

# NAMM Product Showcase

# E

PROFESSIONAL  
PROJECT  
RECORDING  
& SOUND

1999 • ISSUE ONE



## IN REVIEW

Spirit 328  
Digital Console

AKG C3000

Yamaha MSP5  
Monitor

Galaxy Audio  
Far Outlet

KRK V8 Monitor

*Bruce Fairbairn:*  
**KISS'**

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World Radio History

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CLASS A FET



Cardioid, Omni, Figure 8

AM52  
CLASS A FET



Fixed Cardioid

AM61  
TUBE



Cardioid, Omni, Figure 8, Super-Cardioid

AM62  
TUBE

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producer/engineer

Jackson Browne, Don Henley,  
The Violets, Fleetwood Mac,  
Jody Davidson

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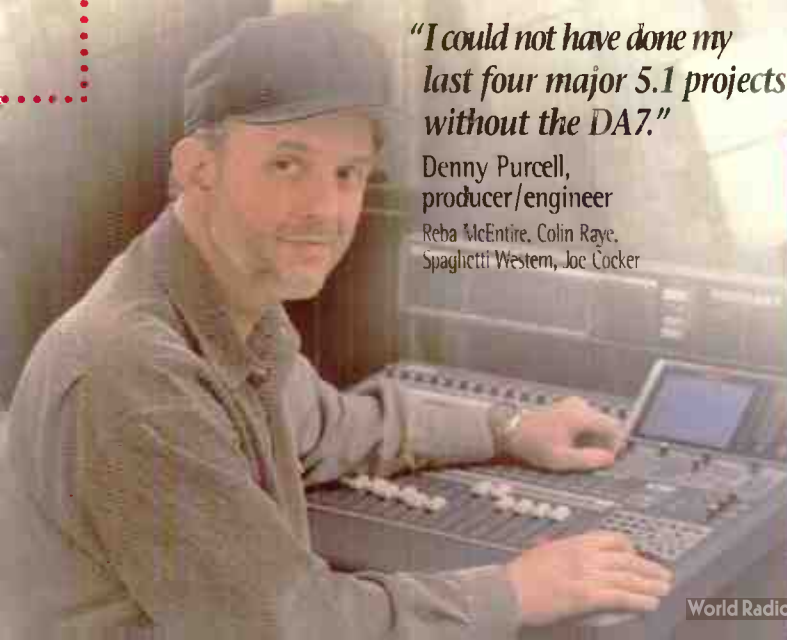
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# EQ

PROJECT RECORDING  
& SOUND TECHNIQUES  
VOLUME 10, ISSUE 1  
JANUARY 1999



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Producer Bruce Fairbairn and KISS members Gene Simmons, Ace Frehley, and Paul Stanley.

EQ (ISSN 1050-7868) is published monthly plus Buyer's Guide in December by Miller Freeman PSN Inc., 460 Park Ave. South, 9th fl., New York, NY 10016-7315. Periodical's postage paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532. SUBSCRIPTIONS: U.S. \$29.95 for 1 yr. (13 issues); CANADA add \$10.00 per year for surface; other countries add \$15.00 per yr. for surface; All add \$30.00 per yr. for Airmail. All subscriptions outside the U.S. must be prepaid in U.S. funds by International Money Order, checks draw from a bank located in the USA Visa, Master Card or American Express. Back issues \$5. Printed in the U.S.A.

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CIRCLE 39 ON FREE INFO CARD



Vol. 10, No. 1 January 1999

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**PUBLISHED BY MILLER FREEMAN PSN, INC.**

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**Subscriptions:** EQ Magazine

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**Article Reprints:** tel: (212) 378-0440 **email:** reprints@psn.com

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**Websites:** www.prosoundnews.com www.eqmag.com



EQ (ISSN 1050-7868) is published monthly plus Buyer's Guide in December by Miller Freeman PSN Inc., 460 Park Ave. S., 9th fl., New York, NY 10016-7315. Periodicals postage paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532. SUBSCRIPTIONS: U.S. \$29.95 for 1 yr.; CANADA add \$10 per yr. for surface; other countries add \$15 per yr. for surface. All add \$30 per yr. for Airmail. All subscriptions outside the U.S. must be pre-paid in U.S. funds by International Money Order, checks drawn from a bank located in the USA, Visa, MasterCard or American Express. Back issues \$5. All product information is subject to change; publisher assumes no responsibility for such changes. All listed model numbers and product names are manufacturers' registered trademarks.

Printed in the U.S.A.

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# The Veronique Factor

I've been writing my first sci-fi novel lately and having some fun. But it's also allowed me to ask questions about human nature and our simultaneous quest for — and fear of — new technology. In my novel, the heroine, Veronique, has been given access to a data bank containing every detail of human history, from the distant Darwinian past to 200 years into the future. And how do the political and religious pundits of the world respond? Pretty badly, I'm afraid. In my vision, no one really wants the whole truth of our past (or the future) to be released, only a rewritten version that puts their particular politics/faith/genome ahead of the pack. Veronique wants to show us the whole truth, and is nearly destroyed in the process. As one of my fictitious world leaders eloquently puts it, "The best way to protect the people from themselves is to only let them know the 'correct' truth."

I was starting to feel a little bit like my fictitious character Veronique while gathering information for my upcoming on-the-road seminar on mixing in 5.1 surround. In the course of talking to and training with a multitude of manufacturers, it seems like everyone has a different version of the "correct truth" — from how accurate the various data encoders sound [Dolby Digital (*the format formally know as AC-3*) vs. DTS] to how the speakers should be placed and calibrated in the studio, theater, and home. How this all relates to DVD playback in the home and consumer acceptance is the billion-dollar question. Tomlinson Holman (founder and formally of THX), of course, has some pretty important opinions, but it seems that no matter what any particular "governing" body has to say about it, someone else always has a better (and incompatible) idea to improve it. How about the new 6.1 (or is it 5.1.1?) theater version of Dolby Digital specifically developed by Lucasfilms for the new *Star Wars* release, which has Front Left-Center-Right channels, plus Rear Left-Center-Right, plus an LFE (Low Frequency Effect) channel. The extra .1 is a matrixed rear-center speaker used to provide better localization when those star fighters fly over your heads. As Susan Powter used to say (back when she was rich and famous, not the current poor and bitter version), "Stop the Insanity."

So if you really want to have some fun, stop in for one of my upcoming 5.1 mixing seminars on the road. Manufacturer support has been for the most part excellent, and I can promise you that *EQ* and I won't be pressured into anyone's "correct truth." It will be a wild-and-wooly ride showing all the latest equipment and techniques. Up-to-the-minute latest details will be posted on the *EQ* Web site ([www.eqmag.com](http://www.eqmag.com)), with cities and times. But the most important participant is *you*. I can only present the various truths as fairly as possible, and then we'll help the rest of the industry decide on what's right. Yes, it's the audio engineers of the present and near future that will provide the source material for the DVD audio trade. How well we understand the techniques and technologies of mixing for 5.1 surround will determine the sonic (and monetary) success of DVD music. Remember that the truth will set you free. Veronique would be proud of you.

—Mike Sokol





# WAVEFORMS

Waves... Toslink... Adat litepipe... coaxial... optical... S/PDIF...

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What if you need to dub from a DAT machine with S/PDIF coaxial outputs to another with S/PDIF optical inputs (or vice versa)? The CO2 is a quick and easy solution. The CO2 can be used as a converter and/or repeater.

Both of these products are very affordable solutions and of course... are guaranteed for life.



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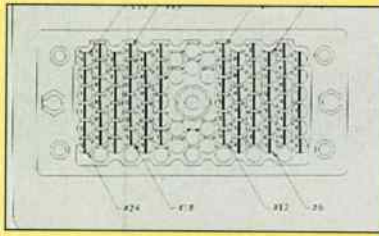


FIGURE 1

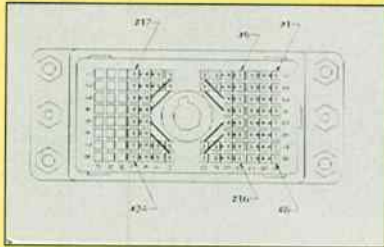


FIGURE 2

### PATCHBAY CORRECTIONS

Due to a miscommunication in the editorial offices, there were several errors involving the use of the wrong graphics in David Frangioni's "Studio Wiring Guide" in the December issue. Figures 4A and 4B were *not* SAC pinouts as indicated, but instead Audio One pinouts. The correct pinouts are shown here in figs. 1 and 2. Fig. 1 is a 90-pin ELCO per the SAC specification, and should have been placed as fig. 4A. Fig. 2 is a 96-pin DL per the SAC specification, and should have been placed as fig. 4B. Also, in the "Guide to Patchbays & Connectors" section, under "Various Patchbays," the photo labeled "ELCO TO TT PATCHBAY" should actually read: "MOLEX TO CABLE BREAKOUT." That image was provided by Audio Accessories.

We apologize for any confusion we may have caused.

### PERSPECTIVE ON POLON

Martin Polon offered some great advice on surge protection and lightning phenomena [Dec. '98]. However, you just gotta get a new picture taken of him. I've been looking at this same photo of your friendly face for what seems to be more than a few years now. My point is this: What is that absolutely retro piece of electronic gadgetry on your desktop? Just kidding ya. Keep up the good work.

Jeff Lindeman  
via Internet

### JUST A PHASE...

I found Steve La Cerra's "Checking for Bass" article in the December issue of *EQ* very interesting and informative, except for one thing: he says that if the AC power source feeding one amp is reversed in phase from the AC power feeding other amps, the *audio* going thru that amp will be reversed in phase. I think you will find that the phase of the AC power has absolutely nothing to do with the phase of the audio being amplified. Yes, you may get some hum problems, but not an audio phase reversal.

But thanks to Steve for a very good article.

Jim Davis  
Reston, VA

### KUDOS FOR KOOPER

Thanks to Al Kooper's October column, I'm sitting here typing in my brand new used Herman Miller office chair, which I picked up at an antique store for \$50. I owe you, man. All this time farting around in my little home studio I was thinking I could use my piano bench for all my seating needs.

A couple of other things: I had some time on my hands since my hard drive was murdered by the Norton Crash Guard (never again!), so I read Al's new book and, aside from the fact that I loved it, two things stood out for me personally. One was that I was blown away by your mention of Em-maretta Marks. I worked with her for a while in the mid-'70s somewhere. She was dating the drummer, George Leary, former real hot player from Albany (Nick Brignola, Laura Nyro). I didn't believe half the shit she was telling me (former Ikette, original cast of *Hair*) until I saw her credit on a Hendrix album. The other thing was your mention of your gig at the World's Fair. I think I saw you guys, dude! I was 10 years old, and whoever it was, they were the first in-the-flesh Rock 'n' Roll band I'd ever heard. It was an outdoor gig if I remember right. We were just walking by and my mom let me stand and listen for one song, and it was "Boys." Changed my life. Did you guys cover that tune?

Anyhow, great column, guy. Macs rule! Norton sucks! Try Tech Tools.

Leo Muzzy  
via Internet

### GETTING REAL

I am a musician and I do digital audio, and I read Roger Maycock's configuring digital audio article in the December issue. I thought perhaps a real-world-from-the-trenches reply might be a good idea. Yes, SCSI drives are the best, but a good Ultra DMA drive will give you plenty of tracks right now and leave you with money for other things or even lessons on how to effectively use this stuff.

I guess part of the question is how many tracks do you need? If you can get by with 30 tracks, then Ultra DMA drives will work if you get the right ones. There is always plenty of real-world discussion at Cakewalk's Web site about such matters.

I love Seagate and I think they make great drives, I just don't have the money to lay out for a 10,000 rpm cheetah drive. I am using a Maxtor 3400 series 10 GB drive, and it works great. Most of the 2880 series works very well.

In this article, Roger failed to mention something else that is very important to many people. Those high-speed drives are as noisy as a coffee grinder. Now I am willing to bet that lots of people are using the computer and have it in the control room. I am also willing to bet that a lot of these folks track in the control room. High-speed drives are noisy and they generate a decent amount of heat!

Yes, you can put the CPU in another room (if you have one). Yes, you can get hush mechanisms for these noisy drives and also some computer power supplies. But, in this type of article, I think a mention of such issues would be not only welcome but mandatory.

Finally, how many tracks can I get right now? Over 40 tracks with no problems all. How many over 40? I do not know. I have never even needed close to that many tracks. Yes, a 450 MHz CPU and 128 MB of RAM help a lot.

Dave Hallock  
via Internet

## WRITE TO US

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## RESTORING TAPE

**Q** *In the 1970s, I lived in Berkeley and recorded a lot of live folk music as well as many political happenings from stations KPFA and KZSU. I owned — and still own — a TEAC 2300S, 1/4-track machine. At the time, it was possible to pick up Ampex 041 black-oxide, no-slip backing tapes in quantity for almost nothing. Now, that is what they are worth — almost nothing!*

*The other kinds of tape that I used sometimes, Scotch 177, Scotch 150, Scotch 203, and random other kinds of slick-surfaced backing, still play fine on the recently restored TEAC. I own two microwave ovens and one standard electric cooking stove with an oven. Is there a safe and effective procedure I can follow to render the no-slip backing black-oxide tapes playable for transfer? They are recorded full, in both directions, and are mostly stored with smooth windings from rewinding the last side at play.*

*I found Eddie Ciletti's article on baking tapes so interesting that even though it involved buying additional apparatus, and was mostly pointed at professionals, I am creating a large-type version (I am nearly blind) of it and printing it for future possible reference or to pass along to others.*

Alec Hamilton  
via Internet

**A** Your tapes will not deteriorate further while you save money to buy the dehydrator. (It is the safest, most effective way to do the job.) You can always use it to dry banana chips and tomatoes, so you'll save money on snacks!

There is one alternative: create an oven by using a hairdryer (set to Low), and setting an upside-down box on top of an upside-down milk crate. (The Low setting will generate about 140 degrees, which is the maximum baking temperature.) Check my Web site ([www.tangible-technology.com](http://www.tangible-technology.com)) for a diagram of the setup.

I must emphatically restate that tapes can only be baked if they have a perfectly smooth wind. If this means playing them, so be it. If a tape is to be stored, don't rewind after playing. Don't bake acetate tapes, which include all of the Scotch/3M tapes that you mentioned. If the tape must be played to cre-

ate a smooth wind, cover the heads with a cloth or paper towel to minimize oxide build-up.

Eddie Ciletti  
Manhattan Sound Technicians  
NYC, NY  
[tangible-technology.com](http://tangible-technology.com)

## ADAT ERROR MESSAGES

**Q** *I recently started work at a studio in Wisconsin that has three ADATs and a BRC. (The studio was built about a year ago. The machines were purchased about the same time, and have less than 100 head hours.) During a recent session, the #2 ADAT would not start playing with the other ADAT units. I removed the tape and put it back in and got an "error 9," followed by "no good tc." If I press the Stop button, it will display time and will fast wind. But if I press Play, it flashes a quick error code (too fast to read) and then sits in Play mode without moving.*

*Since the #2 ADAT was not working, I swapped it with the #3 ADAT to continue the recording session. Within 15 minutes, the #1 ADAT started dropping audio as it was playing and soon would not play at all, acting exactly like the #2 ADAT. Same error messages.*

*Since I am rather new at this, the problems did not make me look good. I tried a reset, but that and cleaning the heads did not solve the problem. Also, the problem occurs with any tape. ADAT #3 continues to perform well (so far...).*

*Any suggestions as to what I may have done wrong, or what may be needed to fix these machines?*

Dennis Shaske  
via Internet

**A** I don't think you did anything wrong. This may be a hibernation issue. That is, perhaps lack of use caused the Mode Switch to oxidize. Try the following test to exercise and, hopefully, self-clean the switch (as a temporary fix).

Disconnect all of the machines from each other. Turn each on and insert a noncritical tape. Press Play, let them run a few seconds, then Stop, then Eject. If you get through this once, then repeat five times, ejecting the tape each time. Then insert the tapes and FF to the end, eject, and then reinsert and rewind. Then insert one last time and press Play. If you get through this, the Mode

switch may have successfully self-cleaned itself. If not, pull the cover, clean the heads (allow time to dry), and insert a tape to observe what's going on. If things are better, repeat the first test.

After cleaning, if the machines are now independently better, power down and reconnect the 9-pin cable so the machines can sync to each other. Power up, insert all three tapes, and press Play on the master. If they are now behaving, power down and reconnect the BRC. If all is well, you can blame "hibernation." If nothing helped, perhaps the BRC or the ADAT power supplies need attention.

Incidentally, the Mode switch is not particularly great at self-cleaning itself. If the problem reoccurs, it might be a good idea to have the switches replaced. Use those machines!

Eddie Ciletti  
Contributing Editor  
EQ magazine  
[tangible-technology.com](http://tangible-technology.com)

## TALE OF TWO QUESTIONS

**Q** *Question 1: I need some advice. I have had a niggling problem with my TASCAM DA-30 DAT (original Mk1 version), which, despite a major service by TASCAM in Australia, has not been fixed. When in rewind or fast forward, instead of the nice solid spooling noise of these operations, very occasionally, a slipping noise occurs where the ABS time display stops for the duration of the slipping noise, and then normal motion resumes. I assume from the ABS time display stopping that the tape also stops, but have not looked at it while the cover is off, so can't be sure. (I will do this and check.) The duration of this event ranges from .25 sec to 1 sec. Also, it often occurs at the start of rewind or fast forward, where it appears something is slipping for awhile before it actually gets going.*

*Have you seen this problem before, and can you suggest what the problem part might be? The unit is about four years old and has about 600 head hours of use in recording live stereo classical concerts. It has been lovingly cared for and has just come back from TASCAM after a major service where all rubber was replaced and cleaned and aligned, etc.*

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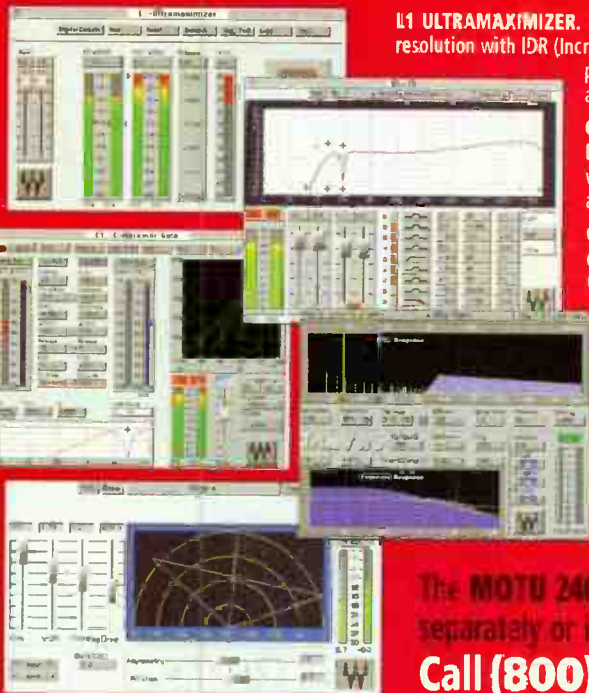
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*Question 2: Recently, my TASCAM DA-30 DAT has been eating tapes. I suspected that a cleaning might be in order, so I got out the alcohol and lint-free cloths and swabbed about. Surprisingly, the head did not seem to be very dirty at all. Before closing the machine up again, I decided to put an unimportant tape into the machine and observe to see if anything else was amiss. As I played the tape, the take-up hub seemed to be having trouble. It was moving in a jerky, stop-start way that let extra tape flow into the tape shell then be wound in abruptly when the hub started to move again. I tried other transport operations (FF, REW), and within a few minutes I had extra tape flying everywhere, but back onto the take-up reel (this happened in fast forward, I believe). Is this a problem I can fix myself, or is it time for a visit to the repair shop?*

Ryan  
Livewire Studios  
via Internet

**A** I will now attempt the stupendous feat of simultaneously answering both DA-30 questions with one answer. Ladies & gentlemen, step back, please. Keep your children by your side!

There are four possible causes to the problems mentioned: [1] clutches (lack of); [2] servo lock; [3] switches; and [4] loss of the soft-brake felt.

Two clutches regulate normal tension in Play and Reverse-Play modes. A little shift of the gears and the clutches are bypassed for fast wind. Problem is that the clutch/layered-gear assembly is press-fit plastic. ALPS, the company that makes the transport, no longer makes the parts. (This is a pet peeve of mine, so get ready: ALPS is the worst OEM — original equipment manufacturer — that I have ever encountered. They are completely unfriendly unless you buy 10,000 pieces.) Okay, I feel better now....

So, TASCAM had to have this part re-engineered at some expense. (It's too late now, but TEAC should have been "rolling their own" DAT transports from day one!) I believe the street price of the clutch is over \$35, U.S. I highly recommend having both replaced.

While under the hood, have the service center check the Mode and Load switches as per my article, "Crunch a la Mode" [Nov. '97]. A dirty switch could keep the machine from mechanically positioning itself into the correct mode.

(Also check for the take-up, reel-table soft brake.)

There are some machines that make a strange sound at the initiation of fast wind. This sound comes from the head assembly motor coils when the drum speed is "out of servo lock." (The head speed must change appropriately for the higher tape speed and direction.)

While I don't have a specific answer for this "lack of lock" problem (it is usually only temporary), it is either "gain" or noise related. Since there is no "servo-gain" adjustment, it could be caused by aging components — most likely capacitors — in the head motor drive amplifier.

Eddie Ciletti  
Manhattan Sound Technicians  
(Soon to be relocated in St. Paul, MN)  
www.tangible-technology.com

## WHEN SMOKE GETS IN YOUR TAPES

**Q** A friend of mine recently suffered a fire at his home, and some of his ADAT masters sustained smoke damage. He has asked me to play back the tapes to see if they're OK, but my instincts tell me that I don't want them running across my tape heads. What do you think?

Phil  
Nashville, TN

**A** Take your least favorite machine, pop the lid, and clean the heads. Allow five minutes for them to dry. Assuming the tapes were stored in the box and the shells aren't warped, go ahead, insert a tape, and play for five minutes. If you get that far, stop, eject, and clean the heads. If the heads didn't get any dirtier than they were before you started, be a friend and make your friend his clones. Clean the heads after every pass.

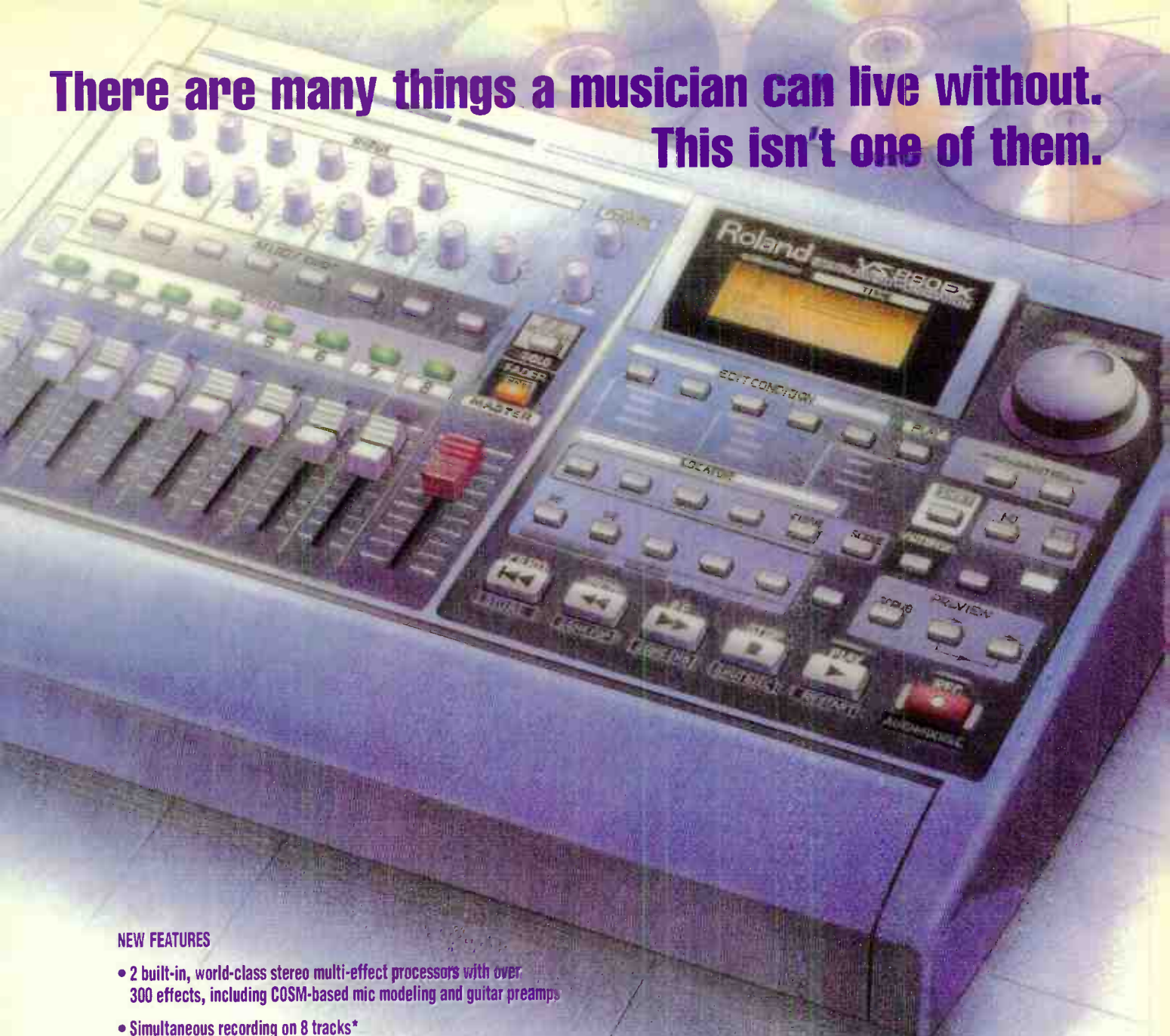
Eddie Ciletti  
Contributing Editor  
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edaudio@interport.net  
[another EQ&A can be found on p. 129]

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**STUDIO NAME:** The Studio at the Sunset Marquis Hotel and Villas

**LOCATION:** West Hollywood, CA

**KEY CREW:** Jed Leiber, president; Tom Fritze, chief engineer

**PROJECTS:** Clients of The Studio include Aerosmith, Blockbuster Entertainment, Joe Cocker, David Holmes (composer, *Out of Sight*), Lieber & Stoller, Danny Saber, Jeff Beck, Tony Iommi, Slash, Don Was, Wu Tang Clan, Universal Pictures (*The Jackal*), Warner Brothers (*The Conspiracy Theory*), and Carter Burwell (composer, *Fargo*, *Rob Roy*).

