *soto voce* are always a problem especially in loud environments. People speak in your ear or very close if they want to communicate this way. You can’t do that in the theater. You have to lower the background or make the whisper very loud. Loudness doesn’t help that much though. *Soto voce* and whispers are all bottom and top. There’s no middle, no middle range to grab and punch through. The whisper can be at peak modulation, but imbedded in a loud background it cannot be heard. Whereas a normal voice at moderate level can be easily distinguished. Loudness does not equal intelligibility.

The looping on *Cotton Club* was

pretty good. We didn’t have the problems that we had on *Rumblefish*, but the *soto voce* performance is still there and you can only distort the performance so far in terms of the audience’s credibility. They have to hear the dialogue. You can only make the dialogue so loud and still have it be natural. Then you say: ‘Now we have to pull the music back. But where do we lose the feeling of the scene that they’re in? How important is that compared to the strain the audience experiences attempting to follow the dialogue?’

Looping takes care of a lot of problems in terms of being able to control acoustical relationships. If you used production (sound only) you wouldn’t have any choice, you’d have to take what you’ve got. In a musical, that’s next to impossible.

**MR&M:** One of the big problems is that when the actors are talking in the nightclub scenes, they can’t appear to be talking substantially louder than they were in fact because it is a matter of visual expression, facial expression.

**RB:** When you talk louder your face looks different than when you are talking softer. So you [the sound mixer] go as loud as you can and still get away with it. Now, these things become very obvious when you go to a poorly crafted movie because they have neither the budget nor the inclination to do otherwise. The concerns are very different.

It’s more or less incumbent on Francis in a picture of this scale that it be crafted at a very high level. Francis cannot get away with production techniques that are used on “B” or “C” pictures. You can go to one of those movies and things can really be out of control. You don’t really care; that’s not what you’re there for.

As it is we take liberties. Francis cheats a lot of lines. The actors will be saying one thing in reality but he has them say something completely different on screen. If you look closely you’ll see that their lips don’t match the words. In looping, sometimes the actor never really gets it quite right and the editor cannot make the “S” short enough so the “S” closes when the mouth closes. The “S” may extend beyond the lip movement or be cut unnaturally short. It’s called bad synch. Francis will have Gwen Verdon say in reality: “Oh, there’s Owney Madden. I used to know him years ago on Broadway.” He decides for plot points he would rather have her say: “Oh, there’s Owney Madden.



I wonder what he's up to tonight." He [Francis] wants it and you put it in even though her mouth is doing one thing and her voice is doing another. Francis will make those technical concessions for considerations of artistic importance.

**MR&M:** *Cotton Club* is a musical by the very fact that more than half of its screen time is dominated by musical action. Taking that as a given, do you know what was the conceptual framework which governed how *Cotton Club* was cut?

**RB:** There was much more music in it at one time; many more numbers. And one of the editorial big problems with the picture was balancing the desire to have as much music in these *Cotton Club* numbers as possible against the need to have a story line or a plot line that would keep the audience involved.

**MR&M:** Curiously enough, that's a classic problem in the musical film form.

**RB:** Oh, yeah. My feeling is that the problem of blending the music and the drama was very successfully solved: integrating the musical aspect into the story without having that 'Here-is-a-number' feeling. The scene that comes closest to being a number is the hoofers' club sequence with all the old guys. It's one of the favorite scenes and it's there because it's so lovable and it builds atmosphere. It's not necessary for the plot. It's not exposition. All of the other numbers are rationalized by the plot.

**MR&M:** I would like to get as clear a concept as possible of what you did on *Cotton Club*. For example, did this picture come to you with all the musical sequences already inserted in it...?

**RB:** The picture was cut and locked [to sound track] in New York City. It was brought to Napa [Coppola's post-production facility] for music pre-mix and final mix. Dialogue pre-mix was done at Lucasfilm. We screened and recut the picture four times as a result of exhibitor previews in Chicago, San Jose, Boston and Seattle.

On this picture I did less than on any other picture I've done, mainly because the picture was an East Coast picture. I wasn't even going to work on it. I was brought in very late. [By comparison]...on *Rumblefish* I worked very closely with Francis and the composer (Stewart Copeland) throughout the whole picture. In this case, the source music is a given—the stuff that's on screen, you're not going to move it, you can't change it, you

## Richard Beggs' Film Sound Credits

*Apolcalypse Now*\* (1979)—Re-recording mixer and synthesist, Academy Award for the former credit

*No Nukes* (1979)—Re-recording mixer

*Zulu Dawn* (1979)—Re-recording mixer

*The Island* (1980)—Re-recording mixer

*One From The Heart* (1981)—Sound Designer and Supervising Re-recording mixer

*The Outsiders* (1983)—Sound Designer and Supervising Re-recording mixer

*D.C. Cab* (1983)—Re-recording mixer

*Mike's Murder* (1983)—Re-recording mixer

*Rumblefish*\* (1983)—Sound Designer and Re-recording mixer

*Repo Man* (1984)—Re-recording mixer

*Ghostbusters* (1984)—Sound Designer

*Cotton Club*\* (1984)—Sound Designer and Supervising Re-recording mixer

*Dates indicate the years pictures were released in the US, asterisks (\*) mark pictures directed by Francis Coppola.*

can't take it out or move it unless the picture's lifted (read deleted) or moved.

Once again by comparison, I worked a lot with the music editor on *Cotton Club* (Norman Hollyn). Obviously on a picture like this he's very important. There was an incredible amount of preparation and sheer physical effort spent to organize a movie like this and to make sure that when it's all together the musicians we are seeing are playing in synch with the music we are hearing on the track. It sounds pretty basic but it's extremely difficult.

**MR&M:** Give me a better sense of time frame for the whole filmmaking process of *Cotton Club*?

**RB:** Pre-production began in July [1983]. Francis began working on the script when I was finishing *Rumblefish*. They began shooting (I think) in September [1983]. They broke for Christmas with some pick up shooting in January. February, March, April, and May were all editorial (picture cutting). Sound editorial began in June and July. I started working on this picture in July (1984).

My work with the sound editors consisted of a trip to New York where I discussed what we were after in building the sound track. I listened to some premixes back there to make sure they were coming along all right. Usually, I prefer to hire all the sound editors myself and put together my own team. This being a New York production I had nothing to do with hiring them.

**MR&M:** Francis is known as someone who has been involved in an endeavor to bring new technologies

into the use of filmmaking. To what extent do you think that his innovations or drive to innovate filmmaking have influenced the way you work?

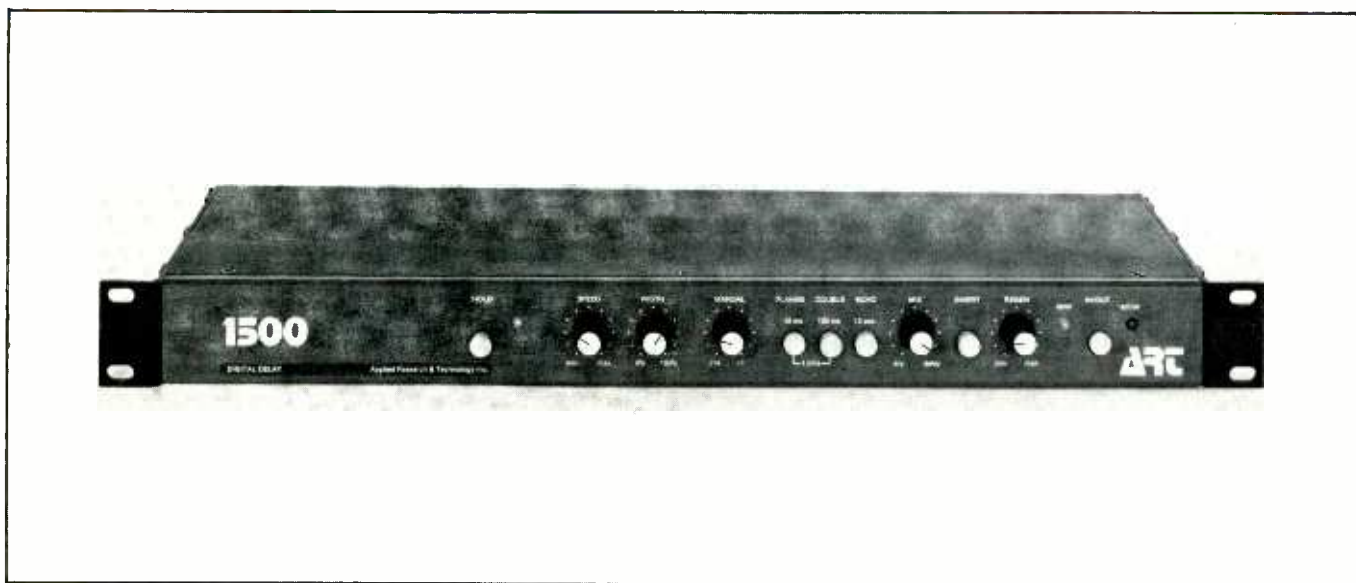
**RB:** Francis has given me *carte blanche*...his ideas are aesthetic and theoretical. They're not technical. When Beggs and Coppola first started working together in '79 he liked the way recording studios worked with 24-tracks and said: "Richard, can you work this way on a movie?" And I said: "Well, yeah, I don't know why not." And so we did it.

**MR&M:** Beggs had mentioned that Coppola used a video system on *Cotton Club* to make pre-cuts of scenes at the end of shooting days; a system he has used frequently on features shot in recent years. Did you see any of the video pre-cuts on *Cotton Club*, and did you use them in your work?

**RB:** Only in terms of looking at them and preparing myself for what was coming. This picture was very conventional and I really didn't do very much of that. For instance, on early stage and began building and manipulating sound on 24-track to those pictures well in advance of the final mix. And I would then take those pictures well in advance of the final mix. And I would then take those elements on 24-track into the final mix locked to picture and use them. I'd work essentially in a recording studio building all this stuff. On *Cotton Club* there wasn't the necessity or the need to do it. The picture just wasn't structured that way. The track didn't have those requirements. It could have been done that way, but it wasn't set up that way.

# Product Profile

## The ART Model 190 1500 ms Digital Delay



One effect that home recordists and musicians have been content to do without has been the digital delay. When you think of a digital delay or reverb system, you think of a unit priced way out of your budget (\$1,000 and up). This was true of units from years ago, but with today's new technologies the prices are way down. A good digital delay can be purchased for as low as \$500.

A good example of this is the Applied Research and Technology (ART) Model ART 190 1500 ms digital delay.

The 1500 is a rackmountable unit suitable for use in any unbalanced (high impedance) recording system—the input and output jacks are ¼-in.—or for live or studio use by guitarists

and bassists. There is a level switch on the rear of the unit to select between line level (+10 dBm) or instrument level (0 dBm) outputs.

This makes the unit useful for the home studio, and with the full bandwidth feature, it provides very high quality sound for home or even professional recordings.

### FRONT PANEL

#### IN/OUT Switch

This function can also be accomplished via the rear footswitch jack. There seems to be no audible effect to the unprocessed signal when the unit is being bypassed. There is also an LED indicator to indicate when the unit is in-line.

#### MIX Control

The mix control is a rotary pot that regulates the mix of dry/delayed signal at the output.

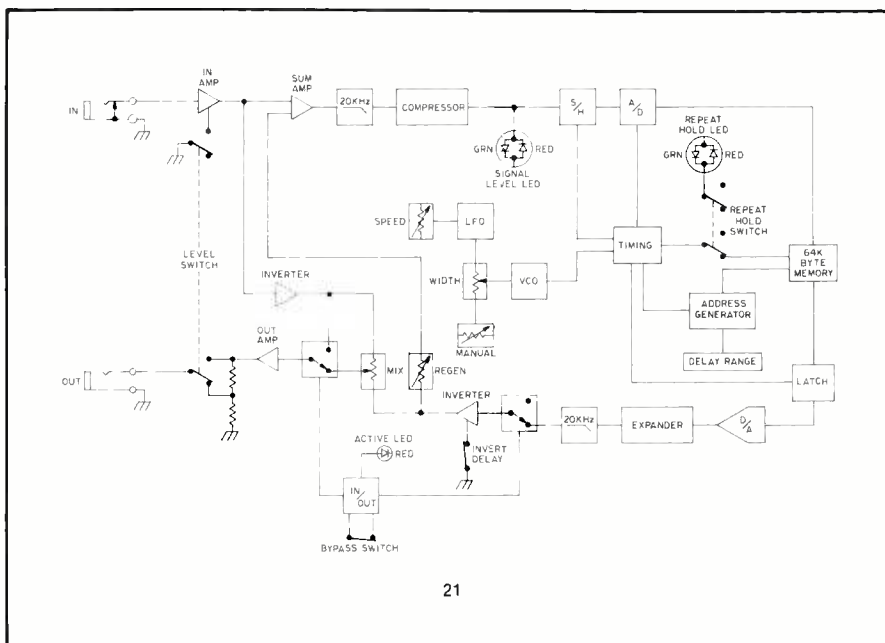
#### DELAY TIME Controls

The delay time controls consist of three pushbutton switches to select the time range. Switch ranges are 15 ms, 150 ms, and 1500 ms. A delay range of 1.5 ms is also available by depressing both the 15 ms and 150 ms range switches.

#### MANUAL Control

The above delay times are further variable by the manual pot. When the pot is fully clockwise, the control is at x 1 and the time will be that of the switch depressed. At the fully counterclockwise position, the range is





Block diagram of internal circuitry of the ART 1500.

one fourteenth that of the switch depressed. The control is continually variable between the two extremes, thus the unit has a delay range from 0.1 ms to 1500 ms, continuously variable.

#### WIDTH

The width control provides a function similar to varying the manual control back and forth. The sweep of delay can be as high as 10 to 1.

#### SPEED Control

The speed control determines how fast the above sweep will occur. The speed is adjustable from 0.1 Hz to 10 Hz (10 sweeps per second).

#### REGEN Control (regeneration)

The regeneration control serves different purposes depending on the delay range. In the 1.5 ms range (flange mode) the control acts as an intensity control. In the 150 ms range (chorusing, doubling and reverb) the control acts to adjust decay time for the signal. In the 1500 ms range (echo mode) it acts to control the number of repeats for the echo.

#### INVERT DELAY Switch

This pushbutton switch is useful in the flange mode as it inverts the phase of the delayed signal at the output.

#### REPEAT HOLD Switch

This is a pushbutton switch that can also be activated by a rear panel connected footswitch. By depressing this switch, any signal will continue to repeat indefinitely without any deterioration. You can also enter one musical passage onto another to create sound on sound effects. There

is also an LED to indicate when the hold is engaged.

#### USAGE

For stage use, one must be familiar with the settings required for a desired sound before hand, but a short list of settings made up during rehearsal will aid in adjusting the unit from one song to another.

The flexibility and superior sound quality of the unit make it perfect for any stage situation. One can obtain any type of flanging or chorusing effects, any type of reverb or any length of echo. The manual includes an applications section with examples of settings used for various effects.

With footswitches for the unit and a battery pack (not available) it becomes a good effect for use on the road since it is a fairly rugged unit in a steel chassis.

In the studio the unit lends itself to any type of use. Vocals may be doubled with the unit or a slapback echo can be used. The hold function is useful for a wide variety of effects, and can be very helpful during a 4- or 8-track mixdown to obtain the digital repeat effect that is currently popular on many dance records.

The hold feature also enables a primitive type of sampling. By depressing the hold switch after a sound is in the unit, one can play with the sound in a few ways. You can vary the pitch with the manual control and by using the width and speed, you can end up with a wide variety of unusual sounds.

With the mic input, various effects

can be added to the voice. Strictly by accident, I found the flange-type effect used at the beginning Prince's 1999. Playing with the unit will give you many different effects.

Feeding a guitar signal into the unit with the mix control set to effect—signal only will give you a more subtle idea of what the effects will sound like.

With the unit's full range frequency response (20 Hz-20 kHz) it can be used with virtually any instrument in the studio. Any contemporary sounds can be added to your drum tracks with the unit and vocals can be given extra punch by the addition of subtle doubling or slight reverb.

The only problem I encountered with the 1500 was the rear level switch. When the unit is rack mounted, this switch is very hard to reach. Mounting the switch on the front of the unit would make the unit more conducive to the constant level changes between instruments and microphones. But this was the only problem I found when using the unit.

In fact, I highly recommend this unit to anybody that is even considering any type of delay or reverb unit. In addition, any guitarists considering a flanger or chorus (or both) in the foot pedal styles should seriously consider spending the few extra dollars for this unit. It is one that will not easily be beat when it comes to value and quality.

For more information on the ART 1500 ms digital delay, please circle number 50 on the reader service card.

#### SPECIFICATIONS

Max. input level: +17 dBm.

Max. output level: +17 dBm.

Input impedance: 470k ohms.

Output impedance: 100 ohms (low level), 666 ohms (high level).

Dynamic range: >90 dB.

Total harmonic distortion: <0.2% (at 400 Hz).

Sweep frequency range: 0.1 Hz to 10 Hz.

Sweep width: 10:1 range (sine waveform).

Frequency response (dry): 20 Hz-20 kHz.

Frequency response (delay): 20 Hz-20 kHz, +1, -3 dB.

Delay range: 0.15 ms-1.5 sec.

Dimensions: 1.75-in. high x 6.25-in. deep x 19-in. rack width.

Power requirements: 105-120 VAC, 50-60 Hz, 86 mA, 12 watts.

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# Poor Recorder's Almanac

## Snare Drum Recording

**O**kay gang, now we get serious. Regardless of whether or not *Modern Recording and Music* is ready to have soundsheets in the next month or two, I will at least make cassettes available for purchase at a nominal price, because from here on in you **HAVE** to hear the sound to be able to emulate it.

The snare drum, along with the vocal, is arguably the **MOST** important sound on a contemporary recording.

Snare drum sounds fall into two basic categories from which all related or similar sounds are obtained.

The first can best be described as the "John Bonham" sound, as popularized by the late drummer for "Led Zeppelin." It is characteristic of "Hard Rock," or "Heavy Metal," but not exclusive to them. The snare is usually tuned fairly tight, with little or no snare rattle prominent.

There is some bottom, but not massive amounts, and the snare is usually always struck with the stick against the rim; hence a "rim shot," to bring out the metallic "crack" of the

drum. Contrary to what the Japanese or other drum machine manufacturers may indicate, a true "rim shot," as described by most professionally trained drummers, is the drum head and rim being smashed simultaneously. When the stick is laid across the head of the drum, and tapped on the rim for a "click" sound, similar to that of a pair of claves, it is usually referred to as "cross stick." (Professional drummers feel free to comment.)

Anyway this "rim shot" is usually done on a metal drum (hence the "metallic" sound), and is flooded with tons of reverb or room sound.

The top head of preference for snare drums utilizing this type of sound is usually a regular or coated plain head, or a Black Dot (or competing brand).

This will allow many overtones, to bring out the characteristic mid-range ring. While I am not a fan of midrange at all, (in fact my motto is "get rid of the mid"), this is one situation that calls for a fair amount of it.

I also usually damp the snare

drum, (although I never damp any other drums), but in this case, except for any internal muffler built into the drum, I don't recommend it.