**CREDITS:** Some of the artists that Fritze has worked with include Joan Osborne, Rolling Stones, Keith Sweat, Vanessa Williams, Donald Fagen, Bon Jovi, Nile Rodgers, Neil Young, Prince, Billy Joel, David Bowie, Violent Femmes, and Bob Dylan. He also has experience in post-production for film (*Light of Day*, *Postcards from the Edge*) and television (*Peewee's Playhouse*, *3.2.1. Contact*).

**CONSOLE:** Euphonix CS-3000 56-fader, 112-input board with total recall, fully automated mixdown, moving faders, and computer-controlled dynamics

**MONITORS:** Yamaha NS10; Tannoy main monitor, center, and stereo surround speakers

**AMPLIFIERS:** Bryston 7B [2] and 4B [4]

**RECORDERS:** Sony PCM-800 [3] with sync cards; Studer 827 and Sony 348 available on request

**CASSETTE DECKS:** Nakamichi MR-1 cassette recorder; TASCAM 122 MKIII cassette recorder [2]

**DAT MACHINES:** Panasonic SV-3800 [2] and SV-3700 [2]

**CD PLAYER:** Denon DN-650F with varispeed and digital outputs

**OUTBOARD GEAR:** SSL 6384 stereo compressor; Avalon AD 2055 stereo EQ, AD 2044 stereo compressor, VT-737SP tube mic pre-

amp/EQ/compressor, M4 mic preamps [2], and U5 direct boxes [2]; Drawmer DS 201 stereo gate; dbx 166 stereo compressor and 160A [2]; TC Electronic M2000; Sony D7 delay; Yamaha SPX1000, Q2031 graphic EQ, and Rev 7; Eventide DSP 4000 Ultra Harmonizer; Lexicon 480L reverb; White 4700 programmable EQ [2]

**COMPUTERS & SOFTWARE:** Apple Power Macintosh; Digidesign Pro Tools/24 with 888 interface and video slave driver; Studio Vision Pro; Logic Audio

**VIDEO:** Sony high-definition overhead projector with line doubler and 100-inch screen

**STUDIO NOTES:** Chief engineer Tom Fritze states: The Studio is located at the The Sunset Marquis Hotel & Villas, and is rented on a daily, weekly, or monthly basis. It was designed and built with George Augsberger. It's a very comfort-

engineering gig for me, mainly to keep the flow. A lot of the clients need a place to stay as well as work. We did the soundtrack album and score for the film *Out of Sight* with composer David Holmes, and he and his whole team stayed here for five weeks. I set them up with their own keys so they could come and go as they pleased. They can get away with working long hours. It's not like sleeping in the studio.

**EQUIPMENT NOTES:** Fritze continues: The Euphonix console is very versatile. It has instant recall, which allows you to work on many songs or cues at once. You are mixing the whole record and making your adjustments that way. A lot of people like to mix



able place to hang and work — and not just because it has all the amenities of a full-service hotel. The entire studio is also set up in road cases — each with a multi-connector. So if an artist needed to take the racks with him, or reconfigure the room, it could be done

My job is to support the sessions in every way. Many times it turns into an

that way now. We've been doing a lot of mixing here. We do a lot of overdubs.

Every person who uses the studio is different. We try and customize the room for your session's unique needs. Whatever the client requests, we can accommodate. **EQ**



# American D4L

Can you help us learn more about the mysterious D4L microphone?

**MICROPHONE NAME:** American D4L  
**FROM THE COLLECTION OF:** Terry Hughes, Rubber Ball Productions (North Brunswick, NJ)

**PRICE WHEN NEW:** Approximately \$20

**YEAR OF MANUFACTURE:** Late 1930s

**TYPE OF MIC:** Dynamic moving coil

**POLAR PATTERN:** Omnidirectional

**FREQUENCY RESPONSE:** 60 Hz to 7500 Hz

**EFFICIENCY:** -56 dB, re 0 dB = 1v/bar

**RATED SOURCE IMPEDANCE:** See notes

**MIC NOTES:** According to literature from American, the D4 was intended for use "where clear speech and natural music reproduction is required. While designed for maximum ruggedness, it is of convenient size and reflects beauty in modern lines." Several versions of the microphone were manufactured by American. The D4 model had a source impedance rated at 30 ohms, did not use a transformer for coupling, and came with a 12.5-foot cable. The D4T used a "high permeability core transformer" and was available in 38,000-ohm (high impedance), and 20- and 500-ohm versions with a balanced output. Shown in this photograph is the American D4L, a variation of the D4 microphone for which *EQ* was unable to obtain specific data. *EQ* readers are welcome to contact us with additional information on the D4L.

**USER TIPS:** Owner Terry Hughes of Rubber Ball Productions says that he "won't reach for the American D4L as a first choice because it's kind of noisy, but I do use it for certain oddball purposes. I'll use it as a second mic in the back of a guitar amp, or maybe on a harmonica. On a harmonica it sounds sort of like a [Shure] Green Bullet with a lot of midrange. I've also used the mic together with a graphic EQ set for a peak at 1 kHz, to get a telephone-type sound."


*Technical data courtesy of James U. Steele.* 



PHOTO BY EDWARD COLVER

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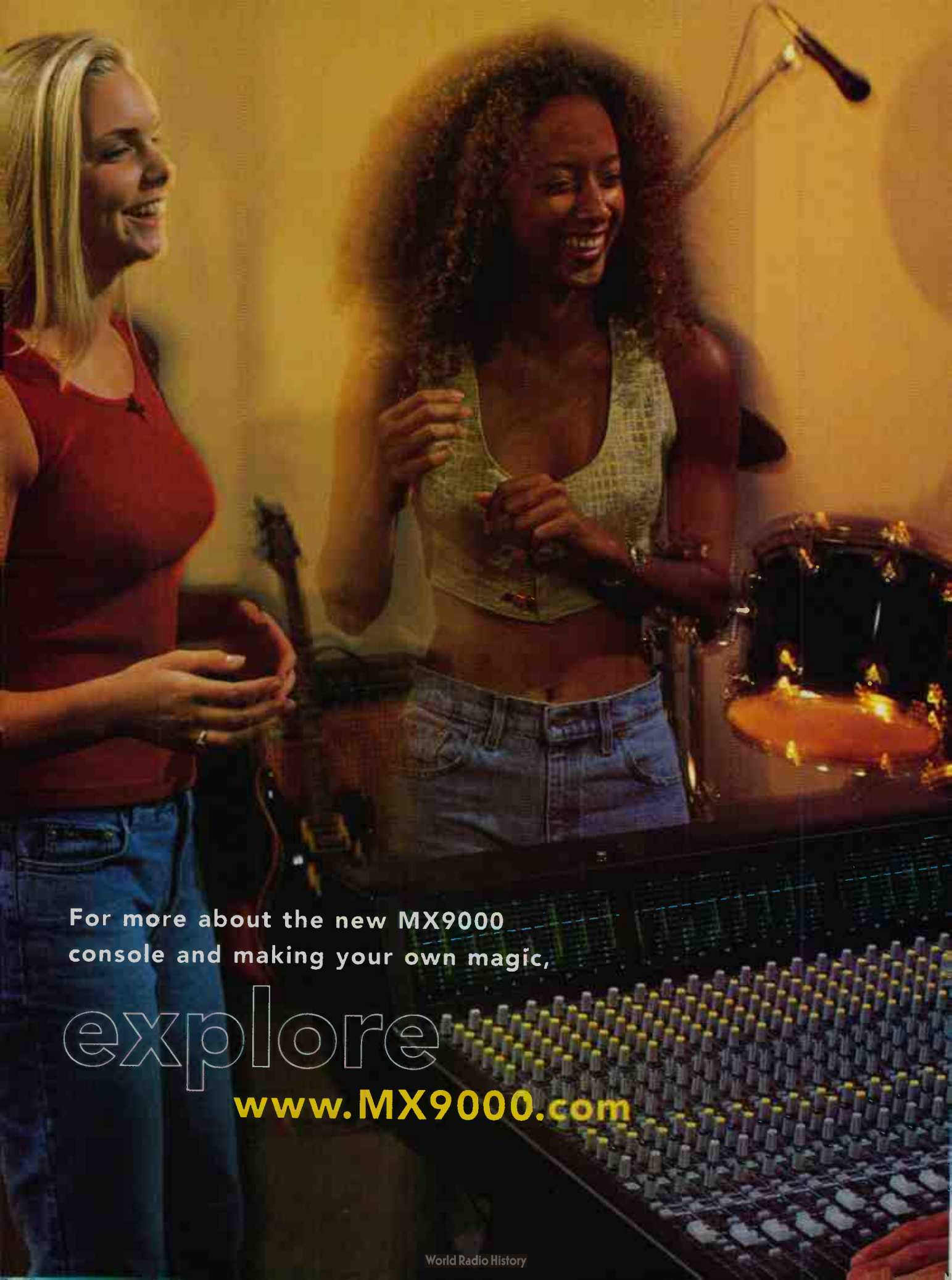


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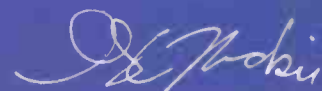
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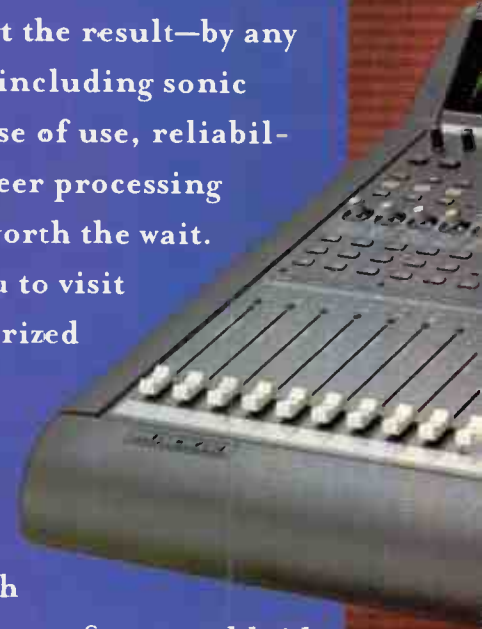
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BY ROGER MAYCOCK

Shortly after its introduction in April of 1997, Seer Systems' Reality gained an enviable reputation as the first fully programmable software synthesizer intended for professional use. Recently, the company began shipping Version 1.5, an expanded, more powerful incarnation that, in addition to increased polyphony and greater compatibility with the multitude of available sound cards on the market, boasts the incorporation of SeerMusic — a new streaming audio technology for placing multitrack audio on the Web.

Reality 1.5 incorporates five synthesis types: sample-based, virtual analog, FM, and modal and physical sound modeling. The program can be used as a stand-alone MIDI sound module or run concurrently with any Windows-compatible sequencer. Configuring Reality for use as a MIDI output device with your sequencer is a simple matter of disabling the program's stand-alone connection and enabling MIDI thru in the sequencer. This way you play "thru" your sequencer to Reality just as you would with a hardware-dedicated sound module. Used this way, your sequencer and Reality effectively become a self-contained music workstation suitable for music composition, sound effects work, or sound design.

Seer Systems recommends using PCs with Intel processors, as the program's code is not optimized for the floating-point units of some AMD and Cyrix processors. The minimum processor speed is 133 MHz, but Pentium II class systems are recommended. A Level 2 cache is highly recommended. This should not be an issue for any system purchased within the last year and a half. You can get by with 40 MB of RAM, but 64 MB is preferred. You'll also need a CD-ROM drive to install the program.

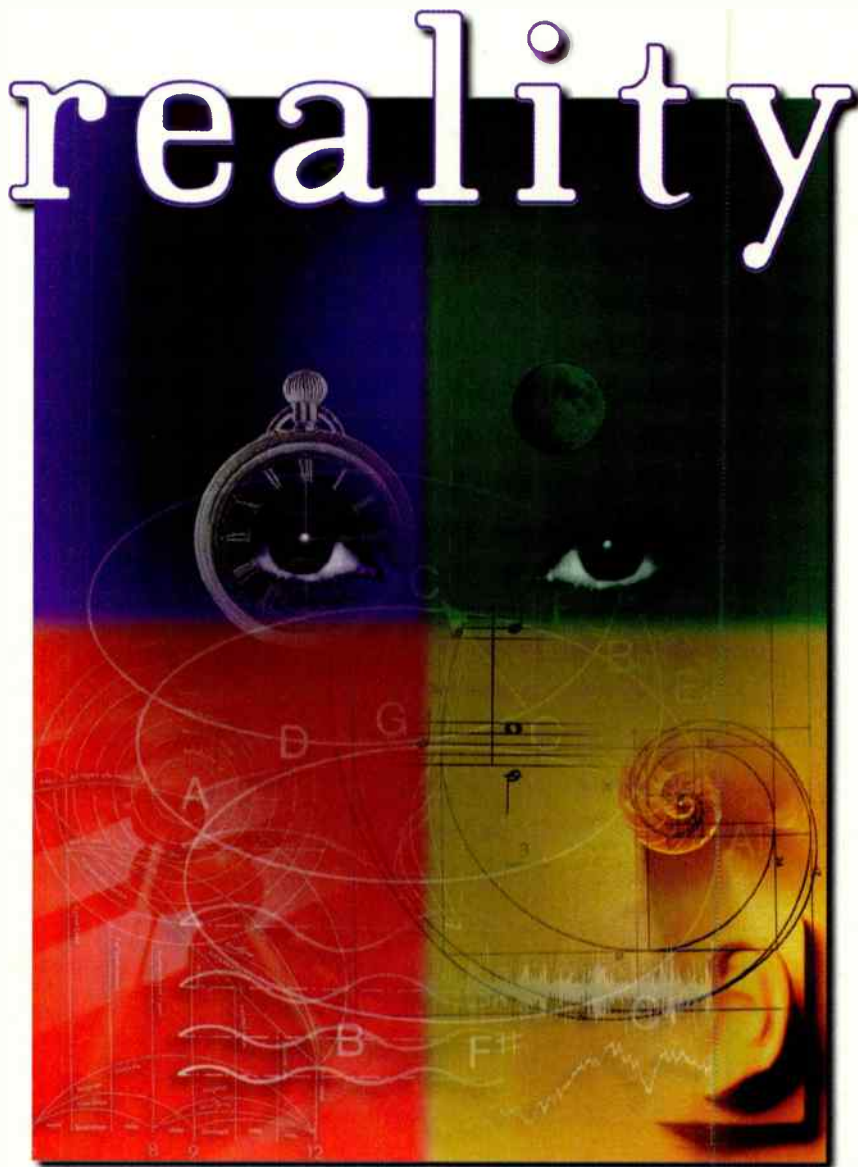
Installation was painless. I installed the program to my D: drive (which I dedicate to music stuff) and opted to include

SeerMusic. Total disk space for the install was roughly 40 MB. If you have the space, you can elect to add the extra banksets for access to a considerably expanded sound library. A bankset is a collection of up to 1336 sound patches. After the install, Reality's setup program checked to see if I had Microsoft's DirectX, which it uses to produce sound. Setup identified an earlier version and asked me if I wanted to install the newer version, which I accepted.

The program has an excellent section called "Optimizing Your Own Private Reality," which goes into considerable detail

about configuring your system to get the most out of the program. Like most other audio applications, you'll get the best results by using Ultra Fast or Ultra Wide SCSI controllers and disk drives due to the increased throughput of such systems. Reality uses only the audio (WAV) portion of a sound card. It does not access the synthesis section. Full-duplex sound card capability is now supported, including Event Electronics' Darla, Gina, and Layla cards, as well as other cards that do not support DirectX.

After the installation, I played the included demo and auditioned the indi-



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**FIRST LOOK**

vidual patches. There's a ton of good-sounding, very usable patch data. The new version offers up to 128-voice polyphony — dependent upon processor speed and the combination of sample rates, oscillators, and filters being used. The new version's filtering capabilities have also been enhanced with the inclusion of low-pass, high-pass, band-pass, notch, and resonant filters with selectable slopes variable from 2- to 16-pole.

While I'm far from being a sound designer, I was able to construct a pretty fat-sounding analog pad with a slight filter sweep on the attack without much difficulty at all, complete with reverb and a touch of echo. I attribute my success to the program's visual layout. It presents many sound parameters all at one time — making it far easier to find what you're looking for than the conventional (and limited) LCDs typically found on keyboards and sound modules.

The sound design capabilities of Reality 1.5 have been enhanced considerably. As stated earlier, the program now includes FM synthesis with the ability to use samples as carriers and modulators. Also new is the ability to use physical sound modeling. Physical models include new items such as Delta (plucked) String and Bowed String in addition to percussive mallets, nylon and distorted guitar, Bowed bass, and Clarinet, plus an assortment of melodic percussion models such as Marimba, Vibes, Tibet Bells, and Tubular Bells.

Also new to Reality 1.5 is support for SoundFont 2.0 — providing the ability to import any of the thousands of available sounds in the format to expand your programming palette. There's also an integrated MIDI sequence player for playing back standard MIDI files that appears to be much more tolerant of multiple Program and Controller messages than is Window's Media Player. Media Player will

frequently choke on sequences that have numerous PG and CC messages embedded at the same clock pulse address — forcing you to go into a sequencer and stagger them over time. I did not encounter this annoying characteristic with Reality's MIDI player.

The one final item before we get to the big news is Reality's new Capture Utility. This tool enables you to take the entire output of the program and create a stereo WAV file direct to disk — essentially audio extraction, but for MIDI. Now you can take an entire sequence and create a file that can then be written to CD-R or CD-RW. If you find yourself running short on polyphony, you can record the output of your entire patchwork (or multitimbral setup) and then load the

corresponding WAV file back into the sequence and play it as a single oscillator PCM voice. If you're creating high-sample-rate sounds, this is a great way to increase the amount of polyphony from the system.

**THE BIG NEWS  
— SEERMUSIC**

If you're looking for a means of distributing your work over the



Internet and want better audio quality than the mass-media programs, SeerMusic just may be the ticket. SeerMusic enables you to create broadcast quality, low-bandwidth streaming audio with just a few extra steps past the finished sequence. The SeerMusic Player is available for free downloading from the company's Web site ([www.seermusic.com](http://www.seermusic.com)), making it easy for others to hear your work.

Once the sequence is finished in your sequencer's native file format, the process is to create a Type 0 Standard MIDI file, after which you add this file to Reality's bankset. After saving this as a SeerMusic Work, you're done. Of course, restrictions apply.

As you already know, samples typically create large file sizes. If your various patches contain no sample data, there's re-

ally no download issue to consider. If, however, your patches use sample data, matters become somewhat more involved and good planning becomes part of the equation to ensure success. For this reason, Seer Systems has created the Seer-Music Wave Pool that consists of a bank of high-quality samples that have been optimized for Internet downloading. If you plan on posting your composition to the Internet, this is an option well worth considering, as this collection of sounds is resident on the client side after installation of the SeerMusic Player.

While you can certainly use your own samples, you need to be cognizant of the need to "keep it short and simple," as larger files are likely to interrupt the playback of streaming data. For voiceovers or vocal tracks, you need to approach these samples in the same manner as you would when using a sampler. Break up the material into a series of smaller segments that can be recalled via Program Change messages and place the samples strategically throughout the sequence, calling the items as needed. If you simply insert a single sample to be triggered at the head of the sequence, the listener will likely have to wait until it downloads before playback begins.

Similarly, posting your multitrack audio files to the Web requires some additional effort. SeerMusic uses Javascript to check for Netscape and Microsoft browsers. No, you don't need to become a programmer — Seer Systems includes a sample script in the owner's manual that requires nothing more than a redirecting of the path to the actual SeerMusic Work. The Seer Systems Web site provides additional information, updates, and examples of SeerMusic Works that can be played and examined for a better understanding of what's involved in the process. While it may not be quite as straightforward as other available options, it sounds very good and the price is right.

Seer Systems Reality 1.5 is a comprehensive program that sounds impressive, has a well-written manual, and incorporates the necessary tools for a wide variety of music and audio applications. If you have the hardware to support the program or plan on acquiring it, Reality 1.5 is a tough act to follow.

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# Emu-Ensoniq Trio

## Tips on using PARIS, Darwin, and the Emulator 4 sampler

BY THE EMU-ENSONIQ  
TECHNICAL SUPPORT STAFF

### ENSONIQ PARIS HARD-DISK RECORDING SYSTEM

How do I patch external stereo effect processors through the PARIS digital mixer?

1. Connect audio cables from the MEC A80T-24 Out 1 and 2 jacks to the external effect processor's inputs.
2. Select an Aux Bus to use. (Aux Bus #1 in this example)
3. In the Mixer window, set the Aux Bus 1 mode switch to Stereo by pushing the Mono/Stereo button.
4. In the Patchbay window, drag the MEC Modules and Mixer FX objects onto the patchbay desktop.
5. Connect patchbay cables from the Mixer FX Send 1L and 1R to the MEC A80T-24's Out number 1 and 2.

To return the processed audio from the external stereo effect device to the mixer through the MEC A8iT-24:

1. Connect audio cables from the external effect processor's L/R audio outputs to the A8iT-24's Input 1 and 2 jacks.
2. Connect patchbay cables from the A8iT-24 Input 1 and 2 to FX Return 1L and 1R in the Mixer FX object.

To process a Mixer channel using the external device:

1. In the Mixer window, enable the Aux Send 1 button for any channel you want to send to the external effect processor's input.
2. You can then change the send level for each of the active channels individually by using the Amount knob in the Aux Send.
3. Aux Return 1 controls the return level for the external effect processor. The default level is 0 dB.

### EMU DARWIN

**Q:** While playing my project on Emu's Darwin, it stops and says, "Area unplayable. Too many small events." What can I do?

This message will occur if Darwin cannot read part of the disk due to fragmentation or disk damage. Try creating a new "Version," then play the new version. If the new version plays without errors, then go ahead and delete the old version. If this doesn't work, then "Copy" the project to the same disk (if there is room) or to another drive. Again, in the same manner as before, play the new project. If the new project works, then delete the old project. If the project still is having errors, then try to remember the last action you performed (Did you just record a track? Or, edit something?). Change the clock to "—:—:—: samples." In Edit, choose the track where the last action was performed. Play until the Darwin freezes. Mark this as an "Edit > In" point. Choose "GOTO" and locate one sample up from the "In" point, then mark this as the "Edit > Out" point. Cut the section. Try to play the project. If it plays OK, then back up the

disk. Once you've backed up the disk, proceed to do a "LL Format." Upon completion of the LL Format, restore the project from the backup copy that you just made.

### EMU EMULATOR 4 SAMPLERS

How do I activate "Multi Mode"?

Press the "arrow" in the bottom-right corner of the display and then press "Multi."

How do I use MIDI to control my FX in "Multi Mode"?

Set the Master/FX/Setup to: Multi Mode Effects Control: preset on MIDI channel 16 (you can use any channel you want). Create two new presets from Preset Manage/New. These presets will be used to assign Preset FX settings only. *There will be no voices assigned to them, they contain no sounds.* Edit the first preset (Preset Edit). Choose "Global" and "Edit All." Under the Global preset parameters, select "Preset Effect A" and choose Warm Room: Main FX. A Send: 20 percent. Edit the second preset in the same way, *except* set the Main FX A Send: 50 percent. Assign the first preset to MIDI Channel 16 and play

*continued on page 128*



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CIRCLE 69 ON FREE INFO CARD  
World Radio History

# Desktop Concert Meets The Studio

Taking a look at a new approach to the traditional recording process



BY CRAIG ANDERTON

Rather than covering a specific recording technique, this column describes a recording process — one that's different from the usual multitracking model. Hopefully, it will inspire you to investigate some alternate recording models of your own (or if this one works "as is," great).

The usual recording method is to sit in front of your multitrack recorder/mixer (or computer), play some instruments (with or without other players), and proceed in a fairly linear fashion until the recording is complete, at which point you mix it. But digital technology has opened up many new possibilities.

Last issue's column discussed the "desktop concert" (i.e., setting up a bunch of project studio-type gear on a tabletop, plugging into an existing sound system, and doing groove-style music based on multiple loops). I loved the feel of playing live, and it also was a lot more fun than overdubbing one instrument at a time. I wanted to incorporate this approach into the studio; here's what worked for me.

## COMPOSITION

Oddly, this was the easy part. One night, while

waiting for an interminably long 'Net download, I turned on the Ensoniq ASR-X "groove box" and started bashing out some rhythms and lead lines. A tune just seemed to flow, and some tweaking the next day created the needed collection of loops. After a few days of practicing, the basic structure was pretty together. Now all I needed was to play it live and find out where that took the mix.

## SONG AUGMENTATION

A gig at a local nightclub was perfect for testing out the piece in front of an audience. The feedback loop created with the audience took the tune up one more notch, as the context inspired ideas that wouldn't have happened by playing alone in the studio. In particular, a lot of the musical segues became more extreme, with abrupt volume changes and major use of "drumcoded" guitar (i.e., guitar and drum fed into a vocoder, with the drum providing the signal usually provided by a mic. For more information on this technique, see my book, *Multieffects for Musicians*, published by AMSCO).

## FIRST TAKE

To record in a way that emulated the concert feel, I used the live setup described last month (ASR-X, guitar, PC1600 fader box, and vocoder) in the studio, playing direct-

ly into DAT. I based the recording process loosely on the "Miles Davis method" of combining live performance with the studio, where you record a ton of material, then splice the best parts together into something cohesive. (Of course, his team had to do it all in analog; digital makes the process far easier.)

I jammed on the tune for about 40 minutes, knowing that most of the material would be discarded. As a result, I stretched and took a lot of chances. Some of these failed miserably, but some worked well — which brings us to editing time.

## EDITING: TRIM THE FAT

I transferred the best 25 minutes of the DAT via S/PDIF to a Windows computer running Sound Forge 4.0. Its playlist function, which lets you define particular regions of a file and arrange them in any way desired, simplified stringing the best parts together into a coherent whole. After finalizing the playlist, there's a function that can convert it into a new, contiguous file. (The final file was condensed down to about six minutes; see fig. 1.)

Editing exclusively with the playlist was not enough. Some sections required gain changing, EQ, dynamics processing, and so on (remember, this was a "live," 2-track recording, so it wasn't possible to edit indi-

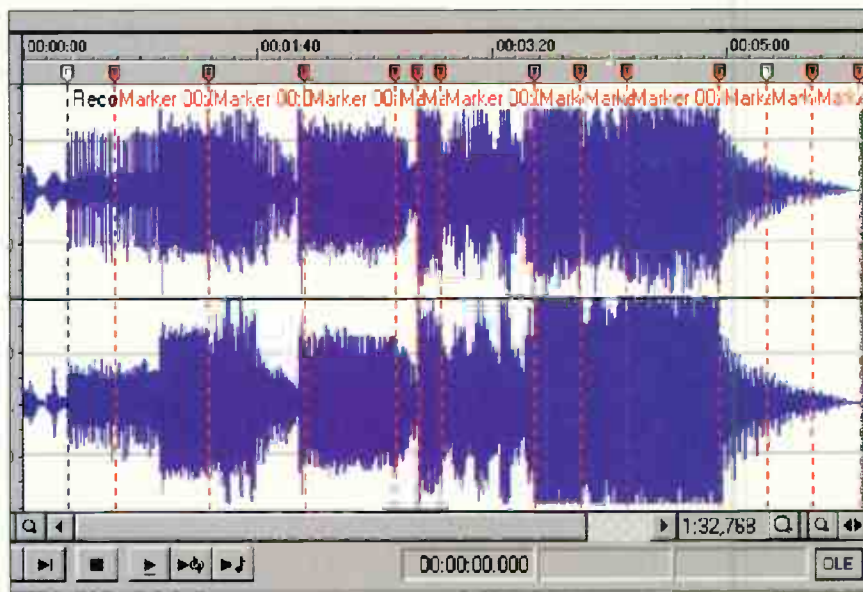


FIGURE 1: The playlist lets you take the best parts of a live performance and create a new file. After creating it, you can still see markers delineating the various regions that comprise the file.