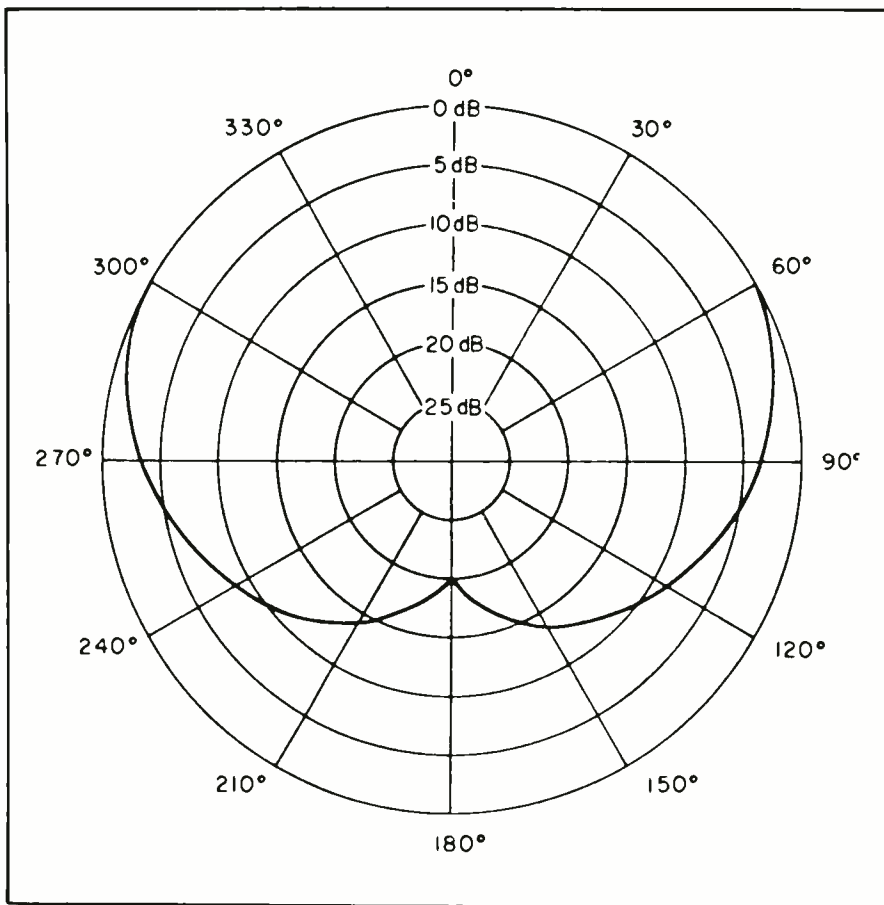
As far as bottom heads go, most drummers would prefer a thin to medium clear head, and regular to wide snares, adjusted to the amount of rattle the drummer desires.

Be extra careful when this type of snare sound is used because a loud guitar or bass in the room will set off extreme resonances in the undamped drum, and cause all sorts of snare rattles, buzzes, and extraneous vibrations.

The EQ I recommend with this setup is a small amount of bass boost (2-4 dB) at 100-150 Hz; a small, if at all, mid cut at 500 Hz-2 kHz, depending on the drum's tuning; and a boost in top EQ, to taste, depending on how much snare "rattle" the band wants, at 8-12 kHz.

If the drummer "rim shots" every beat, have him try to find a "sweet spot" on the drum that gives the "crack" he wants every time, and try to stick to playing in just that spot (extremely difficult, but also ex-





Polar pick-up pattern of cardioid mic.

tremely helpful when he is aware of where the spot lies).

As for mic'ing; the explanation will be the same for both examples of the snare sound types; this month as well as next.

Use a dynamic cardioid. Almost every engineer, no matter how many thousands of dollars worth of mic he has available to him will settle on a dynamic cardioid. A perfect example is a Shure SM-57. Inexpensive, durable (for when he hits the mic, not the drum), and you probably already got one!

Now, (for my first illustration), think of what a cardioid pattern on a mic looks like. (Figure 1.) That's why they call it a cardioid; it looks like a heart. Try to position the mic so:

1. It is out of the way, and comfortable for the drummer (and he doesn't hit it).

2. It is as close to the drum head's resonant area (not mic'ing a wallet) as in the damping example to be given next time.

3. It is positioned (think of the cardioid pattern again) so to minimize leakage from the closest tom, and, **MOST IMPORTANTLY**, the high hat.

High hats are usually nothing but trouble in recording, and you want as

little of it as possible where it doesn't belong. The snare track is definitely a place where it doesn't belong. You'll run into all kinds of problems if you further want to process the track (which you probably do), especially with limiters, gates, reverb, etc. You get the idea.

I usually use a Sennheiser 441 dynamic mic on the snare for several reasons:

1. It is a dynamic, but a "hyper-cardioid," which means that the pattern is even tighter than a regular cardioid. This will also increase the "proximity effect" or bass boost that happens on all cardioids when they are close to the object that they are mic'ing. This effect is even more dramatic on a "hyper-cardioid," and gives the sometimes desired extra bottom on the snare. But, if that bottom is not wanted, the mic has two frequency tailoring mechanisms. It has a bass roll off switch to cut the bottom end, and it has what is labelled as a multi-position rotary switch that starts at "M" for music and gradually reaches "V" for voice. Between these two switches, the desired EQ can usually be obtained directly on the mic.

2. It is very long and relatively thin, which makes it somewhat easier

to reach in and angle at the snare without getting in the drummer's way.

3. It is internally shock mounted, so no extraneous vibrations will affect the mic, and the capsule is (somewhat) protected if it is bashed.

**Bad Point:** It is also quite expensive; one of, if not *the*, most expensive dynamics around. And mine currently resembles the loser in a microphone demolition derby. However, to its credit, it still performs as if brand new.

Two words about bottom mic'ing on a snare. I don't. But remember, this is a totally subjective series, so do what you feel is right for your situation. Just a few tips if you do mic from the bottom as well as the top of a snare drum. Watch out for pedal squeaks, bass drum rumble, foot noises, unwanted snare rattle on tomtom beats, etc. And if you do decide on a mic for the bottom head (a cardioid condenser is usually used) be sure to put it **OUT OF PHASE** with the one on the top head. The reason for this is that when you hit the snare, air is pushed **DOWN** by the stick hitting the head. The mic on top sees this as air moving **AWAY** from the mic. If the mic on the bottom sees this as air moving **TOWARDS** it, the two mics will be fighting each other, and you will lose a significant amount of "punch," similar to what happens when two speakers in a stereo monitoring system are wired out of phase. One pushes air toward you, while one sucks it away. Of course, you may want to try this for an effect, but theoretically, this is what happens.

However, if you put the bottom mic out of phase, when the drum is struck, it will also see air moving away from it (because of the reversed phase), and will combine with the top mic to both kick together and harder. If you can't change your mic's phase, don't do it at all (unless you want to).

The next couple of articles will deal with obtaining the "other" basic snare sound; that which is usually associated with a good Lindrum or other drum machine sound, limiting and gating snare tracks, and using reverb, with and without gates, and delays on the snare. As I said before, there **WILL** be some way to hear these effects being obtained, but as I write this, a song that is popular now, "Don't Lose That Number" by Phil Collins is a good example of the next type of snare, with gated reverb, that I will be explaining about in the next few issues. Until then, be well.



**DAVID BYRNE: *Music For The Knee Plays*.** [Produced by David Byrne, engineered by Joel Mass at One on One Studio, North Hollywood, California, and by Mark Wolfson at Studio Sound Recorders, North Hollywood, California, mixed at RPM Studio by David Byrne and Dominick Maita.] ECM 25022-1 E.

Performance: **Performance art soundtrack**

Recording: **Experimental sounds**

David Byrne's latest solo project is akin to *The Catherine Wheel*, his soundtrack to a ballet. This album serves as the score, actually short connecting passages (or "knees"), between the longer sections of Robert Wilson's performance art work, *The CIVIL Wars*.

*The Knee Plays* ranges from traditional American jazz to gospel hymns with an influence of New Orleans marching bands. There is a lot of harmony, melody, and narration, somewhat like Laurie Anderson. In other words, without seeing the stage performance of the piece, it's hard to imagine what the concept is really all about.

Instrumentally, there are mostly horns featured—there is no guitar or bass on the album—and some drums and percussion. So right off the bat, the music is at once quite different, yet at times the sounds are no different than lots of other music. There are a lot of dronal sections with narrative from the production, some of which is like poetry.

"If I had the food of the area I was visiting," says Byrne, "I might assimilate the point of view of the people I was visiting...I studied menus very carefully. In the supermarket, I felt a great desire to walk off with their groceries so I could study them at length. When I ate

their groceries, I would become that person." Sounds like a Laurie Anderson influence, but in actuality Anderson was probably influenced by Wilson, who has been around on the art scene longer than she.

Most of the jazzy music was inspired by the Dirty Dozen Brass Band of New Orleans. However, the dronal "Winter" is very avant-garde with an eerie anthem-like "Taps" included. "Jungle Book" has a chugging aura while the prophetic "In the Future" has a narrative about the future.

Performance art soundtracks are best appreciated after seeing the multi-art performance. But in the case of *The CIVIL Wars*, the multi-hour piece has never been seen in its entirety due to the huge cost of production. Parts have been performed, and now we have some more of the proposed parts. *The Knee Plays* is refreshing in its originality of sound.

bob grossweiner

**DIRE STRAITS: *Brothers in Arms*.** [Produced by Mark Knopfler and Neil Dorfsman, engineered by Neil Dorfsman, recorded at Air Studios, Montserrat, West Indies, mixed at the Power Station, New York.] Warner Brothers 25264-1.

Performance: **Inspired guitar driven pop rock**

Recording: **All the care in the world**

Dire Straits is really Mark Knopfler's solo group these days as his imprint is stamped all over *Brothers in Arms*. He writes, performs and co-produces without losing the qualities that have made Dire Straits an exciting band.

Knopfler's only fault with *Arms* is the lack of proper crediting (instrument and on which song) for some sessionists, including Sting, Michael and Randy Brecker, Tony Levin, Mike Mainieri, Jimmy Maelen and Neil Jason.

*Brother in Arms'* standout song, "Money For Nothing," has to be one of the best crafted songs for the MTV generation ever penned. With a dreamy intro, we hear "I want my MTV" as percussion and synthesizer creep in. Then comes a rockin' blues riff à la "Honky Tonk Woman." Finally in his best gruff vocal, Knopfler sings "You play the guitar on MTV" in a brilliant overview of a rock star from the point of view of a delivery man, who says "I should have learned to play the guitar." And with a great video, Dire Straits will probably have its biggest hit by playing its music off a video.

Knopfler has a Bruce Springsteen aura in his lead vocal on "Walk of Life," complete with a Farsifa organ for a merry-go-round feel. Michael Brecker's tender saxophone brings out the mellow ballad "Your Latest Trick," which is followed by another ballad, "Why Worry," with Mike Mainieri on vibes.

"Ride Across the River" is about a soldier of fortune while the folksy "The Man's Too Strong" has a brilliant acoustic aura within its powerful production. And on the Scottish flavored title track, Knopfler's guitar sparkles over a dronal keyboard for an everlasting effect.