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vidual tracks). This improved the consistency, and some DSP effects (such as echo) in selected sections helped dress up the tune more. I ended up with something I liked, and burned a CD copy to listen to during an upcoming trip.

**EDITING: FINDING ITS VOICE**

Then something funny happened: the more I listened to the rough mix, the more I wanted to add vocals. Eventually some lyrics started formulating, but everything was already mixed to DAT.

Once again, S/PDIF came to the rescue. I bounced the 2-track from Sound Forge over to Ensoniq's PARIS system, which resides on a PowerMac clone. From there, the pre-mix became the first two tracks of what was now turning into a multitrack overdub session.

Once the vocal part was nailed, I copied it to two more tracks and transposed one down one semitone and the other down by two semitones. Automating mutes on the vocals allowed bringing in the different pitched-sounds at different times for different levels of emphasis. During more melodic passages, where the transposition sounded out of tune, I placed copied sections from the orig-

inal vocal over the transposed tracks and added a little delay. This helped fill out the vocals when the transposed tracks were muted.

Two additional tracks contained individual words and short phrases that had been copied from the original vocal, specifically to be echoed. Even though there were five vocal tracks, they were all derived from one vocal performance.

**EDITING VIA ARRANGEMENT**

As the song hadn't been structured to accommodate vocals, it was time for "arrangement by hard disk." This involved rearranging the "live" rhythm track for the best flow with vocals; the file now timed in at a little under four minutes. After shifting the vocals around to fit in the right places, it was time to just listen for a bit.

**FINAL TOUCHES**

The last part of the song, featuring a guitar solo, needed some beefing up; a

*There's no doubt that the "live" recording of the rhythm track and lead guitar added an element I do not think would have been captured by multi-track overdubbing alone.*

screaming synth lead and some analog synth background chords seemed appropriate. Back to PARIS: I plugged in a

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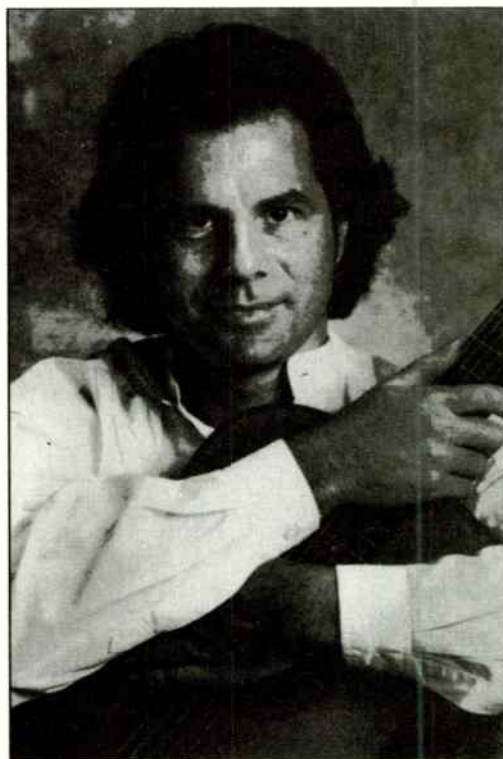


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Terry Wollman - Guitarist/Music Director,  
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TS-10 synth, dialed up a fat, analog-sounding patch, and overdubbed.

#### MIXING TIME

Now the process started to get more conventional. Of course, the mix for the rhythm section couldn't really be altered, but some judicious EQ did allow the guitar to "speak" a little more (it had been somewhat under-recorded), and a slight upper-end notching tamed an overly-prominent hihat.

I used automation on the vocals, assigned some reverb, delay, and such where appropriate, and recorded the mix onto DAT.

#### SORTA MASTERING

Listening to the DAT over time revealed some level variations that needed to be addressed, and the tune definitely needed a bit more low end. So there was one final bounce from DAT to Sound Forge for appropriate level changing and EQ.

#### WHAT I LEARNED

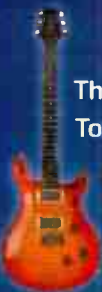
This may seem like a convoluted approach compared to just sitting down in front of a computer or multitrack/mixer combination. But trying to be as objective as possible, there's no doubt that the "live" recording of the rhythm track and lead guitar added an element I do not think would have been captured by multitrack overdubbing alone. You can't measure "liveness" like you can frequency response, but there's a particular vibe that definitely makes it into the final mix.

Also by recording "live" to DAT, I was forced to forego any extensive tweaking. Sure, it would have been nice to access some of the individual tracks and make a few changes—but maybe not, as that might have upset the song's internal chemistry.

But the main lesson I learned is that, in this digital age, music has become much more malleable. The computer has brought us a lot of advantages, but it also tempts us to tweak tunes to the point where they're perfect, which can drain out "feel" in the process. Getting some live vibe back into the computer before starting overdubbing made a big difference not only in the quality of the final result, but, more importantly, in the fun I had doing it.

*Craig Anderton, the author of Home Recording for Musicians, gives seminars around the world on technology and the arts. He is currently doing an extended seminar tour, co-sponsored by EQ and Panasonic, on digital mixing. Catch Craig's live act Feb. 20th at the Center for Art and Soul in Stuart, Florida.*

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# Edumacation I Never Did Have



PHOTO BY JIM HERRINGTON

Take advantage of the many good recording schools and courses available today

BY AL KOOPER

Years ago, as I was navigating my way toward the end of the high school land mass and approaching the collegiate edge of the world, I was perplexed. There was no college where I could learn what I needed to know to succeed in the music business. In those days, most music curriculums prepared you to teach most music curriculums. At age 21, this was of *no* interest to me. I wanted to rock professionally, and there was no academic help for someone in rock at the dawn of the '60s.

Today, classes that I only dreamed about taking proliferate in schools all over the country. Strangely enough, I teach at one myself. But if you want to further your knowledge at one of these hallowed halls, let me give you some advice.

Firstly, if you can, decide what you want to be if you grow up. If you wanna be a road manager, than it's silly to take a lot of studio engineering courses. However, if you

can't put your finger on your exact profession (and I understand that because neither could I), then take a well-rounded selection of classes because it will not hurt you.

For instance, if you end up starting a record company, it wouldn't hurt you to understand how the publicity machine works. If you're gonna engineer or produce, an understanding of musical synthesis or a focused work-up of computer skills will not hurt you either. The schools that send out the well-rounded student bodies have the highest hiring ratios in the professional world.

People skills are very important. You can be the greatest producer in the world (see Phil Spector), but if you wave a pistol around during sessions, you may not get the work commensurate with your gifts. Many schools overlook this important aspect. While there may not be actual people skill courses, it can be factored into each class as part of the general overview. A simple thing like punctuality can cost you a big job.

At Berklee, each class begins at ten minutes after the hour. After a rash of latenesses in my classes during the first two semesters (causing valuable time losses with each latecomer's arrival), I instituted a new regime. I locked the door at 11 minutes after the hour. There were no more latenesses in my classes — only absences. Four unblessed absences constituted an automatic F. This is an unobvious way to teach punctuality skills, but, believe me, it works.

An average student in the Music Production & Engineering department at Berklee comes out in four years vastly over-qualified for most of the jobs they will seek. Employers like that. This is why Berklee has the respect of studios and record companies alike out there in the real world.

While I could only dream of getting an

education the likes of which are readily available today, you can improve your skills and employment opportunities ten-fold by getting a focused musical education today.

I know that some of you are facing financial issues about the above, but the world of scholarships and student loans has also become more sophisticated and widespread since the early '60s. And if you really want to do something, you can. The students that make it through the entire four-year program at Berklee are far more rounded educationally than I am. In fact, if this curriculum had been in place when I needed it, I often wonder if I could have made it through the entire four years. After all, did you think one day you could go to a magazine stand and buy a monthly magazine concerned with project studios?

Self-education through the voluminous research materials available today is another alternative, but one that is lacking in immediate feedback. You could be making a wrong move and not find out until it's too late/costly. I guess it's best to have someone looking over your shoulder when you're operating heavy metal machinery. I use Berklee as an example because I'm there — it's certainly not the only school offering classes in production and engineering.

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- Zoom to Full Recording
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- Scale in Real Time
- Scale in Beats per Minute
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- Autorewind on Stop

# Cesar Rosas



PHOTO BY ED FREEMAN

## The Los Lobos bandmember goes solo with *Soul Disguise*

BY MR. BONZAI

**Bonzai:** Was *Soul Disguise* recorded in this room?

**Cesar Rosas:** Yes, right here. I really went all out on this one — it wanted to be an epic. Who did the engineering?

I pretty much engineered everything, and the mixing was done by John Paterno at Sound Factory.

**Who plays on the record?**

I play just about everything, all the guitars and bass — except for one song where Larry Taylor played bass — and I got keyboards from Eddie Baytos.

**How would you describe your role in Los Lobos?**

Well, I'm one of the vocalists, and one of the writers. That's what I bring to the party.

**Do you think listeners will notice the connection to Los Lobos in the sound of your new record?**

I don't know — you're the first to say that. But being who I am and the role I play in Los Lobos — there are going to be some similarities. In fact, some of these songs were ones that didn't end up on Los Lobos albums.

**How long has Los Lobos been a band?**

We're celebrating our 25th anniversary and loving it. We've gone through everything together. Mitchell Froom told me that you guys are so nice to each other that if anything gets up-tight, you all get worried.

Well, Mitchell didn't witness the really ugly years. [Laughs.]

Actually, we've always gotten along. If we had any disagreements, each of us is man enough to step forward and straighten things out.

**What instrument do you compose with?**

Always guitar.

**When did you start playing?**

I must have been nine years old when I picked it up. It was just an awesome feeling to play — right from the beginning. It went right through my body — electrifying.

**Do you come from a musical family?**

No, that's a weird thing, I don't come from a big musical family. My older brother was picking some guitar and playing folk and flamenco. When he graduated from high school, he left the guitar behind and I changed the strings over, because I am left-handed.

**You are the only member of Los Lobos that was born in Mexico?**

Yes. I was born in Hermosilla, in the state of Sonora. But my mom is from Jalisco in Guadala-

jara, and my father is from Baja, California.

**When you were learning guitar, who**

**Suspect:** Cesar Rosas

**Ancestry:** Mexican

**Occupation:** Singer, songwriter, guitarist, producer, engineer

**Birthplace:** Hermosilla, Sonora

**Residence:** East of East L.A.

**Vehicle:** 1953 Fleetwood Cadillac

**Diet:** "Anything that's good and not too greasy."

**Identifying marks:** Two slash scars on left wrist, acquired playing football. "It was a rainy day, I got clipped in the back and I slammed my arm on a broken bottle sticking out of the ground."

**Credits:** Los Lobos bandmember, producer of The Paladins, The Blazers, and The Iguanas. Contributor to the soundtrack of such films as *Lone Star* and *Desperado*.

**Notes:** Cesar Rosas, with his signature shades and goatee, is a founding member of Los Lobos, who brought new life to the classic "La Bamba" and rocketed to international stardom with the production team of Mitchell Froom and Tchad Blake. Rosas has a virtuosity that leaps expertly from a wide range of ethnic traditions through Tex-Mex, Country, R&B, and dances on the true bones of Rock 'n' Roll. As a teenager, he started with Rock, but then backstepped to live with the spirits of his Mexican past. What we have today is one of the most soulful, hard-hitting, and lyrical hambres around. Party down and uplift your spirits with *Soul Disguise*, the first solo Rosas album, out in February on RykoDisk.



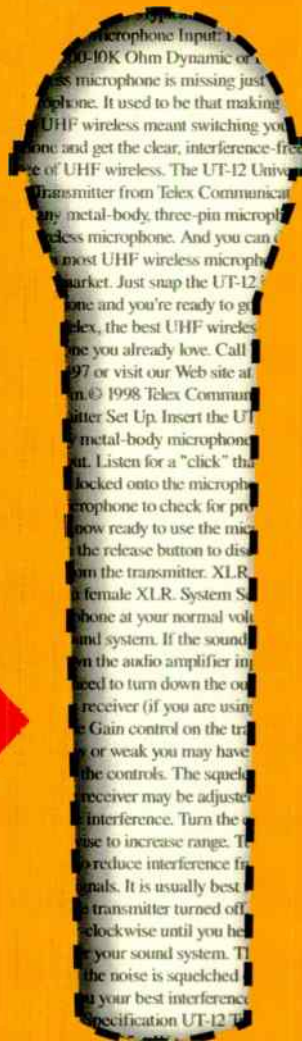
CESAR ROSAS PHOTOS BY MR. BONZAI

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did you look up to? Elvis Presley was my first big influence. Were you old enough to hear Richie Valens's "La Bamba" on the radio? No. I wasn't even in this country. My family emigrated here in 1961, when I was nine years old. We hit the States, and I jumped into the third grade. The '50s were right behind us, and a lot of great new music was beginning to happen. A lot of the soul music and Motown was getting into place. I used to watch the Elvis movies and wonder who this cat was. The first music that had a big impact on me was sort of the Rockabilly Elvis — "Jailhouse Rock." But, not

long after, the Beatles arrived, and the Stones. Their music was so different. I was influenced like any other kid. When did your professional career begin? Before Los Lobos, I was playing night-clubs for three years. Los Lobos came from different bands around the neighborhood, and we were already established Rock 'n' Roll musicians. I was doing gigs for Art Laboe, and Huggy Boy, and backing up Big Joe Turner and all these R&B groups at the ballrooms in East L.A. I had a funk band called Fast Company — a cover band, you know? I was making some money, but I was still

at mom's. That's the best time — you're still at mom's and you have no worries. You've got some spending cash. I graduated from high school in '72, and we formed Los Lobos in '73. What have you got here in your studio? I've got a Mackie 32•8 that I use for playback. I track with this outboard gear and my tube stuff: a couple of APIs, Siemans D-72 tube pres from Germany, a pair of Neve 2501 broadcast EQs, and two Manley tube mic pres. I record to ADAT. Microphones? I got 'em all. My pride and joy is this U47. I use that for my vocals. I have a U87 that had a tube kit put in by a guy



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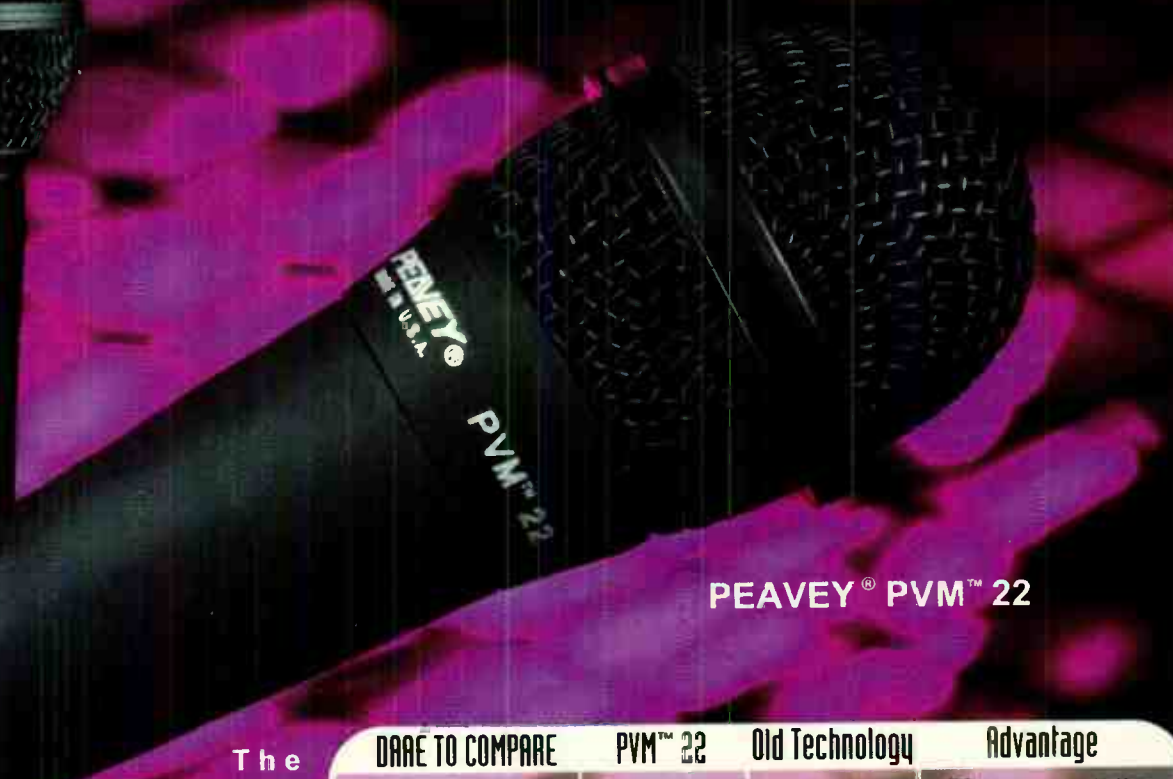
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in Santa Barbara. For drums, I'm using the Shure Beta 58. I have AKG C-61's for overheads, and some more Neumanns. I use a [AKG] D-112 for the kick, and a few others.

**This new technology is so much more affordable than in your early years. How does that affect your creativity?**

Having the tools is so great. I always dreamed of having a studio, and the ADATs made it possible to get a professional sound. In the past, you'd have to save a lifetime for a used analog multi-

track. Now, with a couple of thousand dollars, you can do some decent stuff.

**How many guitars do you have?**

About a hundred, but I haven't really counted. They're all Les Pauls, by the way. [Laughs.] No, just kidding.

**What do you listen to while you're driving?**

I listen to so much music — lots of styles. A Beatles record, a Hank Williams record. Jazz, Cibo Matto. Lately, I've been listening to some old Neil Young records.

**What did you discover with Mitchell Froom and Tchad Blake?**

That there's somebody out there who thinks the way we do. They have a style, and Tchad does unusual things in the studio that are very cool, extremely unorthodox ways of recording. We've hit a common ground with them. Mitchell is a great listener and a great arranger. We have a great combination.

**Any business tips for those who will face the music?**

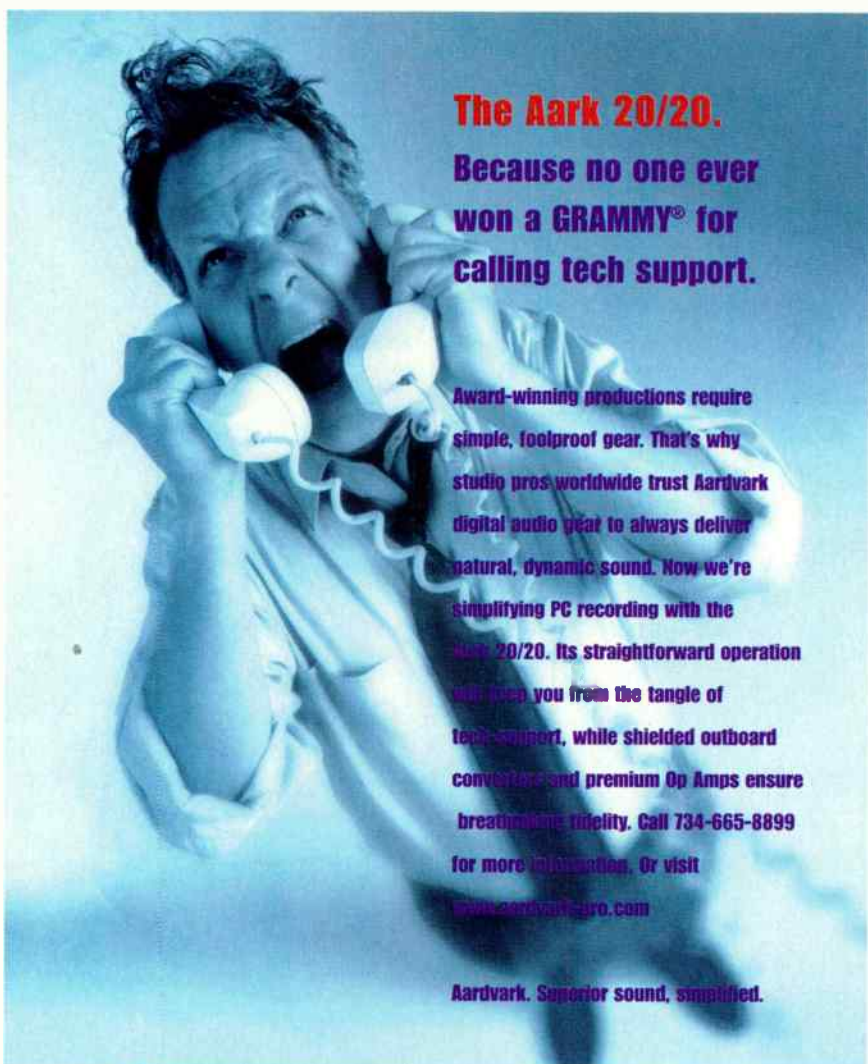
Never turn your back. [Laughs.] Advice for a young artist? It's a rough business — always be aware and get advice from a good businessman and a good lawyer. It doesn't hurt, and nowadays, with the big record companies, you have to be prepared. Be aware, and don't turn away from the business. If you have the talent and you believe in yourself, you will do well. But pay attention to the business angle, because it can destroy you. And it has destroyed many people. You don't want to end up being another bitter Rock tragedy.

**Will your children follow you?**

If they want to, that's fine. I have three daughters, and they are all in touch with the arts, especially dance. My little one has been painting for four years, and she's very gifted. If they want to be musicians, I will support that longing.

**Are you and Los Lobos heroes in the Hispanic world?**

Yes, I think so. We're looked upon that way, and it feels good. If I can influence a kid to get into music, in a positive way, that's good for all of us. Whatever Los Lobos has achieved, we didn't take any shortcuts. We did it the good ol' fashioned way, and we tried to do it right and sincere. **EQ**



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# Not Your Average Joe

An interview with  
engineer/producer Joe  
Chiccarelli

BY BOBBY OWSINSKI

*Even though he may not have quite as high a profile as some other notable mixers, engineer/producer Joe Chiccarelli's list of projects is equal to that of the best of the best. With credits such as Tori Amos, Etta James, Beck, U2, Oingo Boingo, Shawn Colvin, Frank Zappa, Bob Seger, Brian Setzer, Hole, and many, many more, chances are you've heard Joe's work more times than you know. In an excerpt from my upcoming book Mixdown, Joe gives us his recipe for making a mix sparkle.*

**EQ:** How long does it take you to mix a track?

Joe Chiccarelli: It really depends on the material, the number of tracks, and the arrangement. I try to work fast because I find that the longer it takes, the more I get into a sort of myopic mindset and get bogged down with the little details. You miss the vibe and the big picture and just suck the soul out of it, so I like to put it to bed in eight hours or so. In three hours, I want it to sound like a record with the basic sounds and feel. In six hours, I should have all the balances and it should start to sound finished. After that, the artist will come in for a listen. **Where do you start to build your mix?** I have no set system. I really work differently for every project and every different type of music. It's a matter of finding out what the center of the song is or what makes the song tick. Sometimes you build it around the rhythm section; sometimes you build it around the vocal.

Usually what I do is put up all the faders first and get a pretty flat balance and try to hear it like a song. From there, I then make determinations whether to touch up what I have or rip it down and start again from the bottom.

**If you're mixing a project, do you vary the sound from song to song or keep it all in the same sonic ballpark?**

The approach varies from song to song, but I try to keep the same kind of reverbs and treatment for the drums. I try to keep some level of consistency, but, again, I'm also treating every song differently as well. I personally like records that take you to ten or twelve different places.

**Do you add effects as you mix?**

I try to start out with a flat track, then find the tracks that are boring and add some personality to them.

**Do you have a standard effects setup?**

The only thing that I regularly do is to have something like an AMS harmonizer on one stereo effects send with one side pitched up and the other side pitched down a little bit. On some projects, I'm not using any reverbs at all, while on other projects I might be putting all my reverbs through a Tech 21 SansAmp unit or perhaps some kind of cheap stuff. I use a lot of things like Roland Space Echoes or stomp boxes. I sometimes feel that those things have a lot more personality than the high-end effects boxes. **Don't you have a noise problem with them?**

Yeah [laughs], but I just make it work anyway. I'd rather have the personality with the noise than no personality at all. The cheap boxes have such character. There's a few boxes coming out now that have some color, but a lot of the digital stuff is so bright that it just jumps out of the track too much. The new Sony VP55 box that I

did some presets for is pretty good. I like it because, even though it's kinda dark sounding, it finds its home in the track a lot better than the bright, clear digital stuff.

I love to have a real EMT plate or a real live chamber. If I have just one good analog echo or reverb rather than four or five digital ones, then I can make the whole record just fine.

**When you're using a real plate or chamber, do you go retro with some tape predelay?**

Usually I'll just use a DDL [Digital Delay Line] for that. Sometimes I'll use two sends into it: one that's straight into it



PHOTO BY ALAIN MCLAUGHLIN

**JOE STUDIO:** Whether you realize it or not, you have been listening to Joe Chiccarelli's mixes for years.

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and one that's delayed. I'll use the pre-delayed one for the vocal because of the space between the initial sound and the echo, which really separates the sound and makes it as big as possible.

**Do you have an approach to EQ?**

It's weird...I just use whatever it takes for the particular project. It depends on what's on tape, how well it was recorded, and how much work it needs. Bob Clearmountain is the genius for knowing what to touch and what not to touch, and I think that's really the secret — what to fix and what to leave alone. I find that the more that I do mix, the less I actually EQ; but I'm not afraid to put in a Pultec and whack it up to +10 if something needs it.

One thing that I use is a spectrum analyzer that I put across my stereo bus and that let's me know when the bottom end is right or the S's are too sibilant. I know what a lot of records look like in the analyzer, so I can tell when the overall frequency balance is right, or when it might have some obvious little hole in it.

**Do you look for a specific curve or something that looks funny?** I'm mainly looking at the balance of the octaves on the bottom end...like if there's too much 30 but not enough 50 or 80 Hz. That's where the problem areas of a lot of the control rooms are. On certain consoles, depending on how the nearfields sit on them, there's a build-up of the upper lower-midrange frequencies. So I look for those kinds of things.

**What's your approach to panning?** Once I have my sounds and everything is sitting pretty well, I'll move the pans around a tiny bit. If I have something panned at 3 o'clock and it's sitting pretty well, I'll inch it a tiny sliver from where I had it just because I've found it

can make things clearer that way. When you start moving panning around, it's almost like EQ'ing something because of the way that it conflicts with other instruments. I find that if I nudge it, it might get out of the way of something or even glue it together.

**How do you deal with compression then?**

[Laughs heartily.] Compression is like this drug that you can't get enough of. You squish things and it feels great and it sounds exciting, but the next day you come back and it's like the morning after and you're saying, "Oh God, it's too much." So I've been trying to really back it off, especially with stereo bus compression.

What I will do a lot is bus my drums to another stereo compressor, usually a JOE-MEEK SC2, and blend that in just under the uncompressed signal. Sometimes what I'll do if everything sounds good but the bass and kick drum aren't locked together or big enough to glue the record together is take the kick and bass and bus them together to a separate compressor, squish that a fair amount, and blend it back in. I'll add a little bottom end to that if the record still isn't big enough on the bottom. This helps fit the bass and

kick lower on the record and gets it out of the way of the vocal.

**Do you use more delays than reverbs?** Depends on the project. If it's a slick pop thing, then I might use a lot of reverbs, but if it's a rock band, then I might only use one reverb and maybe a half-a-dozen delays. I've tried really hard to wean myself from too many effects. I'll try to do different things like put only one instrument in the reverb, or put a reverb in mono and pan it in the same

space as the instrument. I like the mono reverb thing because it doesn't wash out the track — especially if you EQ the return of the reverb so that it doesn't have a frequency conflict with the instrument. I've done some fun stuff like compress the returns of the reverb so that they pump and breathe with the signal that's there. It gives the reverb a cool envelope that comes up after the dry signal and doesn't fight too much with it.


**What are you using for monitors?**

I've fallen in love with the Tannoy AMS10A's, and I usually use those in conjunction with the Yamaha NS10's. Every once in a while I'll go up on the big [studio] speakers if those are good. I might get my sounds at a moderate-to-loud volume, but when I'm getting balances, it's always really soft. I listen in mono an awful lot, and I find that it's great for balances. You can easily tell if something's fighting.

**How many mixes do you do?**

I'm really bad about that because I'll do a lot of options. I'll always do a vocal up in case someone at the record company complains that they can't hear a line. I'll always do a bass up, or even a bass down as well. When I say up I'm talking about a 1/4 or 1/2 dB because I find that if you get your balances good enough, that's the only amount of alteration you can make without throwing everything totally out of whack. A lot of times I'll do a number of other options like more guitar, more backgrounds, or whatever key element that someone might be worried about. And then sometimes if I'm not feeling like I got the overall thing right, I might do one more version that has a little tweak on that as well. Sometimes I'll add a Massenberg EQ on the stereo bus and add a little 15 K and maybe some 50 Hz as well to give the record a little more of a finished master sound.

**How much time do you devote just to engineering these days?**

I work about 30 percent of the year just as an engineer and the other 70 percent as a producer. I won't take stuff on as a producer unless I truly believe in it. I feel like I have to understand the artist and be able to bring something to the project, whether it's vision, arrangements, sonics, or all of the above. I've been offered a lot of great things, but I haven't felt like I could add anything because it's great the way it is. There's no point in doing it unless I can take it to the next level. 

*Bob Clearmountain is the genius for knowing what to touch and what not to touch, and I think that's really the secret — what to fix and what to leave alone.*



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# Everything Has a Price Tag

Some caveats for purchasing a console on the used market

BY RALPH MARSELLA

Let me tell you a story about a nice Italian boy from Brooklyn. His dream throughout his whole musical career was to have his own studio. He was an upstanding guy, and hoped that others in the audio business were also upstanding people. After his studio got rolling for a few years and became successful, he was ready to upgrade his console. He had a budget of about \$22,000 and a tech who wouldn't let him buy a crappy board. He started looking for a new console with at least 32 channels plus automation, and found himself in a price bracket that really didn't offer much. He went to the AES. He talked to friends at other studios. He talked to retailers and console makers. There were a lot of consoles that started in his price range, but they were stripped-down — most had 24 channels and no automation. By the time extra channels and automation were added in, the typical new desk cost more like \$30K, and that was out of his budget. It was important that the console be modular, so that if there were a problem, his tech wouldn't have to take the entire thing apart just to fix it.

If you haven't already guessed, this guy is me. At an AES show a few years ago, I met a man by the name of Paul Westbrook, who showed me the

D&R Orion. I fell in love with the Orion, but couldn't afford it at the time. Finally, about two years later, I had the capital to purchase the console. I called Westbrook and told him how much I wanted to spend. Paul told me he had a used D&R Orion, which was just what I was looking for. In the course of our conversation, Paul mentioned that he was a 49-percent owner of D&R, so I felt comfortable with the fact that I was buying a console from someone who had real interest in the company and was more than just a salesman.

whole thing, and Paul said he had another buyer. I was under pressure, so I decided to buy the console. That's when my roller coaster ride began.

## THE INQUISITION

I wanted to know exactly what I was getting, so I asked a lot of questions: How old was the desk? (Two years.) What kind of environment was it in? (Non-smoking control room.) Did it need any work? (No, everything operates perfectly.) And, of course, the biggie: How much? Sixteen K, plus another 5K for the optional automation, plus another



CONSOLE CAVEATS: When buying a used console, check every knob. Make sure that none are loose or cracked. Original equipment may be hard (and costly) to replace.

## GET ON THE ROLLER COASTER

I wanted this console. You know what it's like — you're a kid in a candy store with a pocket full of change. You see something you like and you want to buy it right away. This particular console was in Texas, and, of course, I wanted to check it out. I tried to make arrangements for my tech to fly down there and see it, but but, unfortunately, my tech had a lot of out-of-town work at the time and couldn't make arrangements to see the desk. I was anxious about the

1K for a computer to run the automation. There was also some optional Mogami cabling we could purchase to make the install go much quicker.

## GETTING EDUCATED

Like I said, you're a kid in a candy store, so I wired this guy a deposit and arranged delivery of the desk. I was excited. But I wanted a Hershey bar with almonds, and after a few weeks of sitting behind the desk, I found that I had purchased a Hershey bar with no



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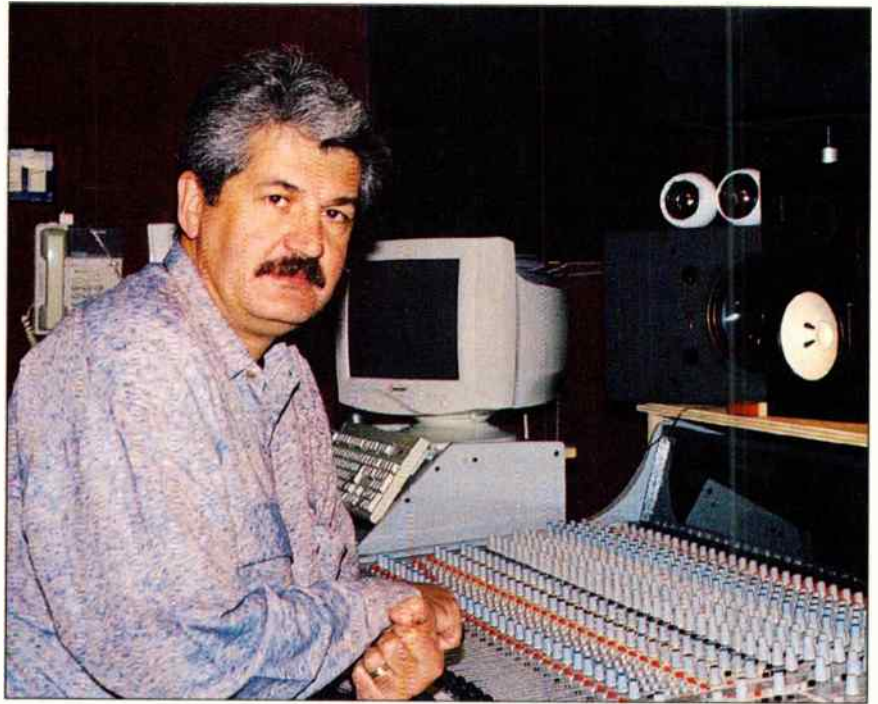
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almonds. There's a lot of things that get overlooked when you're in that candy store. You think of them after your tech has spent two weeks installing the desk. You notice a lot of the knobs are cracked — and, of course, the rep can sell you new ones at an obscene price. The computer was five years old and didn't have the amount of memory I was told it had. There's no name plate on the desk, and thus no serial number, which is a problem when trying to get insurance. You take the knobs off to clean them and realize that there's nicotine all over them. When you place a new spare module (purchased separately) next to an old one, you realize that the silk screening is yellowed from smoke pollutants. (You can see this in the photo from the previous page.)

A lot of questions entered my mind: I thought this desk was in a non-smoking environment? Why was I charged \$5000 for a used automation package that lists on D&R's price sheet new for half the amount of money? One of the returns didn't work. "Must have happened during installation." Although I was given the



LIKE A KID IN A CANDY STORE: Author Ralph Marsella warns that you shouldn't let your enthusiasm cloud your judgement.

impression that I was purchasing this console from D&R, the invoice came from "Alpha Products." Where are my

schematics? "Why do you need schematics?" To find the problem with the return. It took weeks to get the schematics be-

*Bellari*

## Studio Tube Processors



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Bellari products have the sound you've been looking for. They maintain plate voltages ranging from 150 volts in the smaller units, to 250 volts in the rack-mount preamps and processors. What that means to you is warm vocals and instrument tracks that subtly make their presence known in a mix. All Bellari tube compressors use light/photocell elements in their gain cell for smooth, distortion-free compression.

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JANUARY 1999

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cause once this guy got his money, he didn't want to pick up the phone.

You get the point here, but I want to make it clear that I am *not* bad-mouthing D&R. This console is built like a battleship and sounds wonderful. Every one of my clients has walked into the control room and clearly heard the sonic difference over the old desk. (D&R is now represented by Don Holloway at Precision Systems Integrated in Tullytown, PA; 215-949-8300 or DHolloway@PSIntegrated.com.) In the meantime, I've learned a few things that might help you avoid problems when buying a used board.

- No matter who you are buying from, never buy a desk over the phone. You really need to see the unit to make a clear decision.

- Find out if the manufacturer has more than one rep in the U.S., especially if it's a foreign-made console. This gives you someone else to turn to in case of problems.

- Make sure there's a valid nameplate with serial number on the desk, and verify it with the manufacturer to find out how old it is.

- Try before you buy, preferably when the desk is installed in a working control room. If the console's in storage, think about taking a rack full of gear to the storage place and hooking it up. Try every knob, fader, and switch to make sure they do what they're supposed to.

- Make sure the manufacturer is still in business. If not, are parts still available? Will you be stuck if a PC-mounted device such as a switch breaks?

- Are you getting any extra modules or parts with the deal? (This is particularly important if the model has been discontinued.) Don't be deceived by a console that appears to need "minor" mechanical parts. Maybe they have been tooled specifically for the desk and can no longer be found. Finding such parts can really be difficult. Do a bit of research to determine if you can get replacements.

- Check all the patch points. Test the normals (obviously this is easier for a console that's currently installed). If the bay needs a lot of cleaning, subtract the tech time from the cost of the board.

- Ask the owner about the board's maintenance history. A conscientious owner will have a service record much

like a fanatical car owner. How many times has the board been moved? Long journeys in a truck make very strange things happen to audio equipment. Also find out how many times the console was physically installed. I have a friend who got a great deal on an MCI JH528 a few years ago and it drove him crazy with intermittent problems. He finally discovered that the punch-down connections had been punched so many times that the metal contacts could no longer grip bare wire. Eventually the

problems were solved by soldering all of the connections to the punch-down contacts, and the desk sounded great.

- Get it in writing. If the desk checks out OK, and you really want to take the plunge, ask for some sort of statement (in writing) describing the condition of the desk ("Joe Blo warrants that this Trident 80 Series console is in perfect working order and will run impeccably for 100 years"). If you're purchasing from an established dealer, in-

*continued on page 128*

# Ghost gets you closer to the music

When it comes to music recording, sound quality is everything. So perhaps it's no surprise that most of the world's top studios insist on analogue technology when it comes to mixing consoles.

Now, thanks to Ghost, you can too.

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# DIGITAL CONTROL WITH THE HUMAN TOUCH

THE SPIRIT 328 REPRESENTS A **NEW WAY OF THINKING** IN DIGITAL CONSOLE DESIGN, BRINGING ALL THE FUNCTIONALITY AND SONIC EXCELLENCE OF DIGITAL MIXING TO ALL AUDIENCES. WITH ITS UNIQUE **CONSOLE-BASED INTERFACE**, THE DIGITAL 328 FINALLY BRIDGES THE GAP BETWEEN ANALOG AND DIGITAL MIXERS, RETAINING THE **SPONTANEITY AND EASE OF USE** OF AN ANALOG CONSOLE YET PROVIDING ALL THE ADVANTAGES OF DIGITAL, SUCH AS INSTANT TOTAL RECALL OF ALL DIGITAL PARAMETERS, MOVING FADER AUTOMATION AND ONBOARD LEXICON EFFECTS.

SIMPLY PUT, THE SPIRIT **DIGITAL 328** IS THE MOST ADVANCED ANALOG 8-BUS YOU HAVE EVER SEEN COMBINED WITH THE EASIEST DIGITAL CONSOLE YOU HAVE EVER USED.

## 328'S E-STRIP MAY BE CONFIGURED AS...



...A HORIZONTAL INPUT CHANNEL WITH FULL EQ, AUX AND PAN FACILITIES..



...OR A ROW OF 16 AUXES OR FX SENDS FOR THE 16 FADERS BELOW THE E STRIP...



...OR A SET OF ROTARY LEVEL CONTROLS FOR THE TAPE RETURNS.

## 42 INPUT/8 BUS CONFIGURATION

For a mixer with such a small footprint, Digital 328 packs an extraordinary number of inputs. Sixteen full spec. analog mono mic/line channels - each with its own balanced XLR connector, dedicated insert point and access to phantom power - come as standard, along with five stereo inputs.

With the 16 digital tape returns on 328's TDIF™ and ADAT™ optical interfaces, there's a maximum of 42 inputs. Every input is fully routable to any of the 8 groups and has access to the full complement of 328's parametric EQ, signal processing, onboard effects and auxiliaries.

## AS EASY TO USE AS YOUR CURRENT ANALOG CONSOLE

Although most digital mixers offer an amazing array of functions, it can often be a nightmare to access them.

In contrast, we've designed Spirit 328 to operate like your old analog 8-bus console, and not like a computer with faders. You can practically take it out of its box and get started without even opening the manual! Unlike other digital mixers, there's instant access to any channel, group or master feature with one button press, and you can see that feature's status from the front panel without having to rely on an LCD display. Access is so immediate that you could even use 328 as a live console.

The key to it all is Spirit 328's unique "E-strip", the lighter-colored bank of encoders and switches that runs across the center of the console. Simply select a channel and the E-strip immediately becomes a "horizontal input channel" with instant access to all that channel's EQ, aux sends, channel pan and routing. Alternatively, press any button in the rotaries section above the E-strip and the encoders change to become a channel pan, auxiliary send or Lexicon effects send for each channel.

Select a fader bank to display mic/line input faders, tape returns faders or group and master faders and that's it; no delving through level after level of LCD menus to find the function you want, no delays in making alterations and no need to study complicated EQ curves. With 328, everything you need is immediately accessible from the front panel of the console - giving you the freedom to let your ears decide.

If you want the functionality of a digital console but the usability of your old analog 8-bus, then Spirit 328 is for you.

## ALL THE DIGITAL I/Os YOU NEED AS STANDARD

Most digital mixers don't include digital multitrack I/Os, which means that to get digital recording and mixdown you have to buy extra, expensive I/O options. In contrast, Digital 328 includes **two Tascam TDIF™ and two Alesis ADAT™ optical interfaces as standard**, allowing you to record 16 tracks entirely in the digital domain, straight out of the box. As you would expect, we've also included a pair of **AES/EBU and SP/DIF interfaces** assignable to a wide range of inputs and outputs, including group and auxiliary outs. In addition, a third optical output may be used as a digital FX Send or as eight Digital Group Outs. All in all, there are 28 Digital Outs on 328 plus 20 Digital Returns, providing enough flexibility for the most demanding applications.

## 2 ONBOARD LEXICON EFFECTS UNITS

Only 328 can offer the world's premier name in studio effects onboard - Lexicon. Two separate effects units are included, offering a full range of reverbs, choruses, delays and flanges, all with fully editable program and parameter settings.

## ONBOARD DYNAMICS

Digital 328 includes two mono or stereo signal processors which can be assigned to any input, output or groups of ins or outs. Each processor provides a choice of compression, limiting and gating, as well as combinations of these effects.

TDIF is a registered trademark of Tascam/TEAC Corporation.  
ADAT is a registered trademark of Alesis Corporation.

**digital**

three two eight



### COMPREHENSIVE EQ

All of 328's mic/line, tape return and stereo inputs have access to three bands of fully parametric EQ, designed by British EQ guru and co-founder of Soundcraft, Graham Blyth. A man with over five million channels of his EQ designs in the field, Graham has brought 25 years of Soundcraft analog EQ circuit experience to bear on Digital 328. If you want the warm, musical sound of real British analog EQ, with proper low, mid and high frequency bands (rather than the low resolution 20Hz - 20kHz bands found on some consoles), look no further.

### UNPARALLELED SONIC SPEC

Garbage in, garbage out! It doesn't matter whether the console is digital or analog - if you have poor mic preamps, your sound will be compromised. That's why 328 includes Spirit's acclaimed UltraMic™ padless preamps, giving your input signals the cleanest, quietest start of any digital mixer on the market. With 66dB of gain range and a massive +28dBu of headroom, they offer an extremely low noise floor and are virtually transparent. Spirit 328 is 24-bit throughout, with 56-bit internal processing; your signal hits the digital domain through state-of-the-art 24-bit ADCs with 128 times oversampling, guaranteeing that it maintains its clarity, while 24-bit DACs on all main outputs equal this sonic integrity should you wish to return your signal to the analog world.

### MOVING FADER AUTOMATION

All of Digital 328's 100mm faders (including the master) are motorized to allow current channel, tape return, group and aux master levels to be viewed at a glance.

### ALL PARAMETERS INSTANTLY RECALLABLE

In addition to level automation, every other digital parameter of 328 is instantly recallable, allowing snapshots of the entire console's status to be taken. Up to 100 of these "scenes" may be stored internally and recalled either manually, against MIDI clock, or against MTC or SMPTE. Alternatively, every console function has been assigned its own MIDI message allowing dynamic automation via sequencer software.

### EASY TO EDIT - DIRECT FROM THE CONTROL SURFACE

The majority of 328's input and routing parameters may be edited from the control surface without resorting to the console's LCD. Settings and levels may be copied and pasted from one channel to another with just two button presses and, using 328's query mode, the routing or assignment status of every channel on the console may be viewed instantly simply by selecting the function (such as Group 1 or Phase Reverse) you want to question. In addition, with 328's Undo/Redo function located in the master section, editing is entirely non-destructive, allowing you to A/B test new settings with previous ones.

### GROWS WITH YOUR NEEDS

Two Digital 328s may be digitally cascaded, giving you up to 84 inputs at mixdown and 32-track digital recording capability.

### FULL METERING & MONITORING OPTIONS

All of the mic/line inputs, tape return inputs, group and master levels may be monitored per bank via Digital 328's 16 10-segment bargraph meters. Additionally, 328's onboard dynamics processors may be monitored using the console's master meters. Any input may be solo'd using AFL, PFL or Solo-in-Place.



### TIMECODE & MACHINE CONTROL

Digital 328 reads and writes MTC and reads all SMPTE frame rates, with a large display instantly indicating current song position. Store and locate points are accessible from the console's front panel, with 328's transport bar controlling a wide range of devices including Tascam and Alesis digital recorders.

### SOFTWARE UPGRADEABLE

328's open architecture means that any functional improvements and software upgrades can be made easily available off Spirit's website. 328 Mixer Maps for popular sequencing software packages are also available free of charge.

### ADD-ON MODULE OPTIONS

To meet the needs of a variety of users, there are three module options:

#### 8 Channel Analog I/O Interface

Connecting to the TDIF ports, 16 phono connectors provide eight analog group or direct outs and eight analog inputs for tape returns: 17-32. Two interfaces may be connected, allowing 16 track analog recording or access to 16 more sequenced keyboard or sampler inputs.

#### AES/EBU interface

Four pairs of AES/EBU connectors allow optional digital interfacing to hard disk production systems such as Pro Tools. A maximum of two interfaces may be connected.

#### Mic Pre-Amp Interface

Each interface provides eight XLR mic ins with UltraMic+ preamps. Connecting two interfaces turns 328 into a 32 mic input, 8-bus mixer for PA or theatre applications.

Suggested Retail Price:  
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## A Week in **the City**

Composer Doug Cuomo takes us through seven days of deadlines, recording, and reality on HBO's *Sex in the City*

BY RICH TOZZOLI

The mission: write and record 22 minutes of music. Easy...right? Not by any means — especially when it involves scoring the HBO series *Sex in the City*. Just ask series composer Doug Cuomo...

Working out of his nicely appointed apartment in New York's upper west side, Cuomo (who also scores NBC's *Homicide*) would receive a working tape on Wednesday. "The tape would be a VHS cut of the show, with dialog, location sound, and music on channel 1, and 29.97 drop-frame timecode on channel 2," he comments. "I would have the script of the show well in advance, but I would watch the episode to get ideas before the spotting session."

Thursday would be the spotting session, usually at Silvercup studios in Queens, NY. In attendance would be Doug, Darren Star (creator and executive producer), Barry Jossen (co-executive producer), Dan Lieberstein (music editor/supervisor), and the picture editor for that episode. Lieberstein comments, "*Sex in the City* features approximately 60–70 percent original score and 30–40 percent licensed music. We would create a temp-score, which would help the editors cut the picture." He continues, "It allowed us to see what kind of music worked, and help communicate ideas to Doug. We would also use it to show HBO to get feedback." The spotting session would conclude with Cuomo understanding what he has to compose, and what licensed music Lieberstein would have to clear for use in that episode.

Back at his project studio, Doug

would now have from Friday until Tuesday morning to compose. The Latin-jazz influenced music would be written for a four- or five-piece live

band (drums, bass, piano, sax, and percussion) to be recorded Tuesday afternoon at Manhattan Beach Studios. "I would typically compose about 10 to



PHOTOS BY CHRIS JOHNSON

THE SOUNDS OF *SEX*: HBO's *Sex in the City*'s audio team have less than a week to get a finalized score out to the client.

# 5.1 SURROUND

The unique Tannoy Dual Concentric point source technology offers the professional recording engineer a strategic advantage when mixing and creating effects for film and music in the 5.1 surround format.

True surround sound is a virtual 3-dimensional sound stage that demands linear phase and amplitude response vertically as well as horizontally to be convincing.

The smooth, conical dispersion of the Dual Concentric propagates a naturally holistic wavefront in all directions into the mixing environment, empowering the engineer with accurate 3D spatial imaging for superior results.

Unlike stereo which only has to create an accurate image between and somewhat to the sides of the mix position (usually a small sweet spot), convincing 5.1 surround mixing and scoring demand much more from your monitoring system. The environment must be transformed into a totally 3-dimensional sound stage to be done effectively. This relies on a linear response from the loudspeaker both on and off axis in both the horizontal and vertical planes.

This is simply not possible with conventional multi-driver discrete loudspeakers, which pose a plethora of problems with amplitude linearity, especially off-axis in the vertical dimension. While they might work fine in a fixed position for stereo music production, they just cannot compete with the Tannoy Dual Concentric's ability to reproduce accurate imaging and placement in a 3D stage requiring a linear response on all axis.

If you're interested in superior results when scoring, producing and mixing 5.1, you should know what the best in the business have known for years, Tannoy Dual Concentric point source constant directivity driver technology can accurately steer your next surround project into the big time.



Please contact TGI North America for more information.

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*Whether I am creating a pounding action cue or a subtle mood piece, it is essential that I know how the music truly sounds. The detail and accuracy of the Tannoy Dual Concentric gives me complete confidence that my score will bond seamlessly with the scene and the characters and not clash with the dialogue or the sound effects.*

**Brad Fiedel**

**Credits:** Terminator II • True Lies • Striking Distance  
• The Accused • Tom Hanks 'Earth to the Moon' • Blue Steel



*For my Music, Sound Design, Editorial, ADR, Foley and 5.1 Surround Film Mixing, Tannoy Dual Concentric Speakers deliver transparent, meticulous quality throughout all the studios. This contributes to a seamless audio environment from room to room without the listening fatigue associated with other designs. I can trust my results from Tannoy on all my projects.*

**Frank Serafine**

**Credits:** Orgazmo • Field of Dreams • Hunt for Red October  
• Flight of the Navigator

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15 pieces of music, with the cue times varying from about 40 seconds to a minute and a half," he comments. "First I would use the VHS as the master, locking it to Cakewalk with my synths through the MOTU MIDI Timepiece II." Using a Roland JD-800 as a master controller, he would mostly use his

Kurzweil K2000, Roland JV-1080, and Korg Wavestation modules to compose the concepts. Doug fed these and his Roland S-760, Lexicon PCM80, PCM90, and Sony R-7 into a Mackie 32•8 console, using Alesis Monitor Ones and Auratones for listening.

After writing the music, it was time to lock in some tempos. Now the master became a TASCAM DA-88. "I would pre-stripe the timecode on the DA-88 starting at 1:00:00:00," Cuomo states. "Then I would transfer the countoffs and click tracks to each piece, as well as any synth parts if they were needed. The goal here is for everything on the DA-88 to lock to picture."

Doug then takes the DA-88 master with timecode, locked clicks, and countoffs to a Tuesday session at Manhattan Beach Studios. Engineer Danny Lawrence takes the master and transfers it to another DA-88. That, in turn, is then sync'd with two more DA-88's locked thru a TimeLine Lynx to a Sony BVU-800. This 3/4-inch video is an exact copy of Doug's original VHS work tape, with the same SMPTE "show-code" time.

The band typically arrives late in the morning, and Doug reviews the cues with them. The musicians record mostly live, with the bass going direct, the sax in an isolation booth, and drums and piano behind gobos. Percussion is usually overdubbed. Lawrence uses his assortment of favorite mics and outboard gear. These include Focusrite, Neve, API, and Summit preamps; Neumann U47's and U87's; and Focusrite and Summit compressors. The console is a 48-channel Otari Concept 1, with Yamaha NS10M and Genelec 1031A monitors.