Dire Straits is a relatively unpredictable pop/rock group where Knopfler always looks for musical surprises, which generally turn out very tasty. And from the production standpoint, he always aims for the cleanest production short of a sterility effect.

bob grossweiner

MODERN RECORDING & MUSIC



# MODERN **RECORDING** & MUSIC

## Looks At

# *Delay Units*



The digital delay is one of the most popular signal processors ever introduced—and with good reason. A single digital delay can give such popular effects as flanging, doubling, chorusing, slap-back echo, and standard echo, as well as more esoteric effects such as digital sampling, synchronized echo, and pitch-shifting.

However, with so many delays on the market, how can you select the one that's right for you? Part of the answer depends on your application. Short delay units (up to, say, 300 ms) are extremely cost-effective as they can provide flanging, chorusing, doubling, and moderate length echo effects. On the other hand, longer delay lines (greater than one second) can not only give some very spacey echo effects, but also usually include a *hold* switch for "freezing" sounds in the unit's memory. For those who like to experiment with interesting rhythmic effects and solid-state tape loops, the extra investment in a long delay unit might well be justified.

Also note that different delays have different "sound signatures" and color the sound differently. For example, what sounds best with guitar may not sound best with voice; therefore, try as many delays as possible to find out which one sounds best to you (even units with identical specs can sound remarkably different).

Perhaps what's most exciting about digital delays is that a great many applications, particularly those

involving multiple delay lines, are just waiting to be discovered (after all, digital delays have not been around all that long, and much experimentation remains to be done). If you're interested in getting the absolute most out of a delay line, I recently completed a book describing 69 different digital delay line applications (published by Music Sales and scheduled for imminent introduction). But you can learn a lot on your own simply by experimenting—especially with interfacing the various "jacks on the back" to other equipment in your studio. This is one effect where your satisfaction with the unit will be directly proportional to your creativity in applying it.

Nonetheless, while digital delays are extremely versatile, bear in mind that they can't do everything. It's difficult to get convincing hall reverb effects; you really need a spring, plate, or digital reverb unit to do the job right. Also, with few exceptions, digital delays are not as good as analog delays for wide-range flanging (in fact, this is one of the few applications where analog technology still has an edge). But one thing's for certain: A delay line is one of the most cost-effective and musically useful processors going. Whether you want to thicken up a guitar, subtly alter a voice, add ambience to electronic keyboards, or experiment with outrageous special effects, once you have a good digital delay in your studio you'll wonder how you ever got along without one.

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## **ADA SIGNAL PROCESSORS DIGITIZER 4**

This is a fully programmable digital delay featuring 32 programs. Other features include 17 kHz frequency response, 1024 ms of delay, stereo outputs, LED readout which displays delay time or function, and a self-diagnostic program which checks the unit during power up. Dimensions: 1.75 × 19 × 10.5; weight: 6.75 lbs.

Price: \$699.95.

## **2FX DIGITAL MULTI-EFFECTS**

This is a professional delay processor that can produce two effects at once. Separate controls for digital flanger, digital chorus, and digital delay. Flange or chorus may be used with echo maximum 1024 ms of delay at 17 kHz. Sweep range for wide digital flange and 90 dB dynamic range. Dimensions: 1.75 × 19 × 10.5; weight: 6.75 lbs.

Price: \$599.95.

## **"" SERIES DIGITAL DELAYS**

These are professional full function delays with 16 kHz bandwidth. All models include modulation waveform control, variable regeneration hi-cut filter, delay rate LED, 8 to 1 sweep range, and modulation LEDs which indicate direction and speed of sweep. Dimensions: 1.75 × 19 × 10.5; weight: 6.75 lbs.

Price: 64i (640 ms)-\$499.95; 1.28i (1280 ms)-\$699.95; 2.56i (2560 ms)-\$799.95

## **STD-1 STEREO TAPPED DELAY**

This features true stereo outputs generated from a mono source through six simultaneous user-selectable delay taps. Effects include multi-voice chorusing, true stereo flanging, up to six clustered voices, plus psycho-acoustic studio effects including holographic positioning. Includes 8-step LED headroom meter and 93 dB dynamic range. Dimensions: 1.75 × 19 × 10.5; weight: 6.5 lbs.

Price: \$799.95.

## **S1000 DIGITAL DELAY**

This features up to 1024 ms of delay at 10 kHz bandwidth. Eight to 1 sweep range for flanging and chorusing effects. Also includes repeat hold, phase-invert switch, 4-step LED headroom meter, and 90 dB dynamic range. Dimensions: 1.75 × 19 × 10.5; weight: 6.5 lbs.

Price: \$299.95.



## **AKG ACOUSTICS**

### **TDU 7000**

This is a modular digital delay system consisting of the N-700 (main frame), M710 (input), M720 (output), M730 (800 ms delay extensions) and M750 (special effect). Each output has adjustable delay from 1 to 299 ms in 1 ms steps. Eight modules per main frame. Input and output are adjustable and balanced. Dimensions: 7 × 19 × 14.5.

Price: \$9,036.00 (2 in × 2 out).

### **BX25E**

This is a stereo reverb using AKG's patented Torsional Transmission Line principal to create full, smooth and natural sounding reverberation. Features include continuously variable reverb time from 2 - 4.5 seconds, adjustable balanced inputs and outputs, remote control and equalization. Dimensions: 21 × 20 × 18; weight: 66 lbs.

Price: \$5,500.00.

### **BX25ED**

This provides all the features of the BX24E with the addition of a digital delay. Features include pre-delay and two echoes per channel to enhance the sound field. Separate outputs for delay and reverb and remote mix of echo to reverb mix. Dimensions: 21 × 20 × 18; weight: 74 lbs.

Price: \$8,400.00.

## **ALESIS CORP.**

### **XT**

This is a 16-bit digital reverb unit with stereo outputs and a delay time of .1 sec to 10 sec in length. Controls include input level mix, output level, and decay level. Dimensions: 1.75 × 19 × 9.

Price: \$795.00.

## **ARIA MUSIC**

### **DEX-100**

This digital delay provides a wide range of delay time, from 4 ms to 1,024 ms and uses a high resolution 12-bit A/D/A converter. Other features include extended frequency response range, low distortion, high S/N ratio, flanging and chorus effects. Dimensions: 1.73 × 19 × 4.9.

Price: \$299.00.

### **AD-05**

This is an analog delay providing delay time of 30 ms to 300 ms with a S/N ratio of more than 60 dB. Two types of input jacks for microphone and instruments are also included. Dimensions: 1.73 × 19 × 6.

Price: \$149.00.

### **AR-525**

This is a stereo spring reverb with two input channels, stereo out, stereo/mono mode switch, and Accutronics springs. The delay time is 4 sec and S/N ratio is 65 dB. Dimensions: 1.73 × 19 × 7.

Price: \$299.00.

### **DDX-10**

This is a digital delay pedal effect with a delay time of 4 ms to over 1 sec. It features 12-bit A/D/A converter, a S/N ratio of 95 dB, FET noiseless on/off foot switch, direct and main outputs and hold switch. Dimensions: 2.4 × 2.8 × 5.1.

Price: \$275.00.

## **ART**

### **MODEL 240-DR1**

This is a stereo high definition digital reverberation system utilizing full 16-bit technology and 14 kHz bandwidth. It is fully programmable, with over one hundred memories, MIDI interface, and full function remote control. A complete compliment of plate, room and hall programs plus gated, reverse reverb, and other special effect programs. The software is updateable. Dimensions: 1.75 × 19 × 8.75.

Price: \$1,695.00.

### **MODEL 230-DR2**

This is a digital reverb system offering 7 plate/room/hall programs, gated and reverse reverb programs. Features include three lockable user memories, 20 Hz—10 kHz bandwidth and outputs for mono mix out plus true stereo out, controls for diffusion, high frequency damping, pre-delay, and decay time are incorporated in an easy to use format. Dimensions: 1.75 × 19 × 8.75.

Price: \$995.00.

### **MODEL 191-01A**

This is a digital reverb system offering full variability in all control parameters and 49 user preset memories. Dimensions: 1.75 × 19 × 8.75.

Price: \$1,395.00.

### **MODEL 190-1500**

This digital delay line offers full 20 Hz—20 kHz bandwidth, 10 to 1 sweep range for lush chorus/flange and a delay range of 0.1ms to 1500 ms. Dimensions: 1.75 × 19 × 6.25.

Price: \$500.00.

## **AUDIO + DESIGN/CALREC**

### **S24 TIME SHAPE MODULE**

This provides time domain processing in the 0 to 45 ms range. The delay can be modulated by an internal oscillator, the input signal, or an externally supplied control voltage to create flange, ADT, or tonal "spin" effects. Several units can be crosslinked for stereo or surround production. Dimensions: 8 × 1 × 8.75.

Price: \$650.00.

## **BIAMP SYSTEMS**

### **MR/140**

This is a mono spring reverb system featuring dual limiters, attack limiter to prevent "spring slap" and hard limiter to prevent drive circuit overload. Unique four-band non-interacting EQ blend system adds reverb in four frequency bands permitting flexible reverb tailoring. Dimensions: 1.75 × 19 × 9; weight: 7.4 lbs.

Price: \$349.00.

### **SR/340**

A stereo version of the MR/140 with identical features and performance. Both units utilize high speed and low noise circuitry for professional performance. Dimensions: 3.5 × 19 × 9; weight:

15 lbs. Price: \$495.00.

## **ADS/DELTALAB**

### **Effectron I-ADM1020**

This is a digital delay processor with a delay range of 4 ms to 1,024 ms. Features include ease of operation, over 1 sec of delay at 15 kHz bandwidth and all steel chassis. Frequency response is 20 Hz to 15 kHz, distortion is 0.2% maximum and dynamic range is 87 dB. Dimensions: 4-inch deep, single rack space unit. Weight 8 lbs. \$329.00.

### **Effectron II-ADM1024**

This is a digital delay processor with a delay range of 0.22 ms to 1,024 ms. Features include ease of operation, 17 kHz bandwidth at all settings and an all steel chassis. Frequency response is 20 Hz to 17 kHz with a distortion level of 0.2% maximum and a dynamic range of 90 dB. Dimensions: 7-inch deep, single rack space unit. Weight 10 lbs.

Price: \$499.00.