After a few hours of tracking, the producers and editors arrive (the same crew as the spotting session). They watch the picture with the new music,



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and discuss with Doug any thoughts and/or changes. Doug comments, "Most of the time things go smoothly, but sometimes the producer requests an alternate idea. We occasionally create a new piece on the spot, and record it right then and there." Once the production team "signs-off" on the session, it is time to mix.

Doug then sits with Lawrence and mixes back to the original DA-88 master. Since the instrumentation is the same on almost every piece, the board can be set up for a continuous mix. The usual setup was full band mix on channels 1 and 2, band mix on 3 and 4 minus lead, and lead on 5 and 6. Lawrence comments, "I would send the stereo mixes to the DA-88 using soft limiting — I ran as much as I can through tube gear — also using the Neve 33609 or the Summit DCL-200 to really tighten up the sound." Danny often checks the mix on a Studer

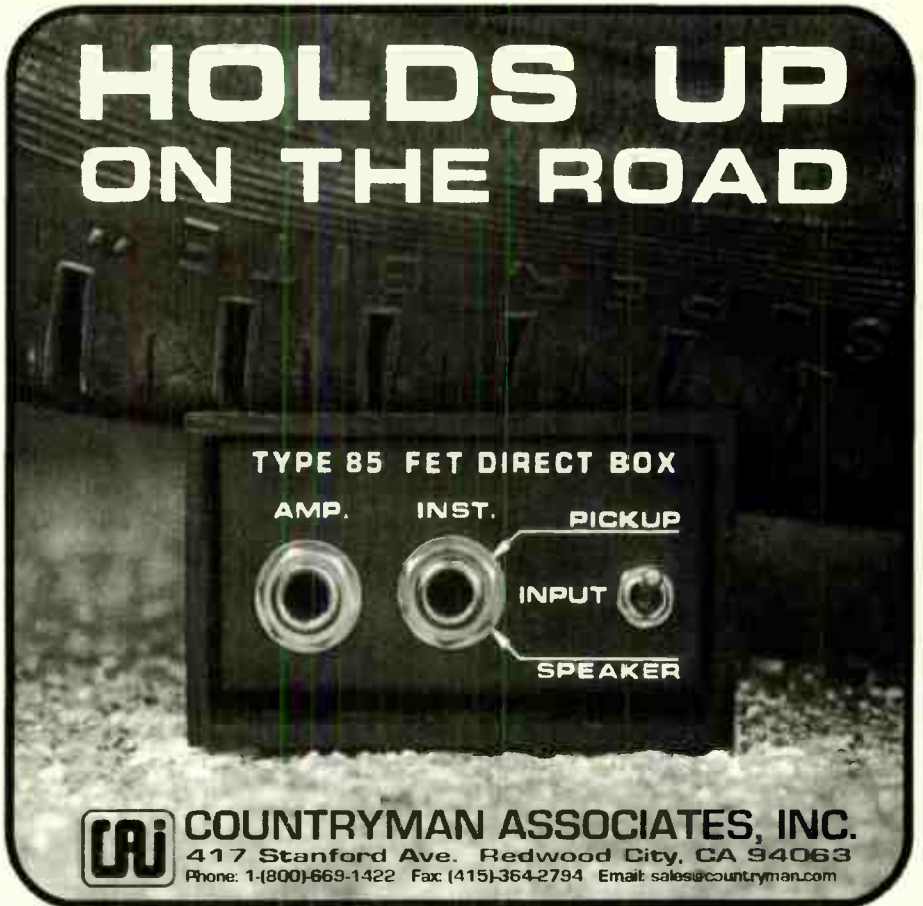
*We occasionally create a new piece on the spot, and record it right then and there.*

A-820 through the mono speaker before sending to tape.

Once the final mixes are down on the DA-88 master, a duplicate is made of the audio tracks, with timecode placed on channel 8 (only one sync card is needed). Doug would now take the finished master to Dan Lieberstein for final editing and post mixing at Todd AO. "I didn't attend those sessions, because it is out of my hands — I would have to trust the rest of the mix to post," Doug comments.

Then it would be Wednesday already, and another tape would arrive for Cuomo to begin working on the next week's episode. All for 22 minutes of music. That's *Sex in the City* for you. 

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# Hive Talking

Getting down with the band 311 as they use their rented project studio to expand their creative energies

BY MICHAEL SANCHEZ

"I think America is ready for a really strong rock album," says Nick Hexum, lead singer of 311. The band — whose funky mix of reggae, hip hop, and hardcore, not to mention eight years of relentless touring, brought them from the bars and dance halls of Omaha, Nebraska to the auditoriums and amphitheatres of America — is ready to make that album the old-fashioned way; they're gonna do it themselves. Not ready to purchase their own studio, but also unwilling to pay the high hourly rates of a commercial facility, the band found a creative solution: they leased a '70s-era Burbank, California recording studio and updated it.

The members of the band — vocalist/guitarist Hexum, lead guitarist Tim Mahoney, vocalist/DJ "S.A." Martinez, bassist P-Nut, and drummer Chad Sexton — are taking the time to learn the ins and outs of the equipment and also to implement a new, more laid-back recording strategy. In the past, with studio time costing as much as \$60,000 a month, the band was literally racing against the clock. Oftentimes, the recordings were rushed, and the songs

— from concept to completion — were not allowed sufficient time to evolve. Now, with the band paying monthly rent checks of \$8000, they have time to work with their new material on a more intimate level, to see their visions all the way through. "Now we can really learn our parts and rehearse for a good two or three weeks before we even think about recording it," comments Hexum. "We want the parts so ingrained in our brains that it's second nature, and we can do it with a lot of energy and expression. We want the material to evolve."

## SOMETHING BORROWED, SOMETHING NEW

The studio 311 rented, and officially renamed The Hive, also came with a bit of history. "Apparently Hendrix and The Eagles tracked there," says Hexum. "It's a really dark, old room with a lot of cool wood paneling and stone and cork."

As of right now, The Hive is a 100-per-

cent digital facility. For preproduction, they are using two Yamaha 02R digital consoles. Hexum is heavily into Digidesign's Pro Tools for all aspects of production and editing, and uses Opcode's Studio Vision to lay down audio tracks next to synthesized MIDI tracks. The Mac-controlled studio consists of an Apple G3 300-MHz computer with a Magma expansion chassis, which allows the computer to accommodate up to five Pro Tools cards at once. Also, a SCSI accelerator card with two 9-GB Seagate Cheetahs can be used to record up to 30 discrete audio tracks simultaneously.

Another digital purchase included six Roland VS-1680 workstations. One VS-1680 was given to each band member so they could work at each of their individual home studios at their own pace. Ideas could now be swapped between band members as easily as swapping disks. In addition to recording ideas and demos, the band also put a VS-1680 in the room next to the main studio, turning it into an aux-

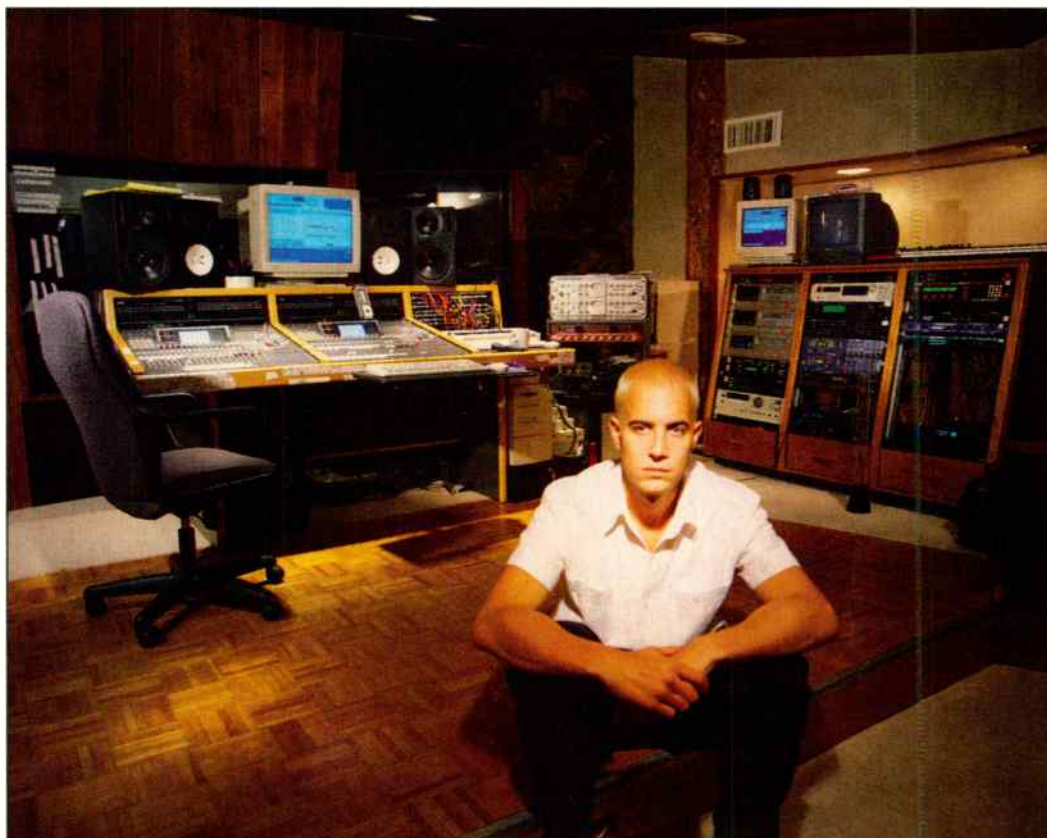


PHOTO BY EDWARD COLVER

**O'S AND 1'S FOR 311:** 311's Nick Hexum sits in The Hive — an old studio that the band rents on a monthly basis and has upgraded to digital.

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CIRCLE 79 ON FREE INFO CARD

World Radio History

iliary studio that is used for tracking solos that are used on the album.

The band intends to bring in some analog gear, including a tape machine and maybe even a Neve console, so that The Hive can be a complete full-service facility — from preproduction to post-production to mixing. “We’re gonna bring in a 24-track Studer tape machine and maybe just a basic analog Soundcraft board. That way, we can have everything go from the mics to the wall snakes to the Soundcraft board to the tape machine. Then we’ll monitor everything back to the 02R’s so we can add effects and have some convenient mixing,” explains Hexum.

All that remains from the original studio equipment are the wall snakes and an interesting acoustical product. Hexum explains: “In the main drum room, there are these variable wall panels. When you turn them one way, the exposed surface is a hard reflective lacquer. When you turn them the other way, the surface is foam. You can dial in the amount of liveness you want for the drums. It’s pretty cool.”

#### LIVE AND RE-ISSUED

In addition to working on their new album, 311 has used the studio for several other projects. For example, *311 LIVE* — which highlights the top performances of the band’s 1997 tour — was released in response to fans’ constant requests for a live 311 album. Although most of the songs on the album were mixed at North Hollywood’s NRG Studios, several were mixed at the Hive on the digital equipment. Many important mixing techniques for *311 LIVE*, such as making the songs flow from one to the next and setting appropriate crowd noise levels, were done on Sonic Solutions software.

Another project that was completed at

The Hive is *Omaha Sessions*, a collection of the best 311 material recorded before the band signed on with Capricorn Records. In the early days, when 311 was just trying to survive, they released three albums of basically demo-quality material. The band sold these albums at shows and sent them to record companies in an effort to get signed. Otherwise, they were available in the Midwest exclusively under Hexum’s What Have You independent record label. Once the band became a major touring act, “Mom ‘n’ Pop” stores nationwide began selling poor-quality bootlegs of these early 311 albums for \$50 each, sometimes more.

Disgusted by this, Hexum and company took the best songs from the pre-Capricorn days and, with the help of the 02R’s, remixed about half of them to work out level issues and EQ settings. After longtime 311 friend, Joe Gastwirt of Ocean View, completed the remastering of the project, *Omaha Sessions* was released and is currently available through 311’s Web site, [www.311music.com](http://www.311music.com), or by mail-order from the 311 fan club. “So, instead of our fans paying \$50 for something shitty, they can pay \$15 for something we’re proud of,” offers Hexum.

#### NEW MATERIAL

In preparation for the next album, the band is doing things in three phases. “First, we do the demos on our own,” says Hexum. “Second, the whole band plays the songs together and we try a lot of different things — different roadmaps, different harmonies. On Pro Tools, it’s so easy to hear the songs with different roadmaps because you can cut and paste so quickly. Third, we’re going to redo everything on analog equipment.” Right now, they are taking their time in phase two; perfecting the songs while they search for the right analog gear.

Meanwhile, they are only getting more

and more proficient with their newly purchased digital gear. Hexum explains: “We’re doing all the recording on Opcode’s Studio Vision, but we’re using the DAE sound drivers for Pro Tools. We use all the Pro Tools hardware because it’s a really convenient way to work. As fast as you can think of ideas, you can put them down and have them sound good, then you can replace those ideas all within one program. It’s been really cool to learn how to record things ourselves.”

Rather than concentrating on the guitar, for which he runs his Les Paul through a series of effects by Electro-Harmonix and Rocktron and finally into a Rivera “Bonehead” stack, Hexum is concerned mainly with vocals for the next album. He and Martinez sing into an AKG C12 and a Neumann microphone, respectively. From there, each of their signals runs into an individual Avalon VT-737, which is a preamp, EQ, and compressor all built into one 2-rack space unit. Once the instrument tracks are laid out, the two usually write the vocal arrangements with a keyboard, then sing the parts over and over until they’re happy. Hexum is especially fond of Pro Tools for recording vocals because he can sit in front of the computer and get as “freaky” as he wants without any help from anybody. “I’ll run it through Auto Tune — not necessarily to fix the vocals, but to see how much pitch correction it could be doing. I’ll listen closely, see what I need to do, and then re-sing it,” he says.

As far as recording (DJ) Martinez goes, his turntable runs into a Rocktron Intelliflex unit, into his mixer, and from there into a direct box. Finally, his entire signal is directed into Pro Tools. “We worked on a delay chart, where we know which delay settings will be right in time with each song,” says Hexum. “So he [Martinez] does his scratching with a delay time that is set automatically to bounce right in time with the music.”

311 is currently shopping for a producer to work alongside their long-time producer/live sound engineer, Scotch Ralston. Once the band finds a suitable producer, they will see what type of gear the producer is comfortable with before purchasing the analog gear needed to begin phase three of the recording process. From there, 311 will record the “strong rock album” for which, they hope, America is ready. Hexum concludes: “There isn’t as much hip hop or reggae influence in the current batch of songs we’ve been doing. I think that the next album will be more punk, sort of an uptempo swinging punk. I think our true fans will embrace it. We’ll win some [fans] and lose some. We’ve got to go with our hearts to move into the future.” **EQ**

*Hexum is especially fond of Pro Tools for recording vocals because he can sit in front of the computer and get as “freaky” as he wants without any help from anybody.*



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World Radio History

# Placing the Bass

## Bass management for 5.1 surround sound monitoring

BY MIKE SOKOL

This is the first in a series of articles on all aspects of mixing music for 5.1 surround — specifically music that's destined for DVD home entertainment playback. Of course, if you have a chance to work on a theatrical or theme-park 5.1 mix, this all will apply as well.

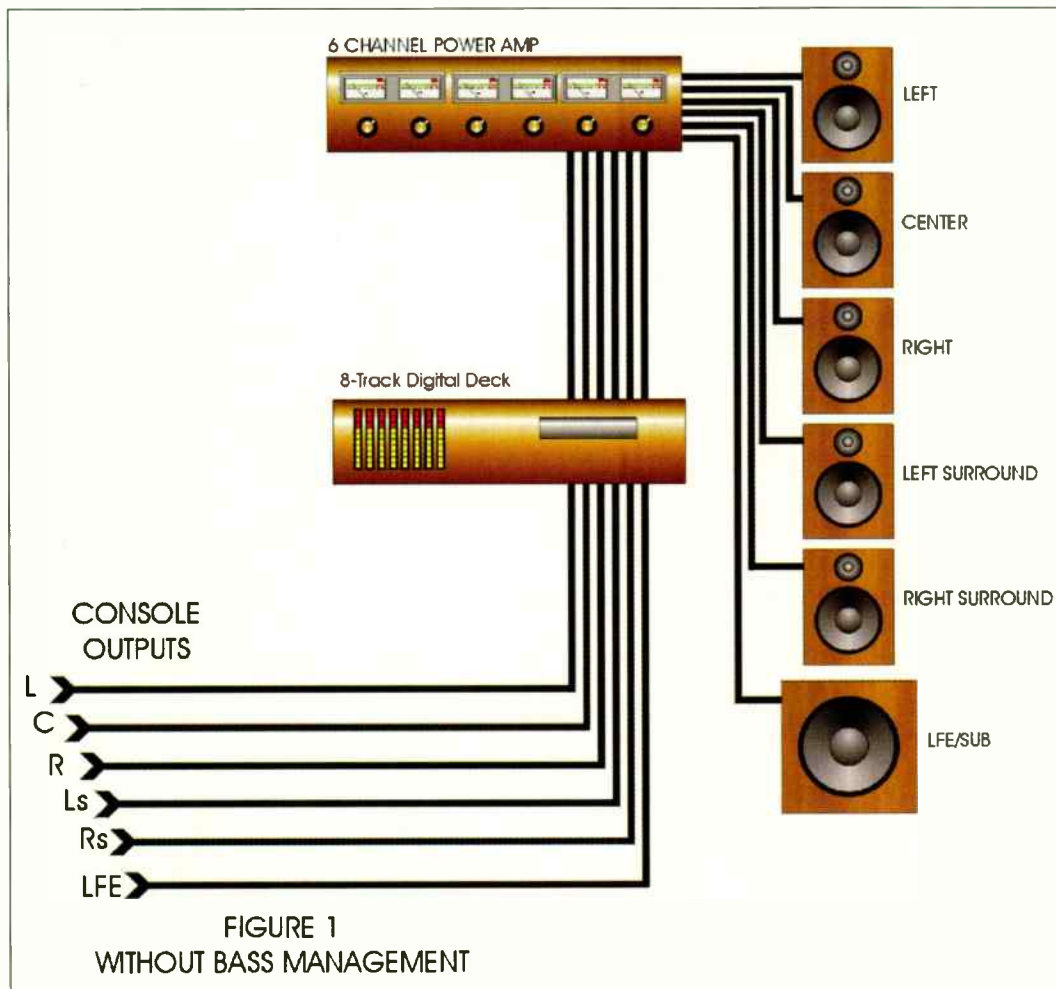
In order to understand what bass management is, you first have to understand the basics of 5.1 playback. Whether the source material comes from a Dolby Digital decoder (via an AC-3 data stream), a DTS decoder, or 24/96 PCM tracks, doesn't change the need for bass management in your studio. In fact, it's a necessity if your soundtrack will be mixed on the nearfield/subwoofer monitor systems popular in small control and mixing rooms. Here's why:

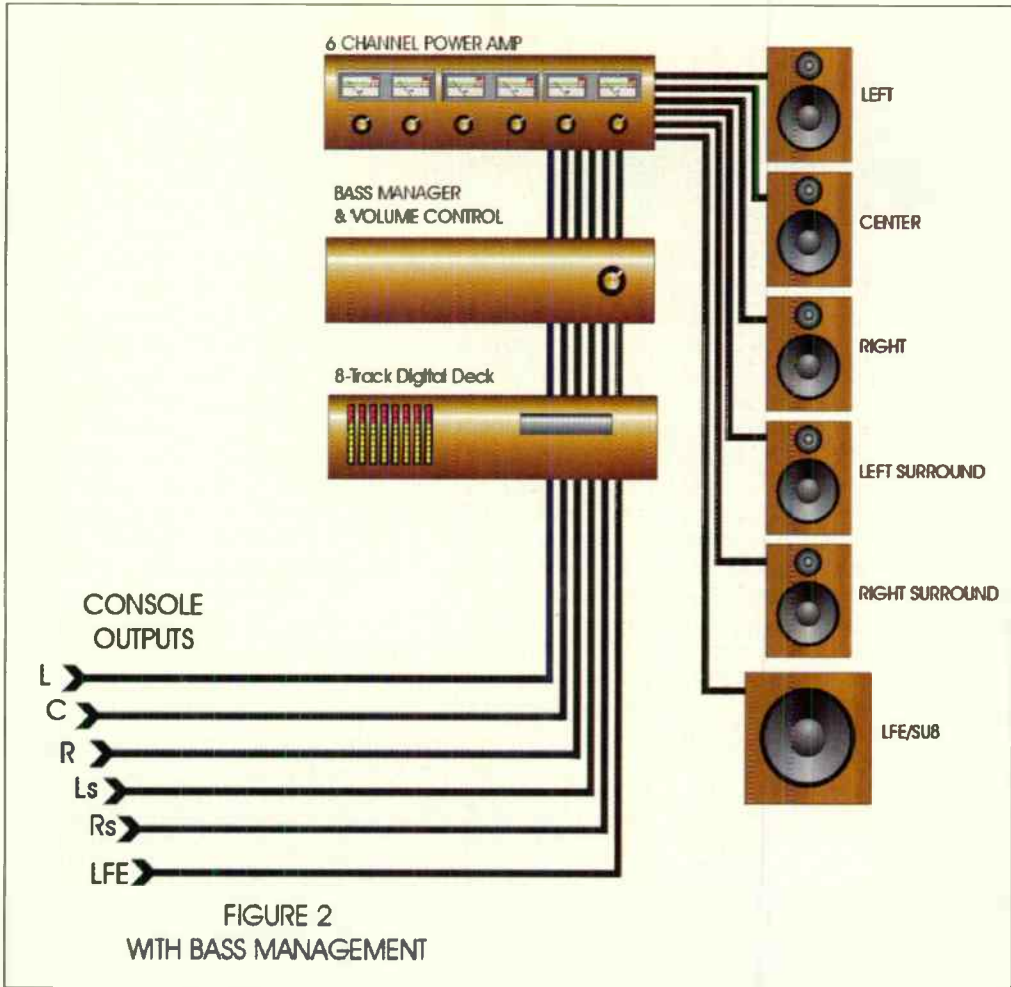
In 5.1 mixing, you have six channels of sound to play with. Five channels are more or less full bandwidth and eventually go to the Left, Center, Right, Left Surround, and Right Surround speakers (hereafter referred to as L, C, R, Ls, and Rs). As you know, that's what the "5" in 5.1 stands for. The ".1" is known as the LFE (low frequency effects) channel, which has a rated response of 3–125

Hz, with a 36-dB/octave low-pass cutoff. In a theatrical playback system, each of the front and rear speakers is a (in theory) full-bandwidth cabinet with normal bass response. The LFE channel is really only used for bass effects like gunshots and bombs.

So what does that mean in a small studio with nearfield monitors? Well, if you've ever mixed anything on a set of nearfields and accidentally put in too much or too little bass, you know the problem. Look at fig. 1 for a typical setup for mixing 5.1 in your studio. Notice that while you may have five nearfield monitors properly deployed in your studio, there is no cross connection from them to the subwoofer. If they are typical nearfields with small woofers, their frequency response won't extend much below 80 Hz.

So, for instance, if a vocal is assigned to the center speaker, you never really hear if there are any bass problems such as floor thumps and "plosives" you need to correct. Or maybe you're tempted to add in some 60 Hz boost to a male voice for that testosterone effect. While it may sound fine being filtered by the 80 Hz roll-off of your nearfield monitor speakers, in reality, it's been spiked with too much bass. And it's that infrasonic stuff that will get you in trouble later. If you don't know the bass is there, then you can't control it. If your mix will only be heard on a sound system with limited bass response, then this may not be much of a problem. The audio in every 5.1 mix, however, is destined to be played back through a home theater sound system with lots o' bass response on the front





ly, it can cut the bass out of the signals going to each of the surround speakers, which will help improve distortion, take the load off the usually small woofers, and also roll-off the extra high frequencies that are going to the LFE channel but don't belong there. Notice that this is not placed in the actual recording path, only the monitor path. The front and surround speakers are happy since their woofers are not being pounded to death. The sub is happy since it's getting the frequencies it loves. Finally, you're happy because your bass guitar sounds like a bass guitar even when it's not being mixed to the LFE channel on the console.

So, by adding a bass-management controller to your 5.1 monitoring system, you are essentially emulating how the final playback on a home theater system will work. You won't be tempted to make

and surround channels.

Why does your home entertainment system have bass response in the front and surround channels and not your studio monitors? Glad you asked. In a home theater system, the subwoofer does double-duty as both the LFE channel (for those explosions) and as a bass extender for the front and surround channels. So anything that's recorded in one of the "5" channels will end up in the ".1" bass speaker. And you can be sure that the subwoofer will be cranked up to within an inch of its life for the maximum atom-bomb effect.

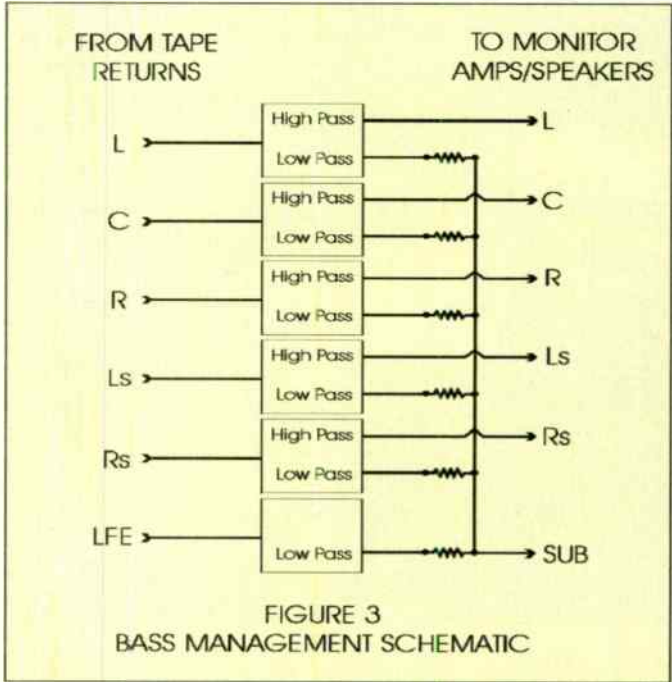
Then what will your mix sound like when played back in a home theater? Without bass management, there's just no way to tell until the deed is done and you hear your creation on a DVD — and by then it may be too late. You can have mic stand thumps, low-frequency hum, vocal "plosives," and traffic rumble that you were unaware of during tracking or

mixing. Therefore, even though your mix may sound massive with your LFE woofer rumbling away in your studio, unless you have a way to sum all of the bass from the five channels together with the LFE channel, you can't do a mix that you can guarantee will work on a standard home theater sound system.