### **Effectron III-ADM1030**

This is a programmable digital delay processor with a delay range of 0.25 ms to 1024 ms. Features include wide dynamic range (17 kHz at all settings), stereo simulation, delay factor modulator, 0.2% maximum distortion and 90 dB dynamic range. Dimensions: 10-in. deep single rack space unit. Weight 12 lbs.

Price: \$699.00.

### **CompuEffectron CE1700NVM**

This is a programmable digital delay processor with a delay range of 0 to 1724 ms. Features include 20 Hz—20 kHz bandwidth, real time processing with 219 user locations, remote capabilities, touch control front panels, setup recall and numeric keypad. Dimensions: 1.75 × 19 × 10; weight; 12 lbs.

Price: \$999.00.

## **DOD ELECTRONICS**

### **PDS 1000**

This is a digital delay in a battery powered pedal. Separate effect and infinite repeat foot switches make the unit capable of doing such effects as sound on sound and infinite repeat without having to adjust any controls. Bandwidth is 7 kHz at all delay settings.

Dimensions: 2 × 5 × 6.

Price: \$199.00.



### **PDS 2000**

This does everything the PDS 1000 does and more. It is capable of sampling a signal of up to two seconds long, and then repeating it at the touch of a footswitch or in sync with a drum machine. Bandwidth is 7 kHz at all delay settings. Dimensions:  $2 \times 5 \times 6$ .

Price: \$269.00.

### **RD320**

This is programmable room digital delay intended for large room speaker timing and concert hall spatial effects. It features PCM digital conversion and is designed for continuous or intermittent use. The RD320's wide frequency response and wide dynamic range (88 dB) provide a natural sounding delay, ideal for a large room to eliminate echoes from front and rear speakers. Dimensions:  $1.75 \times 19 \times 8$ .

Price: \$349.00.

### **RDS900 DIGITECH DIGITAL DELAY**

This unit features 900 ms of digital delay (88 dB S/N). The flange ratio is 10 to 1 allowing the user flanging, chorusing, doubling, echoes, slapback, infinite repeat, etc. Dimensions:  $1.75 \times 19 \times 8$ .

Price: \$259.95.

### **RDS-1900**

This is the same as the RDS 900 except it has 1900 ms of digital delay at 15 kHz for all delay settings. Dimensions:  $1.75 \times 19 \times 8$ .

Price: \$299.95.

### **RDS-3600**

This unit does everything the RDS-1900 does. It offers sampling with a digital delay time of beyond seven seconds. The unit features a drum sync input and a LED display for dialing in your exact delay time. The LED display varies while in the flange mode indicating the modulation range (width) and speed. Dimensions:  $1.75 \times 19 \times 10$ .

Price: \$399.95.

## **EVENTIDE**

### **SP2016**

This is a full stereo reverb and effects processor unit that has a variety of reverb programs including: stereo room, plate, hi-density plate, reverse, nonlinear and more. Loop edit, flanging, chorus, musical combs, delay multitap delay and others are among the SP2016's effects. Channel vocoder and automatic panner effects also available. Dimensions:  $3.5 \times 19 \times 12$ ; weight: 13 lbs.

Price: \$6,895.00.

### **H969 PROPITCH HARMONIZER**

This unit features superior pitch-change performance and many user convenience features including delay and pitch-change presets, front panel preamplified input, flanging and doppler modes. Dimensions:  $3.5 \times 19 \times 12$ ; weight 13 lbs.

Price: \$4,500.00.

### **H949 HARMONIZER**

This unit features pitch-change (one octave up and two down), delay, flanging, reverse audio, repeat, time reversal, random delay and time compression capability. Dimensions:  $3.5 \times 19 \times 11.75$ ; weight: 13 lbs.

Price: \$3,500.00 (keyboard available).

### **H910 HARMONIZER**

This is a pitch-change/effects unit that can be used for doubling vocals, delay and for other special effects including many types of reverb and echo. Dimensions:  $3.5 \times 19 \times 9$ ; weight: 11 lbs.

Price: \$1,500.00 (keyboard available).

### **FL201 INSTANT FLANGER**

This unit provides professional quality flanging effects, and a unique bounce feature simulates tape motor hunting. The depth control permits any desired percentage of direct versus delayed signal, and controls the relative phase of each. Dimensions:  $3.5 \times 19 \times 9$ ; weight 9 lbs.

Price: \$700.00.

## **FOSTEX**

### **3050**

The 3050 is a rack mountable unit that gives controlled doubling, flanging, chorus, and phasing capabilities. Delay time range is from .27 ms to 137 ms, selectable in ten steps. You can continuously vary the delay  $\times \frac{1}{2}$  to  $\times 2$ , thereby expanding the usable delay range up to 270 ms or down to .13 ms. Dimensions:  $7.75 \times 17 \times 8.25$ ; weight: 6.75 lbs.

Price: \$400.00.

## **3180**

The 3180 is a reverb unit that includes an analog delay matrix that creates pre-delay and early reflections before the beginning of reverb. The result is a true sounding first reflection of 24 ms minimum delay, and increased diffusion for a more natural room sound. Features include ¼-inch and RCA in/out connections, remote control of on/off and reverb delay time of approx. three seconds. Dimensions: 3.5 × 17 × 8.25; weight: 8.25 lbs.  
Price: \$400.00.

## **FURMAN SOUND RV-1 REVERBERATION SYSTEM**

This is a self-contained system in a compact, rackmount unit. It combines smooth sounding Accutronics triple spring reverb assembly with specially tailored circuitry providing preamplification (unit accepts guitar level signals), tone control, and peak limiting functions. Dimensions: 1.75 × 19 × 8.  
Price: \$321.00.

## **RV-2 REVERBERATION SYSTEM**

This is a stereo version of the RV-1 featuring the equivalent of two RV-1 units in the same chassis. With the stereo sum switch in, two channels of reverberation, each with separate EQ and wet/dry mix, can be generated from a mono input signal. Dimension: 3.5 × 19 × 8.  
Price: \$535.00.

## **KLARK-TEKNIK DN780**

This digital reverberator/processor is a state-of-the-art computer using 16-bit A/D conversion, and 32-bit processing. Reverb programs include halls (5x), plates (5x), chambers (5x), rooms (5) and three new gated decay programs including non-linear, reverse and enhancement. The five special effects programs included are ADT, SOS, Multi-tap echo, delay and infinite room. Dimensions: 3.5 × 19 × 12.25; weight: 17 lbs.  
Price: \$5,500.00.

## **DN700/701**

The DN700 is a one input-three output digital delay line with each output adjustable independently from 0 to 434 ms in 26.5 increments. The delay setting is shown on the front panel using a three digit LED readout. Dynamic range is 85 dB, and the bandwidth is 20 Hz to 15 kHz. Dimensions: 1.75 × 19 × 10.3; weight: 6 lbs.  
Price: \$1,475.00.

## **LEXICON PCM-60**

This unit features two reverb programs, room and plate, from which users can tailor reverb characteristics on the basis of size, reverb time, and bass and treble contouring, to produce over a hundred distinct reverb effects. Rotary knobs are used to set input gain, reverb, and output level. A front-panel bypass mode switch with optional footpedal control is included. Dimensions: 1.75 × 19 × 11; weight: 9.2 lbs.  
Price: \$1,495.00.

## **PCM-41**

This is an economical 16 kHz processor that provides doubling, chorusing, and related delay effects. Delay time is 800 ms. Dimensions: 1.75 × 19 × 11; weight: 5.5 lbs.  
Price: \$715.00.

## **PCM-42**

This unit has the same features and dimensions as the PCM-41 but has a metronome clock function and delay time to 4.8 seconds.  
Price: \$1,000.00.

## **MODEL 95**

This is a unit with dual output 20 kHz bandwidth and complete on-board mixing. Delay time is up to 7.68 seconds. Dimensions: 3.5 × 19 × 13.5; weight: 10.5 lbs.  
Price: \$1,980.00.

## **MODEL 97**

This is a programmable digital delay processor with dual outputs, 20 kHz delay bandwidth, and 32 storage registers. Cassette storage of user-created effects can be done. Dimensions: 5.75 × 19 × 13.5; weight: 17 lbs.  
Price: \$3,170.00.



### **MODEL 200**

This unit adds reflected energy to dry voices. Features include a size control that can produce ambiances that simulate a range of spaces such as wooden-walled cabin, empty factory, long corridor, etc. Dimension: 5.75 × 19 × 15; weight: 18 lbs.  
Price: \$4,800.00.

### **MODEL 224XL**

This is a reverb/effects processor unit with 18 reverb/effects programs, and 59 variations of programs controlled by Lexicon Alphanumeric Remote Controller (LARC). Dimensions: 5.9 × 9.5 × 3.2; weight: 19 lbs.  
Price: \$12,500.00.

### **PCM-70**

This is a digital effects processor/reverberator dynamic controllable MIDI based digital effects processor, including 4th generation Lexicon technology with effects programs derived primarily from the Model 224XL. Dimensions: 1.75 × 19 × 14; weight: 10 lbs.  
Price: \$2,295.00.

## **MORLEY**

### **MODEL RNV**

This is a solid state analog reverb foot pedal that can be adjusted from 15 ms to 7 sec unrelated to the level of the signal. Reverb level can be set independantly of the direct signal. There is also an active tone control for the reverb signal and an LED overload indicator.  
Price: \$219.95.

### **MODEL SLEV-6**

This is a combination echo generator/volume control pedal with select switch. Delay time is from 15 ms to 600 ms. Pedal controls the amount of repeats from dry to infinity and a back motion of the pedal instantly cancels any echo. Also features electro-optical circuitry. Price: \$349.95.

### **AER**

This is an analog echo/reverb pedal featuring no moving toredal and a delay range of 15 ms to 300 ms. It has the same circuitry and components as the SLEV-6.  
Price: \$189.95.

## **OMNI MUSIC**

### **ELECTRA 606AD**

This is a compact analog delay pedal with up to 300 ms of delay time. Controls include rate, mix and repeat. Easily produces most delay based effects like echo, reverb and doubling. A/C adaptable. Dimensions: 2.25 × 3.5 × 5.5; weight: 1 lb.  
Price: \$180.00.