Thus, bass management was born (see fig. 2). Simple in concept, it's basically a crossover/summing box that will add together all the low-frequency information below 125 Hz from the L, C, R, Ls, Rs, and LFE channels and send it to your subwoofer (see fig. 3). Additional-

bad bass decisions in the studio. Your mixes will be more accurate in the long run and will translate to home systems without any embarrassing bass artifacts. EQ

*Special Thanks to Doug Osborne at Miller & Kreisel Sound for the excellent information.*



## Showroom with a VU

B&H takes a novel and hands-on approach to selling pro audio gear

BY STEVE LA CERRA

You may be very surprised to learn that the photos on these pages were not taken in a project studio. They were taken in the pro audio showroom of B&H Pro Audio in New York City. We could tell you about all of the lines of pro studio gear that B&H carries, but that would sound

too much like an advertisement — and it would completely miss the point. It's not so much *what* B&H Pro Audio sells as it is *how* they sell it — and as fellow members of GSA (Gear Sluts Anonymous), we at *EQ* can tell you that it's a much different approach from just about any retailer we've experienced.

To our knowledge, B&H Pro Audio has the only audio equipment showroom designed by John Storyk of Walters/Storyk Design. The entire pro audio department is sound-isolated from the rest of B&H's retail space, keeping extraneous noise to a minimum. Acoustically isolated areas have been constructed for MIDI gear, recording consoles, speakers and power amplifiers, out-

board equipment, and microphones. Every effort has been made to facilitate comparison and minimize distractions during equipment evaluation, and the folks at B&H encourage their customers to come in and test drive the gear they're interested in purchasing. It makes a lot of sense — after all, you'd never purchase a car without test driving it. Since the salespeople at B&H don't work on commission, they seem to be a lot more interested in selling you the right gear than they are in selling a product that yields the highest profit.

Any of the equipment offered for sale at B&H Pro Audio is wired and ready for a test spin, including analog and digital consoles, multitrack and DAT tape machines, digital



THE ONLY WAY TO SHOP: The Manhattan location of B&H's stores features a John Storyk-designed studio that offers hands-on experience with all of the products to be purchased.





**ROOM FOR THOUGHT:** The MIDI workstation section offers customers the chance to experiment with different gear configurations.

audio workstations, outboard processors, microphones, power amplifiers, and loudspeakers. As you may notice in the photos, all of the gear is installed in racks and wired via TT patchbays to a computer-controlled switching system — enabling different pieces of equipment to be tried out in any combination or sequence of signal flow. Use of these patchbays allows gear from different “workstation” areas (such as the MIDI area or the compressor rack) to be tied together without a major hassle. This helps in making meaningful comparisons because the amount of unfamiliar equipment in the chain can be kept to a minimum.

Within each of B&H Pro Audio’s display racks of outboard gear is a proprietary computerized switching system that selectively routes audio through the outboard gear and then to headphones via a headphone amp. Let’s suppose that you want to hear compressor X. Using the touch-screen display in the compression rack, you select compres-



**PSST, WANNA BUY A MIC?:** B&H’s isolated mic room lets you monitor any source through the mic without bleed-through from the sales floor.

sor X and it’s switched in-circuit. Now you can play with the comp while listening to the results in a pair of cans. But what if you want

to hear what the unit sounds like on a specific instrument? The screen also has a source selector, enabling you to switch be-



QUIET TIME: The acoustically isolated demo room is wired so that you can A/B test all of the products' features.

tween various sound samples such as snare drum, voice, or bass—so you're not stuck listening to the compressor on only one type of sound. Similar switching devices are provided in the reverb station, MIDI station, and loud-speaker/power amplifier listening room.

In the MIDI workstation, sound modules are racked up and MIDI'd to a keyboard controller via MIDI routing box. All you need to do is push a button, and the module you select is connected to the controller. The MIDI and reverb stations also have headphones, so one of the best aspects of B&H's Showroom With a VU is that it's *quiet*: you will not hear the cacophony typical of a music store because there are no live instrument amps.

This easy-comparison philosophy is carried out in the speaker/amp room as well. A 16x16 matrix allows instant connection of any of 16 pairs of speakers to any of 16 power amps (B&H has the ability to expand this matrix in the future). There's

no fooling around with cables to audition a pair of monitors, and any pair of monitors may be instantly auditioned with any power amplifier. Furthermore, you can quickly switch a source between any passive or active monitors without having to stop and move cables around. It's a very clever arrangement that facilitates A/B listening comparisons.

Perhaps the most intriguing aspect of B&H's showroom is the microphone isolation booth. It looks much like a large vocal booth with about 20 different microphones set up for use. Drum-rack-style bars fitted with small mic holders line the periphery of the room—there's not a multitude of mic stands crowding the floor. Using headphones and a routing box, you can easily hear any microphone in the room, including those with outboard power supplies. Since the room is acoustically isolated, you won't hear any street noise, making it easy to check the noise floor of a mic. Additionally—and this is huge in

our book—you can bring an instrument into the iso booth, play it into the mics for auditioning, and not disturb anyone else. B&H has installed a number of mic pres that may be patched in for auditions so that you can hear a mic through a preamp that is familiar to you.

B&H Pro Audio has created a space that feels and operates much more like a studio than a retail store. Some of the other details they've addressed include various-format multitrack tape machines installed at the mixing console stations, a separate keyboard evaluation area with plenty of headphones, and even a room with various digital audio workstations configured and ready to go. All the niceties to make us GSA members comfortable!

*For more information, contact B&H at 800-947-5518 or 212-444-6688 or visit their Web site at [www.bhphotovideo.com](http://www.bhphotovideo.com).*

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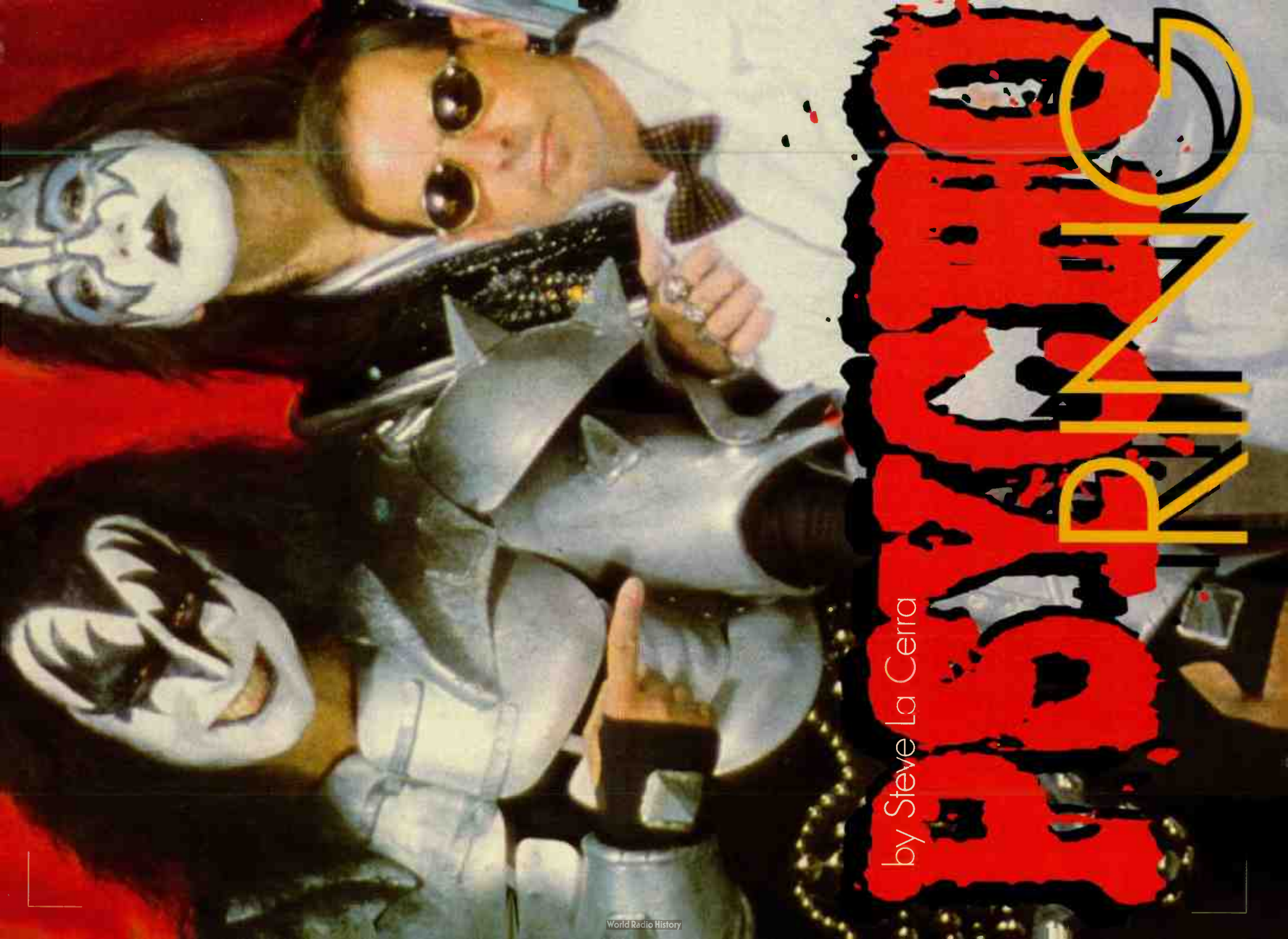
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CIRCLE 15 ON FREE INFO CARD  
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by Steve La Cerra

# ROCK ON!



Producer

Bruce

Fairbairn

exposes the

recording

secrets

behind KISS'

latest effort:

*Psycho*

*Circus*

# LEADER

PHOTOGRAPH BY GUY AROCH

# PSYCHO CIRCUS' RINGLEADER



"You can't make everybody happy — especially with KISS fans because they're so dedicated...[but] people that might normally not like KISS songs may like these songs."

*with Bruce for a frank discussion about making a record with the boys in drag...er...costume.*

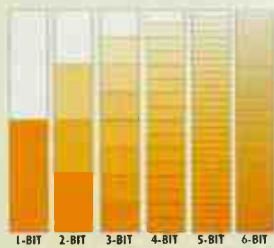
*Where would the world of hard rock be without Bruce Fairbairn? The man who brought us some of the best records from Bon Jovi, Bryan Adams, AC/DC, Van Halen, Aerosmith, and INXS has now joined the circus — KISS' Psycho Circus that is. EQ recently caught up*

**EQ:** Where was *Psycho Circus* recorded? Bruce Fairbairn: We recorded *Psycho Circus* in Los Angeles. Most of the tracking was at One On One, and most of the overdubs at A&M. Mike Plotnikoff was the engineer for the tracking and overdubbing. The record was mixed by Mick Guzauski at his studio in New York. What makes *Psycho Circus* different from other KISS records?

Well, there's good song writing! [Laughs.] Not that there weren't good songs on other KISS records, but I have kind of watched KISS from the sidelines for many, many years, and it was always my impression that each record had one or two really good songs that got airplay and people remembered. The rest of it dis-

appeared in a blur. On this record we really tried to take some time to get ten really good songs. Not everybody'll like all ten, but somebody will like one of those. You've got KISS fans that like three or four of the songs, and maybe don't understand why two or three other songs are on the record. Then other people love the same two or three songs that the KISS fans don't like and think, "I don't know if these other ones should be on the record." Still other people will say they loved another set of songs. It's strange but encouraging, because everybody has something to say. Whether they love them or hate them, they react. You can't make everybody happy — especially with KISS fans because they're so dedicated. This

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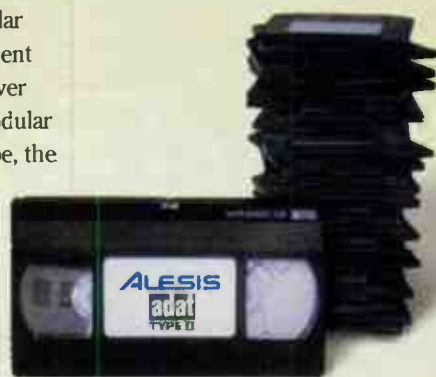
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# PSYCHO CIRCUS' RINGLEADER



"I don't mean to slight Peter, but there are better drummers out there than him. But when you present Peter with a challenge, he'll get in there and do it. He's a very capable drummer with good ideas, and he's a good player for KISS."

time we tried to bring in a few more listeners with songs like "We Are One" and "Within." People that might normally not like KISS songs may like these songs.

Did the band come in with finished songs?

There was writing going on in the studio. Paul, for example, is a great pressure-writer. The best stuff he wrote was finished while we were in the studio. He'd work on his demos and lyrics while we were cutting tracks. When he knows that

the shit is going to hit the fan, he works really hard. He brought in some really good material toward the middle of the record. Did that affect the recording process at all?

It did in a way because we knew we had these gaps in the record and Paul was the guy who would be filling them. We were kind of working with an incomplete picture for a while. Paul'd come in with a song and we'd all go, "Thank God. Now we have another one of these holes plugged." It would start taking more shape. "I Pledge Allegiance To The State Of Rock and Roll" was one of the songs which came in and filled a gap. Early on in the game, Paul came in with "Psycho Circus" and said, "Now I have a beginning. I can relax and start working on the other material."

There's got to be a certain amount of pressure on you with a group like this. They have around 30 gold and platinum

albums, so you have to keep a new record in the same vein. How do you strike the balance of making the record sound kick-ass while maintaining the integrity of the band's sound?

With great difficulty! That was one of the toughest tasks we faced. Everybody has a different idea of what KISS is musically — even down to the band. If you ask the four guys, "What's KISS' sound?" you'll get four different answers. Ace believes the KISS sound goes back to the early records with more of a blues-riffy sound. Gene sees *Destroyer* as being the key musical thing. Get outside of the four guys, and there's more: the record company thinks one thing, the KISS Army thinks another [*the KISS Army is the group's official fan club —Ed.*].

It was clear that we weren't going to innovate something for the new millennium where people would say, "What are they trying to do? This record has noth-



ing to do with KISS." So we looked back at *Destroyer* as an example and thought about what made it a great KISS record. What was that all about? To our amazement, we found it was a *pop* record. Your memory is always clouded by what you think something was. I always thought of it as a fairly heavy record. But it was a pop record. We kind of tried to take the idea of *Destroyer* and move it into the '90s by including songs that are very KISS-oriented like "Into The Void." That's a song fans will understand, and know that's their guys. Then we tried to stretch a little bit with songs like "Within," "We Are One," and "Journey Of A 1000 Years" to make it clear that the band is not just doing a retro record. They're trying to move forward yet still stay true to what they are.

There are certain things KISS can do that other bands cannot. No other band can stand up and say, "I pledge allegiance to the state of Rock 'n' Roll" in 1999 and have people say, "OK. I understand that based on where you guys are coming from." But they can't stand up and play some amazing technical, fantastic-audiophile type of song on record, because people just won't believe it. People know what these guys are like and what they play like.

**You're opening up a can of worms I'd really like to get into...**

Yeah. You're dealing with a somewhat restricted thing. Within the box that defines KISS there is room to move. That's what we tried to do: find places to move, without moving out of the KISS world. Whether it was successful or not is something that we'll find out in the next few weeks.

**You've touched on something I wanted to discuss. How much did these guys actually play on the record?**

They played.

**Really?**

Everybody asked me this question because they think we brought in ringers and blah blah blah...

**It doesn't sound like Peter Criss...**

...and that wasn't easy. To their credit, the boys worked really hard at it. I don't mean to slight Peter, but there are better drummers out there than him. But when you present Peter with a challenge, he'll get in there and do it. He's a very capable drummer with good ideas, and he's a good player for KISS. It wasn't the easiest thing in the world to do, but I give him full credit. We tried not to bite off anything more than we could chew — anything we couldn't get out of trouble with. We did have a few people play other instruments. Bob Ezrin played electric piano on "I Finally Found My Way," which was nice because he was one of their past producers. Shelly Berg did the string arrangement

and played acoustic piano on "Journey Of 1000 Years." But, basically, the boys played on the record. It took a bit of time to do, but hey...you've gotta do it.

**How did you go about cutting tracks?**

We set up everybody together, concentrated on getting a good drum track, and built on that. Gene'd come in and lay down bass, then we'd fix guitars. Gene is a very heavy player, and when you're trying to get his sound — which is distorted — the intonation is tough. We worked on the bass not from a performance point of view as much as from getting it in tune and getting it sitting there right. Once we got that sorted out, we were in good shape.

**Is that something you took from a playing point, or did you technically adjust the pitch?** It was in the playing. We could have run it through Pro Tools and adjusted the pitch that way, but we did a lot of peg tuning and string pulling to get it to work. It was different for every song because we used a couple of different basses. I brought up my '62 Precision, and it's not used to being whacked like that. It got this rude shock coming out of the case. It sounded really good, but it wasn't used to being played so hard. So we had to put new strings on and tweak the tuning down a bit so that when Gene played it, it would work. Then we also used his Punisher,

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# PSYCHO CIRCUS' RINGLEADER

which is used to being bashed around.

**How did you get his bass sound?**

He uses a big 'ol Dinosaur SVT. We run that in the studio pretty much wide open. If you hear it by itself, it's fairly scary — not a thing you want to hear exclusively. Then we'd run a direct and work the two of those. Occasionally we'd use a SansAmp to get a bit of amp sound that we couldn't get from the SVT, all on separate tracks. We recorded on an analog Studer over 48 tracks. Towards the end of the record we moved it over to digital to do a few ODs and mix off the digital. But 90 percent of the recording is analog on Studer. The transfer is for convenience sake, not for the sound or anything. Ease of working.

**How did you go about miking up Peter's kit?**

It was a fairly standard set-up for us. I think we cut across nine or ten tracks. We had a series of overhead and room mics, toms, snare, hihat — there was no magic. With Peter, we were much more focused on his playing than we were on innovating any kind of new drum sound, so we used a pretty safe setup — one we knew would work. And One On One has a lovely tracking room. Really big with lots of wood.

**Did you do any editing on his drum tracks?**

There's some editing. Because we were on analog, you're limited in terms of what you can do. If there was a chorus that didn't make it or we wanted to move in a verse or tag from a different take, we'd cut it in. It wasn't the kind of thing where we'd take the first two beats of this fill and the rest of that fill, and your master tape ends up looking like a highway with more splicing tape on it than recording tape! We tried to avoid that kind of editing. You'll notice places where some songs speed up or slow down a bit. They're not all perfect. But if you make a perfect-sounding record, nobody's going to believe it anyway.

**Were there a lot of takes per song?**

We tried to keep it at four or five takes per song. If we were having trouble by then, we'd come back the next day and try it again. In my opinion, no band — whether it's KISS or INXS or Aerosmith — improves past a certain point playing the same song. Some guys will go in and beat up a track until it's perfect, but they lose a lot in terms of feel and attitude. I'd rather have a take where you can sense a little energy and excitement in playing. It might not be perfect, but it has feel.

**After the editing has been done, do you then overdub on that same physical piece of tape, or do you transfer to another piece of "whole" tape?**

No, we work right on that tape.

**Some people feel that you shouldn't overdub on tape that's been edited...**

I do it all the time. We'd have the majority of a take, and then you might see an edit for one chorus, or maybe a different tag. I record over edits all the time, and without a problem. It's Rock 'n' Roll. So much crap goes on the tape by the time you're finished. If the edit is good when you lay it down and tape it together, then you're pretty safe.

**Is that something that you handle yourself?**

Oh God no! [Laughs.] To this day I have never made an edit that you couldn't hear go "clunk." Mike Plotnikoff is really good at editing. He learned how to cut tape from the old school, and he picked up some tricks from the older guys because that was the only option available. I usually go out of the room when that shit's happening. I don't even want to watch it. Once these guys get going, there are several reels involved. Occasionally they'll lose a part. I don't want to be there when they lose a part. It's scary! You know, there's tape all over the floor... But Mike is really good.

**When you're working on a project where**

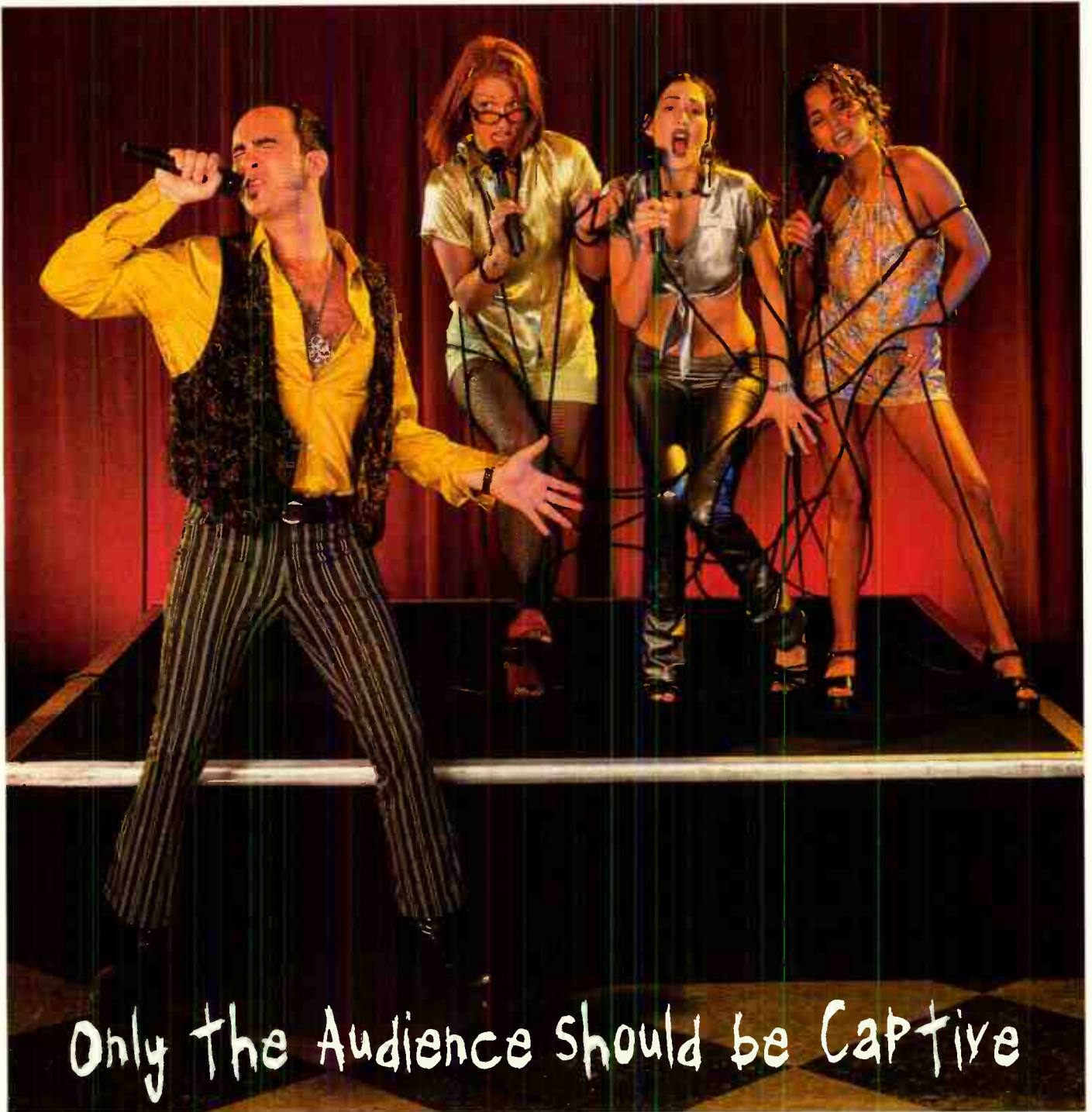
**the drums are laid down first, do you find that by the end of the project the top end of the cymbals has been compromised.**

It can be. We've all heard horror stories about cymbals degenerating in the old days, but now the gear and the tape is so much better that you don't get that kind of loss in the cymbals. Of course, when you mix, you're always dialing a little bit back in just to bring it up a scratch. After we have the basic tracks cut, we try to only use that master reel of tape for maybe a couple of guitar overdubs. Then we put the master away and work off a slave so that the master reel is not running over the heads for the entire project. We'll take the drums down to kick, snare, and stereo kit, rhythm guitars down to one or two tracks, and bass down to one. It's a little bit frustrating when you're always listening to the slave tape during overdubs because the drums never sound as good. You have to use a bit of imagination. It's always a treat when you're done recording, you run both reels together, and think, "Ahh, the drums are still there and they still sound decent." Sometimes you actually forget what's on the master reel. That's part of the cross you bear when you record on analog tape and work with two reels. With digital you always know what's on the tape.

**How do you record the vocal of a guy like Paul Stanley?**

Paul is a good singer, and I was pleasantly surprised when I started working with him. I think past KISS records have sold him short. He has good pitch, good tone, and he is very strong. It was a pleasure working with him. He knows when something is good or not. If he hits a line flat, he knows it right away. It's not like he thinks it's the take of a career and you're shaking your head going, "Oooohh." He can sing a long time, but knows when he starts to lose it. I had a really good time with him, and with Gene, too. Gene has a side of his voice that not many people get to hear because it has never really made it to a KISS record before. "We Are One" is an example. It's not all about that "aarararggg," God-Of-Thunder voice. The interesting thing about Gene is that he comes in and either nails it or not, right away. There's no, "I need half an hour to warm up, we'll do a few takes, then we'll take a break and do a few more." He's in and he wants to know what song he's singing. "When I walk in, you gotta have the headphone mix ready to go 'cause I'm going to come

"You'll notice places where some songs speed up or slow down a bit. They're not all perfect. But if you make a perfect-sounding record, nobody's going to believe it anyway."



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# PSYCHO TRATS! RINGLEADER



"It's always a treat when you're done recording, you run both reels together, and think, 'Ah, the drums are still there and they still sound decent.'"

in and sing. Either it's going to happen or not!" It was always a great event when he'd come in and put the headphones on. We'd know if it was OK 'cause he'd be smiling. Otherwise he'd give us this look like, "The headphone aren't happening." Poor Mike would sit there thinking, "Ohhh, OK." So he'd try to make some changes real quick. Gene either nailed it in two or three takes, and he's done, or not. If

not, we'd go onto another song. So there wasn't a lot of comping going on.

I found that when they were singing three or four takes there'd be one that was good almost top to bottom. Once the voice was open, phrasing was good, everything was pretty much in there tuning-wise, we'd build on that take. If I had to get them to sing a verse a few times, then we'd do that.

**Did you have any preference for vocal mics when recording these guys?**

We used Neumann U47's, U67's, and U87's — fairly tried-and-true mics. We didn't really get anything too exotic. We needed mics that were comfortable to work with — a workhorse where there wouldn't be trouble with power supplies or tubes failing — some of those things that go wrong with older mics. Singers want to feel comfortable with what they're doing, not feel like the mic is so important. It's more about what they're singing, especially for a KISS record. It's not an audiophile kind of experience in the recording end. It's all about getting the guys comfortable.

**Having said that, did you record these guys with compression?**

A little, but not too much. Just enough to help even things out. Unless you have someone

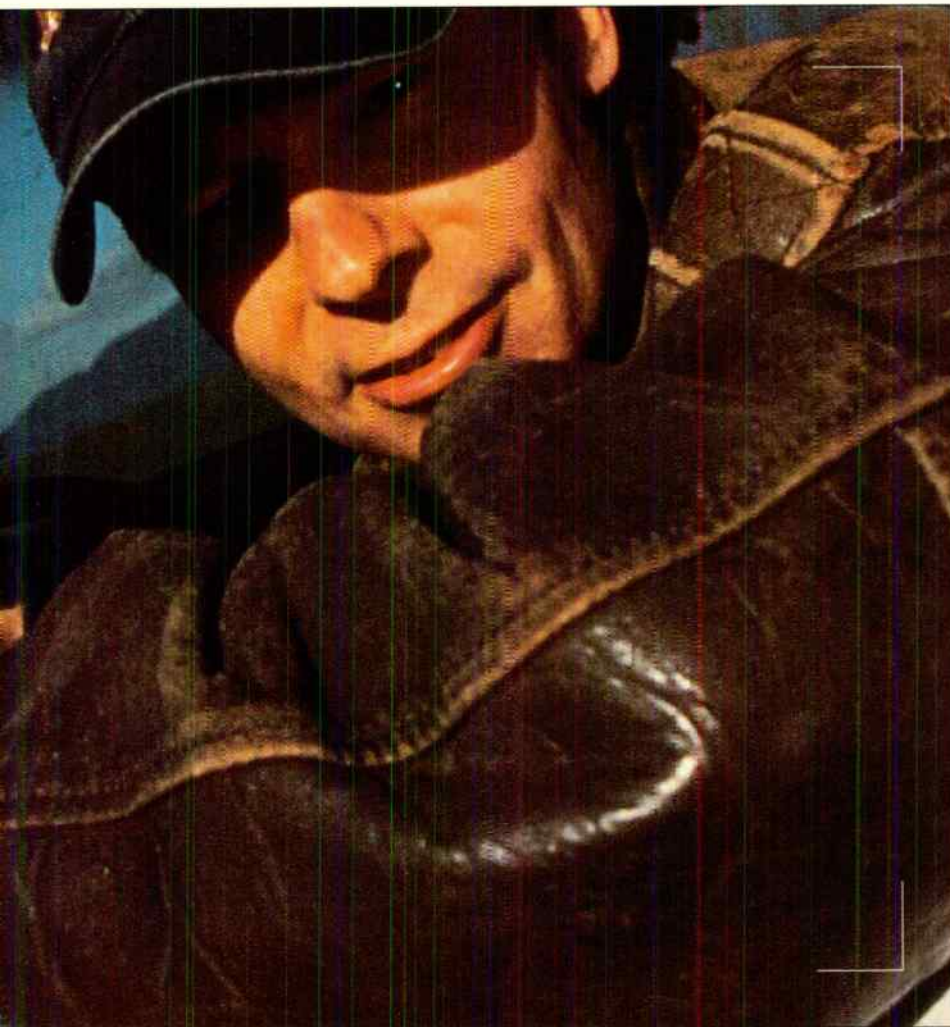
that's working the mic all the time, a little bit of compression is important.

**How important does that become in the mix process?**

It's really about who is mixing the record. The beauty about the way we did this record is that Mick mixed it in New York. We didn't go to New York. We had Ednet hookups with him. I didn't sit there and ask Mick what the chain was on the vocal. I figured that if it sounds good and I like what I'm hearing, I'm a happy guy. Same with the band. It's a blessing in disguise because I have seen mix sessions go on and on and on. The band wants to get their hands on the faders, they want to play with EQ, they're questioning compression — all kind of things that are not their expertise (myself included). Working this way was great because Mick would do what he does, and we'd hear it and make comments, but we never ventured into what he was doing technically.

**How was the hook up made?**

Over a phone line with converters on either end. So it's A-to-D'd, sent over the phone line, and then D-to-A'd on my end so I could hear it. We were over at



Capitol, where they have editing suites set up for that. It was very smooth. Judging from what we took home to listen to and what we ended up with after mastering, we didn't lose anything in the transmission. There was nothing where we could say, "Holy cow, what happened to the bottom end?" or whatever. The lines were steady, and talkback worked great. We even did a three-way hook up a few times when I was in Vancouver. The signal would come down the line from Mick's place, into Capitol, and then they'd kick it up here. We set up a three-way talkback, and I was really blown away that it worked so well.

What was the biggest challenge of the project for you?

There were two. One was picking the songs and the other was coming to grips with actually working with KISS — just because of their stature, their reputations, their characters — the whole thing that is KISS. I really didn't know what I was going to have to deal with. You always imagine the worst. A lot of stories go around. I heard, "These guys can't play. These guys can't do this or that. You're

nuts to try and do a record with KISS." Other people'd say, "You lucky guy. That's the record I've always wanted to make. What a great opportunity." You have to balance all that out, pay attention to none of it, and get to work! In retrospect, I could not have picked four nicer guys to work with in the studio because of their attitudes and their whole perspective. They're not making their first record, yet they don't think they know it all. They know exactly what their limitations are, and what they have to do to make a KISS record. They're very professional that way. I was pleasantly surprised with the musicianship in the band because I had heard a lot of stories. But when we actually went in and they picked up instruments, it was great. And it was a very entertaining record to make! It was not without its moments.

As a producer, it's good working with KISS because they are well-defined as a band. There's no real "what do we do here?" kinda thing. You pick a spot within that box that represents the band and go for it. As a producer, that can be helpful. It saves you the naval-gazing for a few weeks!

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# NAMM PREVIEW 1999

*What better way to start the new year than with nine pages of new products? Here's a glimpse at some of the NAMM show's hottest product introductions.*

## SIMPLE SYNC'ING

**M**IDIMAN recently released their BiPort 2x4s dual-platform (Mac and PC) 2 in/4 out MIDI interface and SMPTE sync box. The unit is capable of 64 MIDI output channels via four independent MIDI out jacks and 32 MIDI input channels via two independent MIDI in jacks. Large, deep data buffers ensure full MIDI throughput with no data loss. The built-in SMPTE timecode reader/writer/regenerator supports all common MTC formats and SMPTE user bits. A Mac Thru switch allows you to activate or bypass, so you can retain your modem or printer connection. The BiPort 2x4s is Apple Geo-Port compatible and includes LEDs for full SMPTE control. The suggested retail price is \$149.95. For more information, call MIDIMAN at 626-445-2842. Circle EQ free lit. #110.



## WRITE ON

**H**HB Communications has announced the CDR850. Building on the popular HHB CDR800, the CDR850 records both on conventional write-once CD-R media and the new generation CD-RW rewritable discs. Housed in a 2U rack-mount chassis and sporting a deep metallic purple front panel, a series of one-touch modes allows track-by-track recording, all-track recording, or automatic conversion of DAT IDs to CD tracks. Recording from virtually any digital source is accommodated by an on-board sample-rate converter that accepts any input from 32-48 kHz, converting it to the CD standard of 44.1 kHz. For more information, call HHB at 310-319-1111. Circle EQ free lit. #111.

## RADIAN TRIO

**R**adian Audio Engineering has introduced a new line of compact, full-range speaker systems based on their unique 8-inch coaxial component. This component has a 1-inch compression driver combined with an 8-inch, high-power low/mid-frequency cone driver. The power handling is 400 watts program/200 watts RMS. The dispersion pattern is 90 degrees conical. The line consists of three models: the RCX-108P-V is intended for fixed installations and includes 12 fly points and is finished with Zolotone paint finish; the RPX-108P is the smallest of the group and is designed for monitoring applications; and the RPX-108P-V, which features the scuff-proof Duradian finish, is targeted for portable applications with an integrated stand mount. For more information, call Radian Audio Engineering, Inc. at 714-288-8900. Circle EQ free lit. #112.



## SUB POWER

**H**afler's TRM10S Trans•ana powered subwoofer is a down-firing, ported system that augments the performance of Hafler's new TRM6 active monitor system or any small monitor when frequency response down to 25 Hz is vital. The TRM10S features a MOSFET output stage and Class G/Trans•ana topology with a one-cubic-foot vented enclosure. The unit has a 200-watt amplifier and oversized power supply for wide dynamic range. The wood cabinet has an exo-port for pure low-frequency extension. The subwoofer has adjustable input sensitivity, an adjustable crossover of 24 dB/octave Linkwitz/Riley with 40 Hz to 110 Hz range, balanced XLR and RCA stereo inputs, and selectable phase control. For more details, call Hafler at 888-HAFLER1. Circle EQ free lit. #113.

## WONDER TWIN

**M**illennia Media has announced the TCL-2 "Twincom" stereo compressor/limiter with Twin Topology — Millennia's merging of pure Class-A vacuum tube and pure Class-A solid-state circuit topologies. One front-panel switch selects between a complete vacuum tube compressor/limiter or a fully discrete solid-state compressor/limiter. The TCL-2 has only one active stage in the audio signal path. The solid-state aspect of Twin Topology consists of pure Class-A discrete J-FET amplifiers. The vacuum tube aspect employs 300-volt, pure Class-A triode vacuum tubes. The TCL-2 is now shipping at a retail price of \$2795. To find out more, call Millennia Media at 530-647-0750 or go to their Web site at [www.mil-media.com](http://www.mil-media.com). Circle EQ free lit. #114.



# NAMM PREVIEW 1999

## SYNTH-PLICITY

**T**he Equinox 61 and 76 are Generalmusic's two most powerful and flexible synths to date. The 61-key Equinox 61 and 76-key Equinox 76 both feature velocity and aftertouch, as well as 64-voice polyphony. Equipped with 16 MB of ROM, these synths offer over 1000 sounds as standard. The Equinox 61 and 76 can each read samples direct from floppy disk, CD-ROM, SyQuest, Zip, Jaz, and others in the following formats: Kurzweil K2000, Akai S1000, WAV (PC), AIFF (Mac), SMP, and SND. The Equinox synth engine boasts 128 digital filters with resonance. A single patch can contain as many as six waveforms, with up to 21 independent, 10-segment envelopes, and three LFOs. The Equinox 61 costs \$1995, while the Equinox 76 costs \$2195. Also available is the EQ88 version with 88 weighted keys and the Equinox Rack, which is a rack-mounted version of the Equinox's guts (no keyboard). For more information, call Generalmusic at 630-766-8230. Circle EQ free lit. #116.



## JUST FOR EFFECT

**C**reamWare's PULSAR is a 24-bit/96-kHz DSP board in a PC version. The PULSAR is MME compliant and features an ASIO driver for optimum communication with Cubase VST. Offering a total of 20 inputs/outputs, including 2xADAT, S/PDIF-I/O, and stereo analog, the PULSAR is a fully-loaded, 32-channel digital mixer with eight aux and 16 recording busses and features four SHARC DSPs by Analog Devices. The PULSAR is also a fully fledged effects rack with many features, including delay, flanger, chorus, and a vocoder. PULSAR comes factory-complete with several sound generators, including diverse analog synthesizers, an FM synthesizer, and a physical modeling sound generator, as well as a modular patch synthesizer and an Akai-compatible sample player. With a PCI board for PC and MAC, the PULSAR is SCOPE compatible, has a MIDI interface, and is available for a suggested retail price of \$1298. For further information, contact CreamWare at 800-899-1939. Circle EQ free lit. #115.

## FILE INSURANCE

**A**merican Power Conversion (APC)

has introduced the industry's first and only uninterruptible power supplies with a Universal Serial Bus (USB) port, providing premium application and data protection for high-performance PC users. APC's BackUPS Pro 350 and 500 are the first UPSs with USB to obtain the "Designed for Microsoft Windows 98" logo. The systems include automatic file-saving software

optimized for use with Windows 98. The USB communication port simplifies the installation of the UPS, eliminating the need to re-configure IRQ settings and enabling installation of the UPS without sacrificing a serial communications port. Other features include automatic voltage regulation, easy overload recovery, and a building wiring fault indicator. For more information, call APC at 401-789-5735 or visit [www.apcc.com](http://www.apcc.com). Circle EQ free lit. #117.



## TAKE A STAND

**J**BL Professional has introduced the JBL SS2-BK Series loudspeakers stands. The stands carry a load capacity of 110 lbs., feature a height range of 3 feet 8 inches to 6 feet 7 inches, and weigh 6 lbs. 4 oz. JBL SS2-BK Series stands also include a new connector tube that telescopes up to accommodate 1-3/8-inch speaker sockets and down for 1-inch sockets, and a new telescoping lock that minimizes the need for adapters and prevents accidental removal of the center tube. Glass-reinforced polycarbonate fittings, drawn aluminum tubing, and two-step anodizing make for durable, lightweight tripods. Metal clamps over plastic fittings minimize overtightening and breakage. For more information, call JBL Professional at 818-894-8850 or visit [www.jblpro.com](http://www.jblpro.com). Circle EQ free lit. #118.

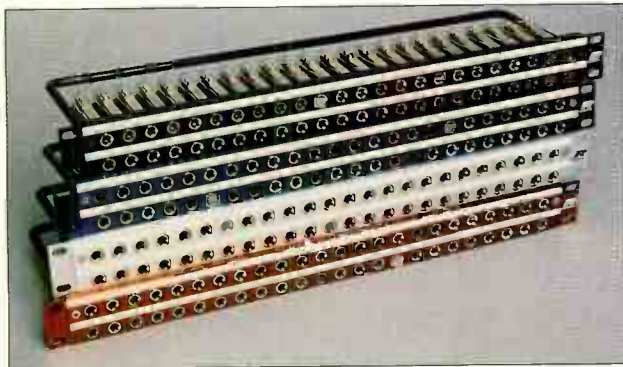


**MORE  
POWER  
TO YA**

**A**RX Systems has announced the release of the second model in the ZR Series of power amplifiers. The ZR550 is a dual-channel power amp that uses new generation lateral



MOSFET output devices and a toroidal transformer-based non-switching power supply. The ZR550 features ARX's new "Headroom Enhance" circuitry, which provides maximum available power output levels under all rated conditions, eliminating output stage clipping. The amplifier is rated at 200 watts/channel at 8 ohms and 270 watts/channel at 4 ohms. It features XLR and 1/4-inch jack inputs and Speakon outputs in a heavy-duty, 2U package. For further information, call ARX Systems at 03-9555-7859 or visit their Web site at [www.arx.com.au](http://www.arx.com.au). Circle EQ free lit. #119.



**PATCHING COMBOS IN COLOR**

**R**ean has introduced new Long Frame Series Patchbays for studio applications. Available in four colors, the units feature 48 or 52 jacks mounted in a durable insulated panel. The entire assembly is mounted in a heavy-duty machined aluminum extrusion, and each unit incorporates a unique strain relief bar on the back of the unit to help preserve the solder points. As a complement to the LF Series patchbays, Rean is also introducing a new series of military-style 1/4-inch Patch Chords, designed for all 1/4-inch long frame patching systems. For more information on Rean's product lines, contact Rean USA at 732-901-9488 or visit their Web site at [www.rean.com](http://www.rean.com). Circle EQ free lit. #120.



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# NAMM PREVIEW 1999



## POWER MIX

**A**kai's AMX10 powered mixer combines Class D amplifier technology and high power handling in a lightweight, compact format. It is ideal for portable sound re-

inforcement, public address systems, and nightclub and church applications. The AMX10 has an output power of 200 watts x 2 into 4 ohms and can be set up in minutes. The suggested retail price is \$895. For more information, call Akai Musical Instruments Corp. at 817-831-9203 or go to [www.akai.com/akaipro](http://www.akai.com/akaipro). Circle EQ free lit. #121.



## MIX 'N' MATCH

**F**ostex's VM04 stereo digital mixer is the first compact digital mixing system designed to offer a full range of I/O interface and simple analog-type operation with an extensive list of digital features, including high-performance digital signal processing and scene memory automation. A pair of trimmable mic-level inputs are matched with two line-level outputs, each with individual panning and two-position shelving-type EQ, effects sends digital/analog stereo outputs, and high-quality 30-mm faders. The mixer incorporates 20-bit A/D converters, 24-bit internal data processing, and 44.1 kHz operation. Twenty types of DSP presets are available, including hall, room, plate and stadium reverbs, delays, chorus, flange, and feedback. For more information, call Fostex at 562-921-1112 or visit their Web site at [www.fostex.com](http://www.fostex.com). Circle EQ free lit. #122.

## REACH FOR SUMMIT

**S**ummit Audio has debuted the MPE-200 microphone preamplifier and 4-band equalizer, the initial offering of the new Element 78 product line. The unit offers a unique implementation of storage and reset capabilities, allowing comparison of up to 25 memory settings and copying of settings between units and MIDI control. The 2U rack space device provides two independent audio paths for each of two channels. Each channel consists of a high-performance microphone amplifier with high- and low-pass filter sections and a comprehensive 4-band equalizer. Other features include Class A discrete transistor analog amplifiers, "Coarse" and "Fine" gain controls for each section, instrumentation-type input amplifiers, floating and balanced output transformers, and more. For more information, call Summit Audio, Inc. at 831-464-2448 or visit their Web site at [www.summitaudio.com](http://www.summitaudio.com). Circle EQ free lit. #123.





## EASY HARD DISK

**F**ostex has introduced the D-108 hard-disk recorder, which is designed for postproduction and editing applications. WAV-file compatibility enables post-production professionals and musicians to save and load sound data in WAV format and to transfer data to and from external DOS-formatted recording media via removable SCSI media. Featuring 8-track simultaneous recording/reproducing via 8-track

digital ADAT and 8-track analog, the unit comes with 16 virtual tracks for 24-track flexibility and 99 song programs. Also available is the D-108TC, which features a T/C Sync card and a "digital I/F gate alley," and the D-108B, which provides analog balanced +4 dBu on D-sub 25-pin connectors and balanced I/O. The D-108 will be available for \$1495. For more information, call Fostex at 562-921-1112 or visit the company's Web site at [www.fostex.com](http://www.fostex.com). Circle EQ free lit. #124.

## GO SURROUND

**S**oundField has introduced the SoundField 5.1 processor, which makes it possible to extract discrete surround signals either live from a SoundField mic or retrospectively from a B-format recording. Formats supported include Left/Right/Center plus Surround, which may then be encoded into 2-channel Dolby Surround, 5.1 surround, or formats of up to eight channels, including 7.1 Surround. The processor converts B-format information generated by the SoundField MKV or ST250 microphones. Controls on the unit include Front Width, Rear Width, and Rear Focus. Rear Focus allows rear information to be blended into the front surround channels for applications where sound localization is critical. For more information, call SoundField at +44 01924 201 089 or visit their Web site at [www.proaudio.co.uk/sndfield.htm](http://www.proaudio.co.uk/sndfield.htm). Circle EQ free lit. #125.



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## GET DUPED

**C**D CyClone Duplications Systems announced the availability of their new-generation eight-drive CD duplication system, the CD CyClone T-8. The T-8 boasts an interactive LCD touchscreen display for ease-of-use and an open architecture that ensures a virtually unlimited list of add-on features. The T-8 is capable of mastering CDs, thus saving investment dollars that might otherwise be spent on additional hardware/software. The system consists of a self-contained stand-alone system with an internal hard drive and eight 4X CD recorders. It has built-in expandability for up to 16 drives and is designed to grow with your CD-R needs by allowing users to upgrade to multiple drives as demand increases. Other features include one-touch duplicating of most major CD formats, extensive reporting for enhanced operation efficiency, CD audio capture and playback, and 50-CD autoloader color printer connectivity. For more information, call CD CyClone Duplications Systems at 949-470-4795 or visit their Web site at [www.cdyclone.com](http://www.cdyclone.com). Circle EQ free lit. #126.



## ICON MIX LIVE

**T**he Allen & Heath ICON Series is an all-new range of compact digital mixers for live sound applications. The first two models in the range are the ten-input/four-output DL1000 and a powered version, the DP1000, which comes complete with a 600-watt stereo power amplifier. Both mixers feature six mic/line inputs offering 4-band EQ with fully parametric mids, plus two dual stereo inputs that can double as mono mic inputs. ICON consoles provide LR output, configurable AB amp outputs, plus monitor, aux, and LR recording outs. Key settings are featured on dedicated controls, and users can create and adjust other console settings from a strip of rotary controls used with a large LCD. This preprogrammed sequence can be overridden when required, and a special Pause patch sets levels, effects, and more for between song requirements. The DP1000 is available for a retail price of \$1595 and the DL1000 for \$1395. Contact Allen & Heath for

further information at 801-568-7660 or visit their Web site at [www.allenandheath.com](http://www.allenandheath.com). Circle EQ free lit. #127.

## RECORD ON (ALMOST) ANYTHING

**T**ASCAM's CD-RW5000 compact disc recorder has the ability to read and/or write to all currently available media, including CD, CD-R, CD-RW, CD-R-DA, and CD-RW-DA. In addition to its support for all forms of CD media, the 2U rack-mountable CD-RW5000 is the most complete CD recorder available. The unit's key features include XLR balanced and RCA unbalanced analog I/O, an AES/EBU digital input, S/PDIF coaxial and optical digital I/O, a Sync Start function, Auto or Manual Track Increment capability, a sample-rate converter, an erase function, and parallel control I/O capability. For more information, call TASCAM at 323-726-0303 or visit TASCAM on the Web at [www.tascam.com](http://www.tascam.com). Circle EQ free lit. #128.



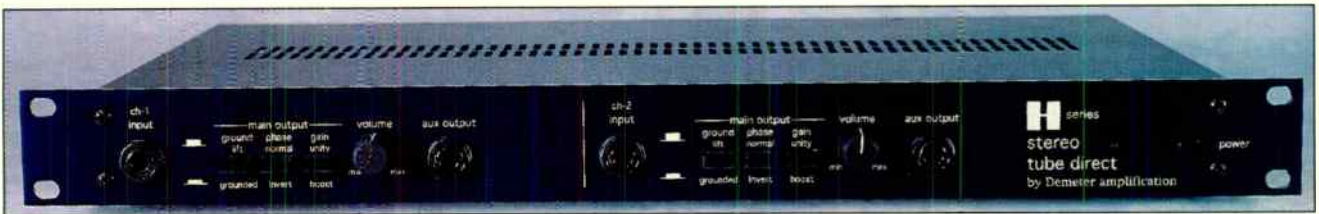


## BE A PRO

**T**ellex's ProStar UHF UT-12 universal plug-on transmitter allows the use of any XLR-compatible dynamic and electret-type microphone with Telex's ProStar UHF wireless microphone systems. The ProStar system operates in the UHF band in the 690 to 725 RF carrier frequency range, while offering a frequency response of 50 to 15,000 Hz. The UT-12 joins the existing UB-12 belt-pack, UH-12 fixed handheld, and UG-12 guitar transmitters, offering a choice of up to eight factory preset, crystal-controlled frequencies. RF power output is rated at 10 to 15 mW as typical, and provides eight to ten hours of performance using alkaline batteries. Connection to the UT-12 is accomplished through a standard 3-pin XLR-type female connector. For more details, call Telex at 612-884-4051. Circle EQ free lit. #129.

## LAYING LOW

**F**urman Sound, Inc. has debuted the IT-1230, a 30-amp balanced AC power transformer for ultra-low-noise applications. Containing specially wound and shielded rack-mount toroidal isolation transformers, the IT-1230 is housed in a 3-unit (5.25-inch) rack-mount chassis and provides clean and safe power without having to compromise the integrity of safety ground wires to achieve hum reduction. Providing an accurate, self-checking smart AC voltmeter, the IT-1230 also features an Extreme Voltage Shutdown circuit and a "Soft Start" circuit to prevent large inrush surge currents. For further information, contact Furman at 707-763-1010 or visit their Web site at [www.furmansound.com](http://www.furmansound.com). Circle EQ free lit. #130.



## SPEAKING DIRECT

**T**he H Series Tube Direct is a new addition to the Demeter line of tube pro audio equipment. Incorporating the same tube-driven, ultra-high impedance input found in the original Tube Direct and a new balanced line level output section, the unit can be used as both a line level direct instrument input or as a line level driver to add tube warmth to line level digital interfaces. The front panel features two independent channels, with separate 1/4-inch inputs, ground lift, phase preset, unity gain, and a tube-driven boost mode with 20 dB of boost controlled by a continuously variable volume control. The suggested retail price is \$899. For more information, call Demeter at 818-994-7658 or visit the company's Web site at [www.demeteramps.com](http://www.demeteramps.com). Circle EQ free lit. #131.

## DIGITAL PROBLEM SOLVERS

**D**rawmer's Digital Masterflow Series includes the DC2476 Masterflow Pro, the DC2486 TwinScreen Masterflow Processor, and the DC2496 Masterflow Hi-Resolution Converter. The DC2476 Masterflow Pro is a 24-bit/96 kHz D/A and A/D programmable mastering processor. It includes Analog In/Out and Digital In/Out, AES/EBU, and S/PDIF connectors. The DC2486 TwinScreen Masterflow Processor combines the mastering features of the DC2476 with the addition of stereo or dual mono operation. This 2U unit allows recording engineers the flexibility and tools to achieve results quickly and easily via independent channel controls and TwinScreen displays. The DC2496 A/D and D/A Super Hi-Resolution Converter provides the necessary bridge between 24-bit/96 kHz production and postproduction and the 16-bit/44.1 kHz CD format. The DC2496 delivers a 130 dB dynamic range with low distortion. For more information, call Drawmer at 805-241-4443. Circle EQ free lit. #132.



# NAMM PREVIEW 1999

## COPY CATS

**M**icroboards Technology, Inc. has developed an easy-to-use, one-button, stand-alone CD-copier with the ability to copy up to three discs simultaneously. Called the DSR1000 family, the minimum configuration (DSR1001) contains one Plextor 12/20 CD reader, one 4X CD recorder, and one Hoei Sangyo DSR1000 controller in a compact enclosure. The DSR1002 and DSR1003 models incorporate one or two additional 4X CD-R drives, respectively. For further information, call 612-470-1848 or visit the Microboards' Web site at [www.microboards.com](http://www.microboards.com). Circle EQ free lit. #133.



## AMP ON THE GO

**M**usic Industries Corp. has introduced a self-powered, all-in-one amplification solution to the extensive Prime Amplifier product line, the PM-50 Portable Combo PA/Keyboard amp. The self-contained, 2-channel, 60-watt RMS PM-50 is designed for the vocalist or keyboardist in need of a robust amplifier. Each channel features a 1/4-inch line input and XLR mic input and individual Gain controls. Master controls allow for fine adjustments in bass, high, reverb, and master volume. The PM-50 also features a unique control-panel-mounted RCA input with an individual Gain control. The musician/performer can plug in and have access to simultaneous playback from a cassette deck, CD player, or other music sources through the amp's 10-inch bass driver and high-frequency tweeter. The suggested price is \$249.95. For more information, call Music Industries Corp. at 516-352-4110. Circle EQ free lit. #134.