### **ELECTRA EP-150**

This is a 300 ms rackmount analog delay unit. Features inputs for instrument and mic, peak indicator and padded output. Unit is also foot switchable. Dimensions: 1.75 × 19 × 6; weight: 3 lbs.  
Price: \$150.00.

### **ELECTRA EP-200**

This is a 300+ ms analog delay unit that also features a twin spring reverb. This unit offers separate inputs for mic or instrument, padded output and a peak indicator lamp. Six separate control functions for maximum flexibility. Delay and reverb functions are foot switchable. Dimensions: 1.75 × 19 × 9; weight: 5.5 lbs.  
Price: \$200.00.

### **ELECTRA EP-401**

This is a 1024 ms digital delay line offering modulation controls and 16 kHz frequency response. Unit also features an LED input ladder, a high-cut setting, and foot switchable hold and bypass functions. Input and mix out jacks are located on both front and rear panels. Dimensions: 1.75 × 19 × 9; weighs: 9 lbs.  
Price \$279.95.

### **ELECTRA EP-501**

This is a 1024 ms digital delay/sampler unit that allows the performer to electronically record and play back short musical segments. Sampling allows player to edit, overdub, sequence, etc. and pitch may be controlled from an external CV keyboard. Dimensions: 1.75 × 19 × 10; weight: 8 lbs.  
Price: \$499.95.

## **ORBAN ASSOCIATES**

### **MODEL 111B DUAL SPRING REVERB**

This is a two-channel spring reverb with propriety peak limiter which protects the springs. Also included are bass and mid-range quasi-parametric EQ. Dimensions: 3.5 × 19 × 12.

Price: \$899.00.

## **ROLAND**

### **SDE-2500**

This is a MIDI-compatible digital delay capable of storing sixty-four programmable memories. Features include a 15-bit A/D/A converter offering a dynamic range of 96 dB, a THD of less than 0.05% and a S/N of 84 dB. Delay time is set in increments of 0.1 ms from 0 to 10 ms and in increments of 1 ms for periods over 10 ms. Dimensions: 1.9 × 19 × 12.8; weight: 9.9 lbs.

Price: \$795.00.

### **SRV-2000**

This is a digital reverb unit that can simulate any type of acoustic environment. Features include 16-bit linear A/D/A conversion system MIDI-in and thru connectors and a 3-band programmable parametric EQ mode. Reverb time is adjustable in 0.1 sec steps from 0.1 sec to 9.9 sec and 1 steps from 10 sec to 99 sec. Dimensions: 1.9 × 19 × 14.3; weight: 11.4 lbs.

Price: \$1,495.00.

### **SDE-3000**

This is a digital delay unit featuring a digital compounding PCM system equivalent to a 16-bit A/D/A converting system, dynamic range of over 100 dB, a THD of less than 0.03% and a S/N of over 88 dB. It is capable of producing a delay of up to 4,500 ms and it can store eight settings. Dimensions: 1.9 × 19 × 1.8; weight: 11 lbs.

Price: \$1,095.00.

### **SDE-1000**

This is a digital delay incorporating a 12-bit A/D/A converter and delay time of up to 1,125 ms. It can store four different settings of all front panel controls (except input attenuator) and has delay on/off, hold on/off, and preset shift jacks. Dimensions: 1.9 × 19 × 11.8; weight: 11 lbs.

Price: \$499.00.

### **RDD-10**

This is a small digital delay providing delay times from 0.75 ms to 400 ms. It features a 12-bit PCM system plus analog logarithm compression to ensure sound quality. Phone and RCA jacks are provided so the unit can be used with musical instruments, recording equipment or hi-fi equipment. Dimensions: 1.8 × 8.6 × 6.7; weight: 2 lbs.

Price: \$275.00.

### **RX-100**

This is a reverb unit for use with any PA or amplification system. Features include channel A input and output on the front panel (¼-inch) and two channel B inputs and outputs on the rear panel (RCA). It can create a stereo field effect by passing a signal from channel A input to the two channel B outputs. Dimensions: 3.17 × 13.4 × 11.5; weight: 5.7 lbs.

Price: \$230.00.

## **ROSS SYSTEMS**

### **DDL-1000 "TIME MACHINE"**

This is a 1024 ms digital delay with a frequency response of 5 Hz—50 kHz (dry) and 20 Hz—16 kHz (effect). Features include a 14-bit convertor, hold, meter display, remote switchable, front and rear connectors. Dimensions: 1.75 × 19 × 11.

Price: \$349.95.

### **DDL-999 "TIME MACHINE JR."**

This is a digital delay with a frequency response of 30 Hz—12 kHz. Features include hold, bypass switch and front and rear connectors. Dimensions: 1.75 × 19 × 8.

Price: \$229.95.

## **SONY**

### **DRE-2000A**

This consists of a processor with a microcomputer control unit. It features a full variety of sounds and effects and storage of up to eighteen programs for instant, one-touch recall. The unit incorporates eight master programs; four for reverb, two for echo and two for delay. Dimensions: 5.7 × 17 × 17.5.

Price: \$11,500.00.



## **SPECTRA SONICS**

### **MODEL 4000**

This is a professional audio delay designed to produce positive and negative flanging, doppler, vibrato, chorus, pitch bend, double tracking, rotating speaker simulation and cardboard tube effect. The unit can be externally controlled by foot pedals, joysticks, synthesizers and keyboards, as well as other switching devices. Dimensions: 2.5 × 19 × 8; weight: 4.75 lbs. Price \$695.00.

### **MODEL 4010**

This is a professional audio phase shifter designed for studio or stage use. It performs real-time effects such as phase shifting, peak resonant phasing, jetsound effects, and rotating speaker simulation. Stereo synthesis can also be performed with mono signal material. Dimensions: 2.5 × 19 × 8; weight: 4 lbs. 14 oz.

Price: \$595.00.

### **MODEL 4020**

This is a professional audio delay line designed for studio or stage use. The Model 4020 performs real-time effects such as slap back, echo reverberation, chorus, double tracking, and doppler effects. The unit will produce up to 120 ms of delay with a bandwidth of 16 kHz over one variable range. Dimensions: 2.5 × 19 × 8; weight: 4 lbs. 14 oz.

Price: \$795.00.

## **TASCAM**

### **RS-20B**

This is a stereo spring reverb. Controls include input mode, high pass filter switch, (6 dB per octave at 200 Hz.), input and output level, dry signal mix switch, and effect defeat. The S/N ratio is 80 dB, frequency response (out) is 30 Hz—20 kHz, +/- .5 dB and (in) 100 Hz—4 kHz, +0, -6 dB and decay time is 2.5 sec. Dimensions: 3.5 × 17 × 9; weight: 10 lbs.

Price: \$400.00.

## **URSA MAJOR**

### **STARGATE 626**

This is a reverberation unit with eight room sizes, eight effects programs, decay time of 10 sec. for room programs, 20 sec. for effects programs, 320 ms pre delay, 15 kHz, 80 dB dynamic range and settings continuously visible. Unit is rackmountable. Weight: 12 lbs.

Price: \$2,500.00.

### **STARGATE 323**

This is an reverberation unit with eight room settings, 10 sec. decay time, 320 ms pre delay, 80 dB dynamic range, continuously visible settings. Unit is rackmountable. Weight: 12 lbs.

Price: \$2,000.00.

### **8X32-MK 11 DIGITAL REVERBERATOR**

This is a digital high quality reverberation unit with sixty-four memories, eight programs, optional remote, 20 sec. decay time, and 80 dB dynamic range. Front panel display features all parameters including level display and reverb level. Unit is rackmountable. Weight: 15 lbs.

Price: \$4,000.00.

### **SPACE STATION SST-282**

This unit features a wide variety of reverb, time delay and special effects; sixteen programs of eight delay tap times, pre-programmed to 1 ms resolution over range of to 225 ms and 80 dB dynamic range. Unit is rackmountable. Weight: 10 lbs.

Price: \$2,195.00.

## **YAMAHA**

### **D1500**

This is a completely programmable digital delay with up to 1023 ms of delay and sixteen presets which can be recalled by MIDI. Controls include delay time, mix, LFO modulation, delay signal phase invert, delay bypass, hold, input and output level. 20 Hz—18 kHz bandwidth. Dimensions: 1.75 × 19 × 12.25.

Price: \$895.00.

### **YDD-2600**

This is a delay for sound reinforcement, broadcast, studio and disk mastering. Three modes: 1) one input with eight outputs of up to 2660 ms each; 2) two inputs with four outputs with up to 1330 ms each; 3) four inputs with two outputs each with up to 635 ms maximum delay. Twelve program memories and remote control. Dimensions: 5.25 × 19 × 15.

Price: \$7,700.00.

### **R1000**

This is a digital reverb with numerous applications in recording, live music and sound installations. Features four switchable reverb times from 1.5 seconds to 2.4 seconds, semi-parametric equalizer with bypass, input level control with meter, mix and output controls and bypass switch. Dimensions: 1.75 X 19 X 15.

Price: \$795.00.

### **REV7**

This is a programmable digital reverb with sixty user programmable memories and MIDI control. Programmable parameters include reverb time (.3-10 seconds), first reflection delay and level, liveness, initial delay time, room size. Dimensions: 3.5 X 19 X 13.5.

Price: \$795.00.

### **REV-1**

The REV-1 simulates virtually any environment and creates special reverb effects. Remote control features LCD screen with eight displays to graphically denote all reverb parameters with changes shown in real time. Reverb time 0.1-99.9 seconds, up to forty early reflections. Control over virtually every reverb parameter. Dimensions: 5.25 X 19 X 15.

Price: \$11,900.00.

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Berkeley, CA 94710

**ADS/Deltalab**  
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Wilmington, MA 01887

**AKG Acoustics**  
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Stamford, CT 06902

**Alesis Corp.**  
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Los Angeles, CA 90078

**Applied Research & Technology Inc.**  
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Rochester, NY 14608

**Aria Music USA Inc.**  
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Industry, CA 91745

**Audio & Design/Calrec Inc.**  
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Park Ridge, NJ 07656

**Tascam**  
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Montebello, CA 90640

**Ursa Major, Inc.**  
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Belmont, MA 02178

**Yamaha Intl. Corp.**  
P.O. Box 6600  
Buena Park, CA 90622

## **SPECIAL NOTE**

In January our directory will be Electric Guitars and Basses, and Instrument Amps.

In February it will be Studio Monitors.

In March it will be Stage and PA Speakers.

In April it will be Power Amplifiers.

Do you manufacture or distribute any of these products? Let us know so we can be sure to include you in these upcoming directories.

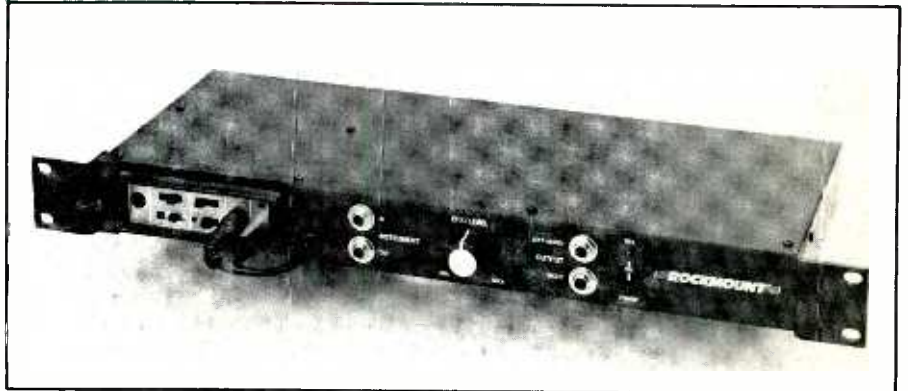


# The Market Place

what's new in sound and music

## ROCKMAN ROCKMOUNT

Four Design Company's Rockmount is a one rack space high, 19-in. rack mountable unit used in conjunction with Scholz Corp's Rockman products. Rockmount transforms any one of the Rockman units into an on-stage effects device by supplying all of the needed interconnections, DC power, an effects level control and effects bypass function. Rockmount's front panel was designed with a rectangular opening so the Rockman unit slides directly in without modification. Rockmount greatly expands the usefulness of the Rockman by providing a means to use the excellent sounding stereo effects on-stage or in the studio.



Rockmount is made entirely in the US using the finest components including a steel chassis that shields the Rockman from RFI and EMI and lowers output noise. Rockmount

comes with a one year limited warranty and has a suggested list price of \$159.95.

Circle 40 on Reader Service Card

## TASCAM RECORDING AND SOUND REINFORCEMENT MIXER

The Tascam 300 Series is a sophisticated signal routing system that takes care of the most complex fold-back effects mixing, subgrouping and monitoring requirements. It is also compact, rugged and versatile enough to take on the road. Ample back panel inputs and outputs combined with Tascam's convenient top panel switch matrix virtually eliminate the need for patching. The 300 Series' logical layout also lets you work quickly and efficiently. Four separate buss systems offer plenty of options for individual cue mixes in the studio, or separate monitor and house mixes at live shows. Each buss can be separately addressed by the M-300's extensive talkback system. Channel module controls enable sophisticated solo or grouping several inputs on a single fader for mixing convenience. The transformerless balanced differential input design in the 300 Series consoles delivers clean, dynamic sound. These input



modules produce wider bandwidth and better transient response than conventional transformer coupled designs, even when the signal level or source impedance changes. The M-308 (8-channel) retails for \$1,649;

the M-312 (12-channel) for \$2,595; and the M-320 (20-channel) for \$3,495.

Circle 41 on Reader Service Card

## BARCUS BERRY 10-CHANNEL MIXER UNIVERSAL MIXER

Barcus Berry's model 101 ultra-compact professional quality mixer is ideal for use with multiple electronic keyboards and other musical instruments. It provides ten input channels with independent, non-interactive controls plus a master control. The inputs can handle any signal level without clipping and each provides an impedance of more than one megohm. The mixer can accept program from virtually any high-impedance source, such as musical instrument transducers, electric guitars, electronic keyboards and high-impedance dynamic microphones. In addition, four of the ten inputs can be switched to accept signals from Barcus Berry electret-type transducers such as those specifically designed for cymbals, high-hat, harmonica, violin and various other instruments. The output of the Universal Mixer is compatible with any input having an impedance of 10k ohms or more and



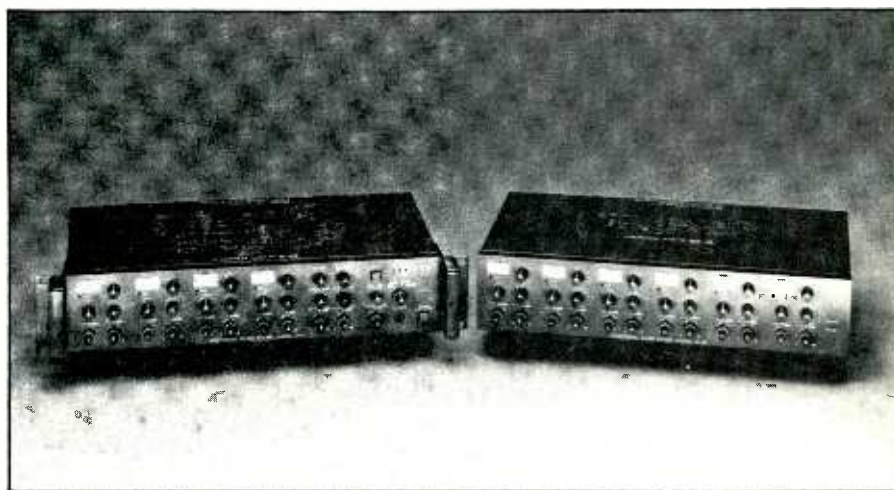
can be readily adapted for connection to a low impedance mic input by means of a line transducer. All input and output connectors are standard ¼-in. phone jacks. Typical applications for this product include PA submixing, monitor mixing and multitrack recording. The Model 101 has wideband frequency response with low noise and distortion levels. When controls are at maximum setting, there is no insertion loss and the output is unity gain. The low-drain circuitry of the mixer operates on power supplied by two 9-volt batteries; this assures total absence

of line noise and provides complete freedom to become immediately operational anywhere in the world. Design of the Model 101 has kept it extremely compact in size—the overall dimensions being comparable to those of a carton of cigarettes. The all-metal chassis is constructed of extra heavy black anodized aluminum and is built to withstand the rigorous physical stresses imposed by continued professional use. The model 101 has a list price of \$195.

*Circle 42 on Reader Service Card*

## TOA ELECTRONIC MUSIC MIXING SYSTEM

TOA's four-channel mixing system is expandable to 10 channels, and is designed primarily for keyboard and guitar synthesizers and drum machines. The system consists of the rack mounting D-4 and the D-4E Expander Unit, and is intended for live sound applications (on stage stereo and mono mix) and for home/studio recording applications. Configured as 4 by 2 by 1 (sum out), the D-4 connects directly to its companion, the D-4E, thereby expanding the system to 10-channel capability. The compact, self powered system offers both -4 dB and -10 dB outputs for connections to either tape machines or power amplifiers. Accessory patches on the stereo left and right busses offer added flexibility. Each input channel features a ¼-inch phone jack input, RCA phone jack input, two band EQ, trim control with LED peak indicator, post effects send, aux send, pan control (to L and R mixing busses), and level control. The aux send may be used as an effects send when in the "post" position and as an on-stage monitor send when in the "pre" position. In addition to its phone jack inputs, the fourth input channel of the D-4 provides an electronically balanced, 3-pin XLR mic input with switchable



48 volt phantom power (the D-4E provides similar XLR inputs for channels five through eight). All patch point inputs are selectable to pre- or post-EQ and fader, for use with special effects, compressors, limiters, other types of signal processing equipment. Each D-4/D-4E input has direct output, which facilitates multitrack recording applications. Together, the D-4 and D-4E offer "first generation" MIDI capability with a one by eight MIDI-THRU function. This enables control of multiple synthesizers with a single

MIDI-IN signal. All master controls are located on the D-4/D-4E front panels, along with LED indicators for power on and MIDI-THRU. The D-4/D-4E rear panels also provide stereo left and right inputs and outputs, sum in and out, ground lift switch, effects send and return, and aux send and return. Both units are circuitbreaker protected with automatic re-set buttons. The four-channel D-4 and the six-channel D-4E have a list price of \$499 each.

*Circle 43 on Reader Service Card*

MODERN RECORDING & MUSIC



# Lab Report

## Crown Micro-Tech 1000 Professional Power Amplifier



### General Information

The Crown International Micro-Tech 1000 is a compact power amplifier intended for professional sound reinforcement and recording applications. In keeping with recent design trends in power amplifiers, the Micro-Tech 1000 has an extremely high output current capability, so that it doesn't run out of power when driving low-impedance loads. For example, although the "official" Federal Trade Commission power rating of this amp is stated as "250 watts per channel, into 8 ohm loads, with no more than 0.1% THD," should the speaker impedance dip down to 2 ohms (as some speakers do at specific audio frequencies), the amplifier will deliver as much as 500 watts per channel at 1 kHz into such loads. Operated in the mono mode, the amplifier can deliver 1000 watts at less than 1 percent THD into any load from 1 ohm to 4 ohms! A "Parallel Mono" switch combines the outputs of both channels to make a monophonic amplifier capable of 1000 watts into a 1 ohm load. By adding an internal jumper for the alternate "bridged mono" configuration, you can expect up to 1000 watts of power into a 4-ohm load.

Efficient heat sinking and a self-contained forced air cooling system are featured in this amplifier, and the direction of air flow can be reversed, if necessary,

to work with your rack cooling system. For this purpose, a dust filter, located in the front of the unit, is easily removed and repositioned at the rear.

Inputs are balanced ¼-inch phone jacks with adjustable input level controls. Unbalanced inputs can be used simply by plugging in standard phone plugs that are equipped with tip-sleeve contacts only, instead of the ring-tip-sleeve type of plug. Outputs are from 5-way banana jacks. Chassis ground and signal ground are fully isolated to reduce hum from ground loops. The amplifier can be mounted in a standard 19-inch rack, using four mounting screws and four nylon washers that are included in the amp package. The design of the amplifier housing also permits stacking several of these amps, one above the other.

### Circuit Highlights

A block diagram of the Micro-Tech 1000 is shown in *Figure 1*. The amplifier incorporates a wide variety of new amplifier technological innovations, including real-time "computer simulation," which Crown calls ODEP (for "Output Device Emulator Protection"). This simulation is used to create an analog of the output devices' junction temperature, which would be difficult to measure directly. Before the device temperature reaches unsafe levels, current is limited—but only by the minimum amount necessary.

This approach eliminates overheating (or thermal runaway) while at the same time allowing for maximum safe output power.

The amplifier output circuitry uses full-bridge topology which makes full use of the power supply and provides peak-to-peak voltages at the load that are twice the voltage applied to individual output devices. The full-bridge arrangement is ground-referenced. The composite output devices are arranged to work as gigantic NPN and PNP devices since the required currents are greater than can be handled by any single discrete device currently available. Each output stage has two of these composite NPN devices and two composite PNP devices.

The Micro-Tech amplifier utilizes a wide bandwidth multi-loop design. Each channel is powered by its own power transformer, but both channels share a common low-voltage transformer—derived from a separate winding on the fan motor—to power the low-level stages.

### Protection Circuitry

The Crown Micro-Tech amplifier is protected against all of the common hazards that can damage an amplifier, including shorted, open or mismatched loads, overloaded power supplies, excessive temperature, input overload damage and high-frequency overload damage. The amplifier also protects loudspeakers from DC that might be present in the input signal. In addition to the ODEP system already mentioned, fuses, in combinations with the power transformer's thermal switch (imbedded in the windings) protect the power supply against overload. If the transformers overheat, they shut off automatically and then reset after cooling to a safe temperature.

### Control Layout

The only control found on the front panel of the Crown Micro-Tech 1000 is a large rocker switch used to turn on power to the amp. Nearby is an amber-colored LED pilot light, while further inboard are another pair of amber LEDs that indicate the status of the high-voltage supplies: thermal shut-down or a blown line fuse. The main pilot-light LED will remain on even during shutdown, since it is driven by the low-voltage power supply. At the center of the rear panel, near its bottom, are the Channel 1 and Channel 2 1/4-inch input phone jacks and individual input level adjustment controls whose control shafts are of the type that can be operated with your thumb and forefinger. Between the two input jacks is a push-button labeled "Parallel Mono." There are two methods of mono operation possible with this amplifier. If the "Bridged Mono" mode is selected, a supplied wire jumper has to be installed inside the amplifier at a designated location and the "Parallel Mono" button must be pressed in (it can be held in its depressed position with a supplied small retaining bracket). If the "Parallel Mono" method is selected, the "Parallel Mono" button has to be in its "out" position. A second method of "bridged mono" operation is also possible. This method requires that you wire up Y-adaptors using stereo phone plugs, and detailed instructions are given in the owner's manual for wiring these adaptors for either balanced or unbalanced inputs. This method is preferred if you are going to frequently switch from mono to stereo

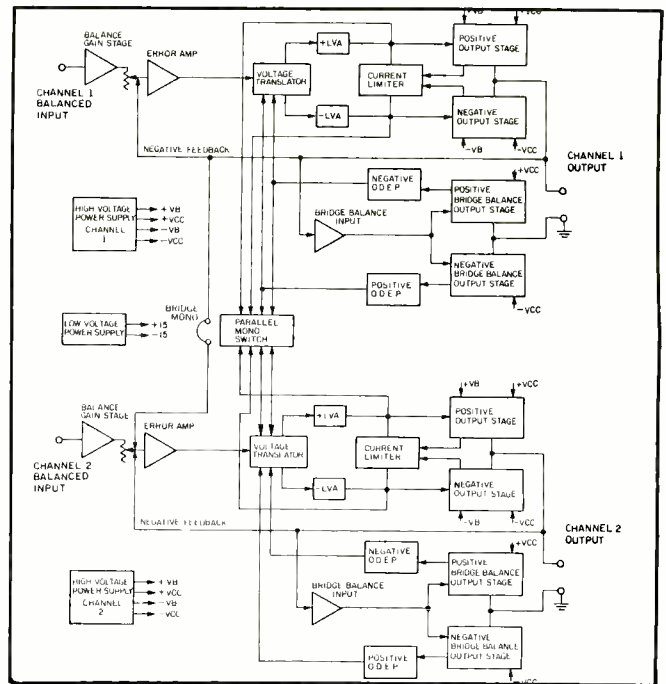


Figure 1. Block diagram of the Crown Micro-Tech 1000 amplifier.

applications and don't relish the thought of having to get inside the amplifier to remove (or replace) the jumper every time you want to switch back and forth between mono and stereo modes.

The two five-way banana-jack outputs are offset to the right of the rear panel. In the bridged-mono mode you simply connect your load to the two red terminals. In the parallel mono mode, a jumper is installed between the two red terminals and the load wires are then connected between the red and black terminals of one of the dual-banana jacks.

### Laboratory Measurements

This amplifier delivered 250 watts per channel over the entire audio frequency range for its rated THD of 0.1% into 8 ohm loads. At 1 kHz, it was able to produce 291 watts for the same level of THD, as against 280 watts claimed by Crown. At that frequency, THD was a mere 0.03% for 250 watts output per channel. All measurements in stereo were, of course, taken with both channels driven as usual. In the case of this amplifier, however, it would make little difference whether we made the measurements for a single channel or with both channels driven, since separate power transformers are used to power the output stages of each channel.

Switching to 4-ohm loads, the amplifier produced 404 watts per channel—again, with both channels driven—for its rated THD. I couldn't test the amp with 2-ohm loads simply because I don't have loads that would handle that much power without burning up themselves, but based upon the measurements I made at 4-ohms and the results I obtained when I operated the amplifier in either of its mono modes, I am prepared to say that the amplifier could deliver the full 1000 watts into any load specified by Crown for mono operation of this beautifully designed amplifier.

Neither was I able to verify Crown's claim of a damping factor of 1000, since even the shortest, heaviest connecting cable that I ran between the



amplifier's output terminals and my measuring instruments introduces some series resistance which "looks like" amplifier output impedance and therefore reduces the maximum damping factor I can calculate. Still, my calculation of 250 (including the resistance of my connecting leads) is higher than anyone would practically need in any case, for a well damped amplifier output.

Other measured test results are summarized in our usual VITAL STATISTICS chart at the conclusion of this report. All of them equaled or exceeded published specifications. In the unbalanced mode, input sensitivity measured exactly 0.775 volts for rated output referenced to 8-ohm loads. Normally, unbalanced mode input sensitivity is 2.2 volts, but you can order the amplifier with the higher sensitivity and apparently our sample was configured that way. Crown also details how you can alter the sensitivity or gain of the amplifier to suit the requirements of your mixing board or whatever program source you are feeding into the amplifier. The change involves changing the value of four resistors inside the amplifier. Increasing the amplifier gain alters the input impedance, of course, if you go for the maximum gain (0.775 volts input sensitivity for rated output), the unbalanced input impedance is reduced from 10K ohms to 3.46K ohms, while the balanced input impedance shifts from 20K ohms to 6.9K ohms.

## Comments

It was clear to me from the outset that there is nothing about this amplifier that has been compromised for cost savings. Everything about this

amplifier smacks of conservative, reliable design and excellent choice of low-tolerance components. Physically, the amplifier is no lightweight, with its heavy steel chassis and its effective heat-sinking and forced air cooling system. After we finished making the basic measurements on the test bench and before subjecting the amp to a variety of listening tests, we tried in vain to "damage" the amplifier by overloading it, driving it with heavy transients, sub-sonic "thumps" and the like. Nothing we could do to the amplifier caused any non-reversible failures. The amplifier shut down several times during these experiments, but recovered on its own after a few moments, none the worse for the experience. So, my overall impression concerning this amplifier is that it offers the utmost in long-term reliability. That comes as no surprise to me, since I have been a fan of earlier Crown amplifiers for many years, having used them in public sound reinforcement situations as long as ten and fifteen years ago. The folks in Elkhart, Indiana continue to offer an honest, reliable product that will withstand the rigors of reproducing today's music at power levels that were never contemplated when I first started using Crown amps myself many years ago.

As for sound quality, we found the sound of the Crown Micro-Tech 1000 to be exceptionally clean and distortion free up to and beyond its rated power output levels. Bear in mind that Crown is one of those rare companies that has managed to bridge the gap between "professional" products and "home high fidelity" audio components. The company is equally respected in both areas, and the Micro-Tech 1000 is a good example of why that is so.

## Vital Statistics: CROWN INTERNATIONAL MICRO TECH 1000 POWER AMPLIFIER

SPECIFICATION	MANUFACTURER'S CLAIM	MR&M MEASURED
Continuous Power for Rated THD (W), (8 ohms), 1 kHz)	280	291
Continuous Power for Rated THD (W), (8 ohms, 1 kHz)	400	404
FTC Rated Power (20 Hz to 20 kHz) (W) (8 ohm loads)	250	250
THD at Rated Power 1 kHz (8 ohms) (%)	0.1	0.03
THD at Rated Power 1 kHz (4 ohms) (%)	0.25	0.10
THD at Rated Power 20 Hz (8 ohms) (%)	0.1	0.028
THD at Rated Power 20 kHz (8 ohms) (%)	0.1	0.028
IM Distortion, Rated Power, SMPTE (%)	0.05	0.025
IM Distortion, Rated Power, CCIF (%)	N/A	N/A
IM Distortion, Rated Power, IHF (%)	N/A	>0.03
Frequency Response at 1W, Hz-kHz, (for -1 dB)	20-20k±0.1 dB	7-80k
S/N Ratio re 1W "A" Weighted IHF (dB)	N/A	95
S/N Ratio re Rated Output "A" Weighted (dB)	110	112
Dynamic Headroom, IHF (dB)	N/A	1.2
Damping Factor at 50 Hz	1000	see text
IHF Input Sensitivity (volts)	N/A	50 mV
Input Sensitivity re Rated Output (volts) (unbalanced)	0.0775	0.0775
Slew Rate (volts/microsecond)	13	confirmed
Power Consumption, Idling (watts)	60	100
Power Consumption, Maximum	1100	1080
Dimensions (W-in. x H-in. x D-in.)	19 x 3.5 x 16	confirmed
Net Weight (pounds)	38	confirmed
Suggested Retail Price \$995.00		



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