## MUTING THE MIC

**P**ureSound has released new additions to their Mic-Mute line of infrared muting devices. Using an infrared beam to silently and automatically switch a microphone on and off when a user approaches or moves away from it, the Mic-Mute connects directly to the back of the mic. The MM-3 is a phantom powered/phantom pass model with a standard in-line connector, the MM-3/15, which features 15 dB of attenuation, the MM-4 features rear-panel XLR connectors, and the MM-5 employs a strip termination for permanent installations. The MM-3 is available for \$299, the MM-3/15 for \$325, the MM-4 for \$299, and the MM-5 for \$299. For further information, contact PureSound at 800-701-7899 or visit their Web site at [www.puresound.net](http://www.puresound.net). Circle EQ free lit. #135.

## SHURE ENOUGH

**N**ew from Shure Brothers, Inc. is the DP11EQ, which combines the digital power of a dynamics controller with parametric equalization and delay, all within an enclosure occupying one half of a single rack space. Features of the DP11EQ include automatic gain control functions, a gate, an expander, compressor, limiter, and a no-overshoot peak limiter. Up to nine bands of parametric equalization with high- and low-cut shelving filters complement the package, along with up to 1.3 seconds of delay, ideally suited for loudspeaker alignment or use with remote loudspeaker arrays. Operable at line level in balanced or unbalanced modes, the DP11EQ is capable of precisely controlling every aspect of a signal's dynamic range. The unit is also equipped with a transfer function display within its Windows-based control interface. To find out more, call Shure Brothers, Inc. at 847-866-2200 or go to [www.shure.com](http://www.shure.com). Circle EQ free lit. #136.



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Visit [www.xgfactory.com](http://www.xgfactory.com) or call (800)932-0001 ext. 677 for product literature. \*MSRP ©1999 Yamaha Corporation of America, Digital Musical Instruments, P.O. Box 6600, Buena Park, CA 90622-6600 \*SW1000XG accepts one plug-in board at a time.  
World Radio History

# Spirit Digital

## 328 Console

A unique user interface sets  
Spirit's affordable digital console  
entry apart from the rest

By Mike Sokol





# Spirit Digital 328 Console

All consoles, as any engineer worth his or her salt remembers, used to be pretty much the same. If the designers needed more channels, they just hung on more channel strips. For more equalization, they put on more EQ knobs. For more busses and outputs, you put on more output faders and jacks. The signal pretty much flowed from left to right (except for a few English consoles that went from right to left). Therefore, I could be dropped into the middle of a mixing gig and find my way around just about any console by my second beer (*oops*, I meant to say within the first 10 minutes or so).

All of that was in the halcyon days (or should it be daze?) of yesteryear with big analog consoles in huge road cases. Now you can get digital consoles that pack more channels and effects into an under-the-arm package than you formerly could get into six feet of console real estate and a full equipment rack. Still, as we like to say in the computer biz: TANSTAAFL (There Ain't No Such Thing As A Free Lunch). Something's gotta give when you pack this much stuff into a small package, and, indeed, it's the thing I hold near and dear to my heart — the human interface. What you give up is the ability to see and get to everything at once.

You know the drill; during a live gig you're always scanning the console for things out of place and tweaking the EQ or nudging a compressor here or there. In a multilayer digital console, though, things aren't always so visible. Since every fader, light, and meter serves multiple functions, you have to look at all the layers to see what's happening. So things can start going to crap and you don't know it until you're faced with clipping (in the studio) or feedback (in a live room). Then comes the panic to see what's causing the problem. What's a designer to do? Well, the engineers at Soundcraft have designed the human interface quite differently from their competitor's consoles of similar capacity.

The 328's overall sonic quality is very natural sounding and quiet by any standards. The 16 real mic inputs (each has a 24-bit converter) sounded excellent with both stage and studio mics. The system never felt like it ran out of internal headroom. When the meters went red, then there was the obvious digital splattering, but otherwise it was a very well-behaved console.

There's a 3-band parametric EQ on each channel, as well as AES/EBU and S/PDIF interfaces, five pairs of stereo inputs, and a built-in meter bridge. The only thing missing is lots of dynamic processors (in this case you

get two stereo units), and there's no way to insert outboard processors on the digital inputs 17-32. So unless you compress or gate your sounds during tracking (which can be pretty dangerous), you're pretty much stuck with what you've got for mixdown, which at times can be an ugly thing.

So the real question is not how good it sounds, but how easily it can be used by a human being. Further, let me add that while I've used analog consoles for a good 25 years or more, I'm not afraid of computers and their sometimes-mysterious GUI screens and hidden menus. I've done digital stuff for a long time, and I'm not afraid of much, but I will admit to a certain amount of fear the first time I saw a multiple layer console with a little screen where the meters used to be. But since I go by the philosophy of "no-guts, no-glory," I booked the 328 for a tracking gig in my studio and a live-performance FOH gig the following week.

Both sessions went fine. There was the mysterious muting of the auxiliary sends, and, of course, Murphy's Law dictated that this would occur in the middle of a tracking session just when the paid-by-the-hour studio musicians showed up. A quick call to John at Spirit's tech support confirmed that all my controls were properly configured, so it wasn't operator error, as I feared. John told me to save my settings to one of the Scenes and re-boot the processor. Whaaa! What processor? Is this thing a console or a computer?

Well, it really is a computer thinly disguised as a mixing console; so, indeed, rebooting it did solve the problem just in time to set the headphone cues. It does take 45 seconds to boot, though, which can be an eternity in a live gig, but there is a little Pac-Man character that moves across the display during the boot process to assure you that something is indeed happening and to keep your shorts on. Still, never forget that all digital consoles are really computers that need to be fed properly with clean AC voltage and occasionally reset when lockups occur. (In

the few hundred hours of operation since then, there have been no more problems.)

Spirit has addressed the operator interface problem with something they call an E-Strip. There is also a small two-line screen for setting interface options and such, but almost everything else is done via a special set of sixteen lighted knobs positioned across the middle of the console. Here's how it works: each knob has a set of lights that indicates the value of the knob without mechanically turning it. So if you touch the AUX-1 button, all 16 knobs



**MANUFACTURER:** Spirit by Soundcraft, Inc., 4130 Citrus Ave., Suite 9, Rocklin, CA 95677. Tel: 916-630-3960. Web: [www.spirit-bysoundcraft.com](http://www.spirit-bysoundcraft.com).

**APPLICATION:** A 32-channel digital audio console for studio and live applications.

**SUMMARY:** Thirty-two-input console (1-16 analog and 17-32 digital) with 16 100-mm motorized faders (three layers). Two stereo channels of dynamic processing and Lexicon effects included.

**STRENGTHS:** Sixteen "real" microphone inputs with XLR connectors and phantom power; human interface with "E-Strip" is more intuitive than screen-driven consoles; built-in ADAT and TASCAM digital ports.

**WEAKNESSES:** No analog insert points for TDIF and ADAT optical inputs; only two internal stereo dynamic processors; E-Strip is a little slow for live applications since you must still push buttons to see the multiple layers of fader position and EQ settings.

**PRICE:** \$4999  
**EQ FREE LT. #: 103**



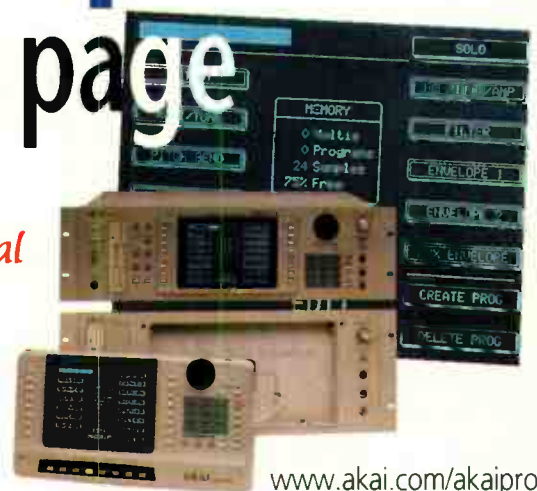
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# Spirit Digital 328 Console



24-track mixing. I then hooked up my BRC to allow the on-console tape transport controls to function, and they interfaced perfectly with the BRC. The only caveat is that the 328's firmware wants to reset to a 44.1 kHz sample rate (instead of the more typical 48 kHz), so my first session was accidentally done at 44.1 kHz. Since then, I've reset in the clock connections to get the digital timing from the BRC instead of the 328. This method works out better for me since I do occasionally re-pitch a track to match up a nontunable instrument (think accordion or piano that needs to match a previously recorded guitar track).

will light up to show the set value of AUX-1 for channels 1–16 or 17–32. Alternatively, you can push the Channel Select button, and all the values for that particular channel strip show up — imagine a channel strip turned sideways on your console. You can see all the AUX, EQ, and EFFECTS levels settings for a single channel at a glance, which is much easier than surfing through multiple pages to see how the EQ is set. If you need to look at all the PAN positions, you push PAN, then go down the line and do your PAN setup for all 16 channels. Then to tweak a single channel, just select that channel with its button and adjust the EQ, AUX, or PAN as needed. It's actually pretty intuitive and simpler than it sounds. Then you can save your console settings (with the exception of the mic trims) to one of the 100 internal snapshots for later recall. An Undo/Redo button lets you quickly get back to where you were (or where you realized you wanted to be).

Do I like it for studio mixing? Yes. I hooked it up to my rack of three ADAT XT-20 decks (16 channels via the optical interfaces and 8 via the analog inputs) for some

Spirit has addressed the operator interface problem with the E-Strip. Almost everything is done via a set of 16 knobs positioned across the middle of the console.

There're still not enough internal dynamic processors to go around for complicated mixes (if, for example, you want to do gates on toms and compressors on vocals and bass, you're out of luck), and there's no way to patch my great analog gear into the digital inputs. There are, however, four aux sends as well as two internal effects sends per channel, so you can hang on the external reverb or effects processor of your choice or use the internal Lexicon effects.

Do I like the 328 for live mixing? I'm still a little uncomfortable with the interface for a really loud rock show where you're always on the edge of feedback. I did use it for the Cambodian American Dance Troupe with an eight-piece acoustic orchestra. The music and dance was spectacular, and I took an ADAT deck to record the tracks via the optical port for

later mixing. This was the first time I've ever been on a stage that had a roasted pig's head and a duck on a platter. All with lots of incense and chanting — just a little ceremony where all your ancestors are invoked to help you play, dance, or, in my case, mix to your best potential. No fooling. Could I make something like this up?

Since my gain levels were never anywhere near feedback, the 328 worked perfectly for the dance troupe application. While I would be a little leery of using it for festival work, where you never get a soundcheck or even know what the instruments are, I wouldn't hesitate to use it for a theatrical production where you're doing the same performance night after night. You could set each of your scenes up with its individual snapshot during rehearsal, and keep hitting the "next scene" button for truly hands-off control. Then you could have the same mix every night, but still be able to quickly grab a control that needed a little tweak. It would be a beautiful thing.

If you don't like computer interfaces, but still want a lot of the benefits of a recallable digital console, the 328 may just fit your application. Plus, if your theater was looking for a console with 16 analog (for mics) and 16 digital (for soundtracks) inputs, this one would be hard to beat for the money. In the meantime, I'm taking it out this weekend for a live gig with the Celtic group Greenfire and a string quintet backline from the Baltimore Symphony Orchestra. I'll let you know if there are any roasted pig heads involved.

#### LAST MINUTE, ALMOST-TOO-LATE-FOR-THE-REVIEW UPDATE

Just prior to press time, Spirit informed me that a new version of the 328's software is planned for release before the end of December. Included are a few tricks such as a soft-boot function that takes about 1 second (instead of 45 seconds for a cold-boot) to re-boot the console and doesn't lose

any of your presets. Also, a 4th control layer is being added where the faders can output MIDI control data, so the 328 could be used as an out-board fader for a computer-based mixing program such as Cubase. Very interesting, indeed. EQ will keep you updated.

*[If you are wondering about the live gig Mike describes in this review, the full story will be in a future issue.]*

*Mike Sokol is a human audio engineer and communications integrator with 30 years in the audio industry and 20 years in the computer industry. As if writing for EQ wasn't enough, he's now getting ready to do a coast-to-coast EQ magazine 5.1 mixing seminar road tour starting in February '99. Check out his Web site at [www.soundav.com](http://www.soundav.com) for details.*



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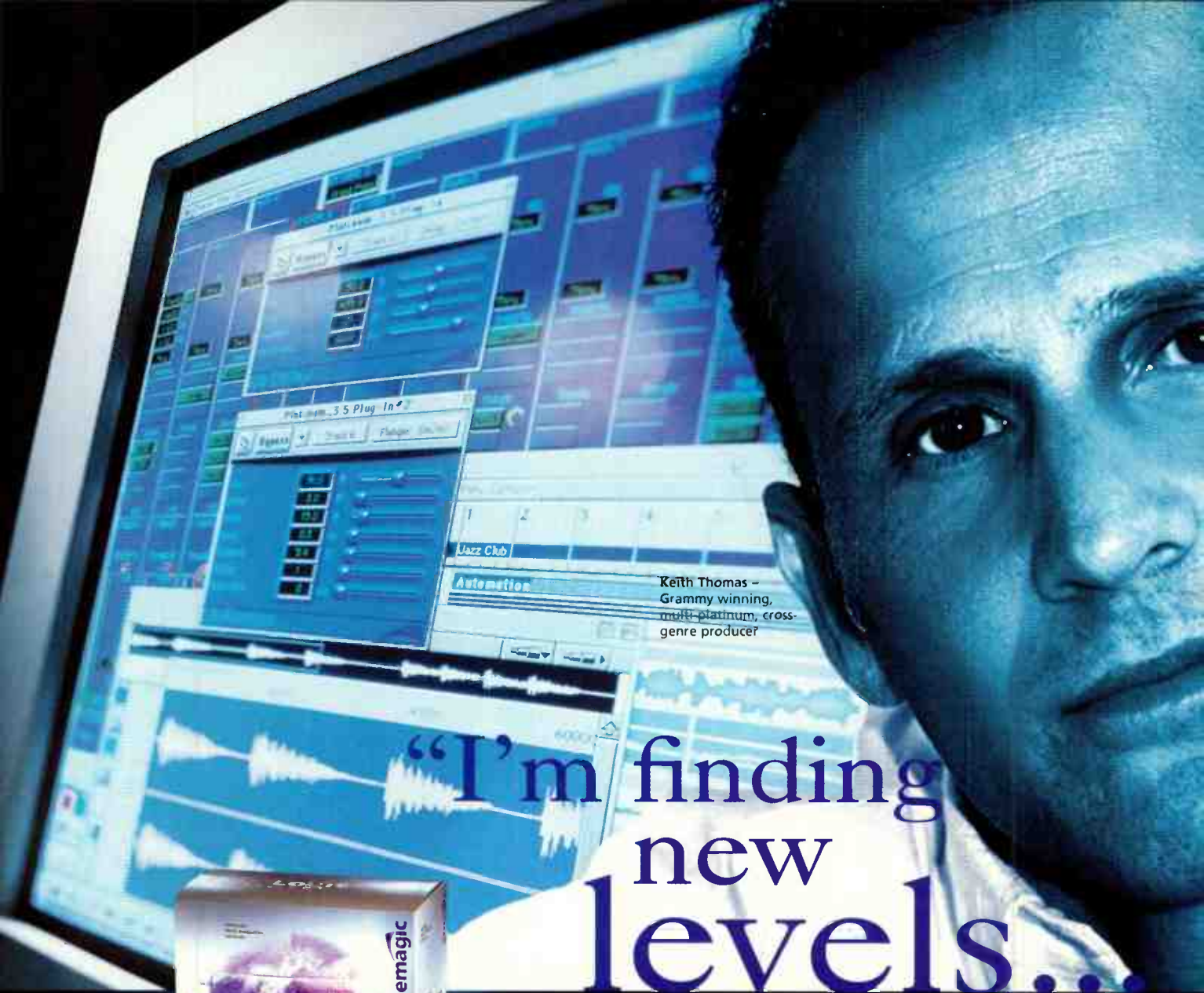


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HOW TO DEAL WITH THE DEMANDS  
OF VIDEO CREWS DURING A  
PRESS CONFERENCE WITH A PRESS MULT  
BY MIKE SOKOL



# A QUICK PRESS MULT

A FAST AND EASY  
WAY OF DEALING  
WITH THE AUDIO  
DEMANDS OF A VIDEO  
CREW DURING A  
PRESS CONFERENCE.

By Mike  
Sokol

How many of you audio-engineering types dislike working with video crews? Let's see a show of hands. Wow, you really hate those guys, don't you? Now settle down, and please don't burn anyone in effigy again. The Fire Marshall from the last meeting wanted me to stop using the "V" word, but I'm going to show you a cheap trick that will help you on the next live gig when a TV crew shows up five minutes after the show starts and demands a "mult." The full name in video-speak is a press mult.

You've seen press mults in back of a lot of A/V supply catalogs and the name is descriptive of the function. Basically, it's a box that takes a line-level signal from the mixing console

and feeds it to multiple XLR jacks at microphone level. This provides a way to offer an isolated audio feed to multiple members of the press. Just don't try to feed a video camera directly with a -10 or +4 level signal from an XLR or TRS aux send jack on your console. If the camera operator tries to turn their input control down, they'll typically get a lot of distortion. Video cameras generally don't have any pads ahead of the input transistors, so they'll quickly clip when fed with anything close to line level signal. And if you turn down the output of the console's aux bus to -40 dBu or so, you'll get lots of extra hiss and possible hum from ground loops between the camera's power supply and



PHOTOS COURTESY OF THE MICHAEL OCHS ARCHIVES



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your console.

You can buy ready-built press mults that cost from \$300 to \$3000. The expensive ones are like small mixing consoles. They can have multiple microphone inputs with output level meters and run from battery or AC power. The cheap ones are basically passive boxes. You plug in a line-level signal from your console, and out comes the split and isolated mic-level

pretty interesting live gigs that you might otherwise have to turn down.

You don't have to go through the expense of buying or building a dedicated mult to get started. If you only need one or two quick press feeds, here's a way to do it using the direct boxes you probably already have in your gig case. All you need are a few passive direct boxes hooked to an auxiliary send on your console and

but, practically speaking, if you need more than four or five feeds, you should get yourself a nice press mult box. Still, this trick means you can always get an audio feed for a video camera in a pinch and make everyone happy in the process. And that's how you get asked to do repeat gigs.

Here's what I do on any gig that the press might respond to. I always run a signal line over to the press area during sound-check and lay out a few press mults. I feed this from a postfader aux send so that the press mix will follow my fader moves. If something is really loud on stage and doesn't require much FOH mix (for instance electric guitars), I'll turn up the aux send on that channel strip so that the sound of that instrument will be there for the cameras. Just put that aux send in PFL cue and take a listen on headphones.

The direct boxes do several things for the signal. First,

I also run over a power line on its own circuit breaker and plug in a few power strips. That way everything is ready when the press shows up at the last minute (and they will). Now all you have to do is point to the press feed and keep on mixing. Just make sure all your cables and boxes are marked with your name, because while video crews are typically honest, cables tend to walk away in the flurry of tear down. You'll be surprised at how thankful the press will be for getting a decent audio send. It makes their job a lot easier and you'll get positive feedback from them. And they won't be burning you in effigy at their next press meeting. No kidding... **EQ**

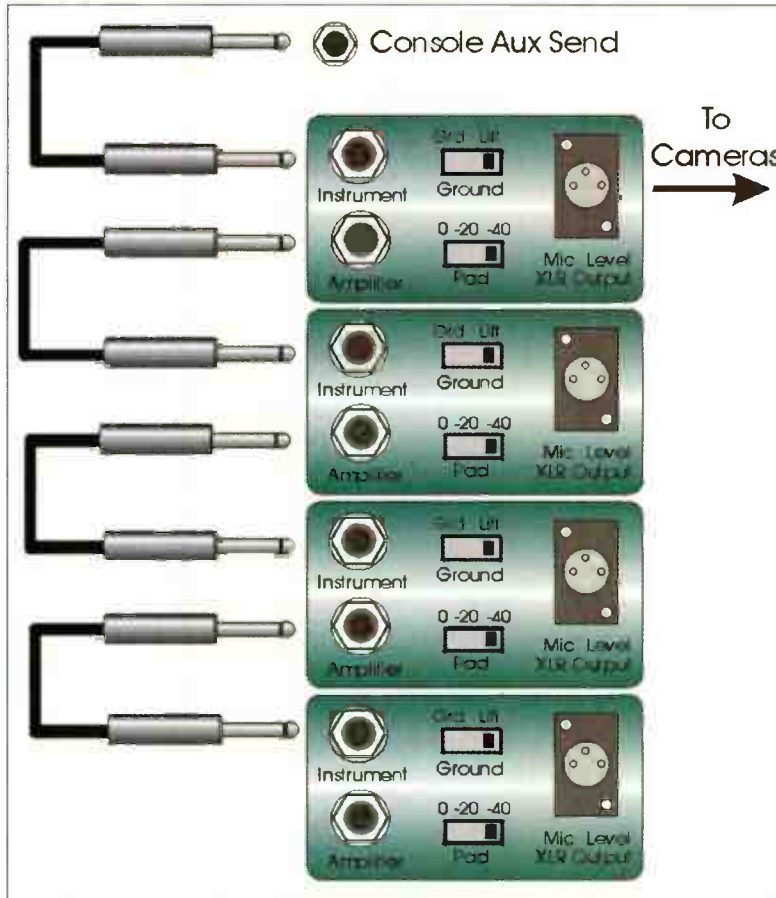


FIGURE 1

feeds. But you may only have an occasional gig with the press (or find yourself in need of one in an emergency) and you may not need dozens of feeds. A lot of the small political gigs I find myself in will only need a few press feeds.

I've built myself a pair of large press mults and have gotten a lot of good gigs because, number 1, I knew what a press mult was, and, number 2, I didn't mind preparing for and dealing with the press. In fact, my little home-built boxes have provided feeds for Mother Theresa, Desmond Tutu, and Don Imus, along with some political heavy hitters both inside and outside the beltway. So knowing how a press mult works can help get you some

they allow you to run the console's auxiliary send at close to its nominal 0 VU level while padding it down to -40 dBu or so to feed the camera. The isolation transformer in the direct box has an input impedance of 50-100 kohms, which allows you to parallel lots of boxes together without loading down the 600-ohm output of the console. And the transformer and ground-lift switch provide ground-loop isolation between the console and the cameras.

As you can see from fig. 1, you just take a 1/4" aux output of the console and feed it into the first DI box. Then you just daisy chain as many boxes together as you need. In theory, you can hook dozens of them together like this,

Video cameras generally don't have any pads ahead of the input transformers, so they'll quickly clip when fed with anything close to line level signal.

ad and very easy to understand. MK, Santa Monica CA -  
 the best part of this unit is its sound quality. RM, Ben  
 :redible feature set, pristine performance, outs  
 :struction. SJ, Landsale PA - After using the CR1604-V  
 :ow how powerful a mixer can be. Great product  
 :rlando FL - Love the features, price and size. JH, St  
 :at mixer. The best for the money and then  
 :ergus Falls, MN - Finally, a nice, quiet unit with  
 :tures that a musician can appreciate  
 : Mackoids really outdid yourselves  
 :he best board for our needs. DB, Virginia Beach VA - Why  
 :D4-VLZ is loaded with features I like and need. PE,  
 :everyone seemed to rave about them. Bigger studi  
 :ommended them. It's perfect — small and tota  
 :e to cope with pro recording. MW, London England - I an  
 :y pleased with this mixing unit. Mackie has don  
 :reat job of providing a lot of features and audio  
 :ality in a compact unit. BB, Calgary Alberta - I'm an ann  
 : use your board to record and produce radio sp  
 :y happy with it. JC, Fallston MD - Great design. JM, Wern  
 :at features and so compact and durable. FS, Grand  
 :anks for such a great mixer at such a great price  
 :ckie rules. ST, La Grange, GA - I love you. From home de  
 :chart-busting platinum sellers, there is no bette  
 :urn on investment than the CR1604-VLZ. JS, Pasade  
 :produce IMAX films and have your mixer in our  
 :up with an Avid Film Composer 8000. EC, Santa Barba  
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 I need. DC, New York NY  
 love the big cons  
 features on this s  
 mixer! AS, Richardson,  
 Super board. Clea  
 light, rugged and  
 RR, Dauphin MB - Thank  
 the amazing feat  
 and sonic integrit  
 Federal Way WA - Made  
 unbelievable diffe  
 in the sound of ou  
 N, Pensacola FL - Very  
 an MS degree, I am

by the mixer's ruggedness and almost perfect human interface. JH, Raleigh  
 We do hip hop and jungle with booming bass. The CR1604-VLZ sounds p  
 CW, Vienna Austria - Incredible quality, low noise and high headroom for a pr  
 at this price. AD, New York NY - I can honestly say that the CR1604-VLZ is eas  
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# CLUB PROFILE: BROWNIE'S PLYMOUTH

AUDIOBAHN'S TONY  
HERSCH MAKES A  
ROCKIN' SYSEEM  
THAT CAN GO AT A  
MOMENTS NOTICE  
(...WELL, MAYBE  
SEVERAL MOMENTS)

By Steve  
La Cerra

When Tony Hersch of AudioBahn (Pottstown, PA) says he designed and built a PA system for Brownie's Plymouth in Plymouth Meeting, PA "from the ground up," he really means it. In addition to the new audio gear for Brownie's, Tony also spec'd new electrical service to the system based on a Motion Laboratories power distro.

"The main panel," begins Tony, "is in a road case with Camloc connectors coming in on a long set of #2 AWG tails, multipin outputs, and a double main breaker. It's a double 100-amp service with two 220-line outputs that run over to the two amp racks for the system. From there, the 220 lines go into a product called the Rack Pack by Motion Labs. One Rack Pack is a three-space sub panel and the other is a two-space sub panel. They sit at the bottom of each amp rack. From the front, you plug in a Hubbel twist-lock that has a split on it if you need it. (*Editor's note:* the Hubbel receptacle is where the AC service enters the rack.) The Rack Pack has separate circuit breakers for



*Brownie's extensive rig is not actually owned by the club, so it is designed to be able to be disconnected and taken out on the road whenever the owner needs it.*

each amplifier, so every amp is individually circuit-breaker protected. I ordered the Rack Pack with twist-lock connectors for the Crown 5K's and 3600's, and Edison connectors for the Crown 2400's and 1200's. On the front of each Rack Pack there's an auxiliary 20-amp, Edison circuit. Electrically, it's the best that it can be."

Reliable electrical service was only the start of this project for the 1000-person-capacity room. Tony explains that AudioBahn's customer "was actually Joe Zamborsky from Sound Decision Live (Oreland, PA), who wanted a system they could put on a truck, take to the club, tap in power, and wire up. Joe wanted it ready to go. We discussed the brands of gear he wanted to incorporate, but

otherwise I was free to design the way the system went together." Zamborsky's intention was to install the system at Brownie's Plymouth and leave it there, but because the club doesn't own the system, there's always a possibility that it may be moved. In case Sound Decision Live needed to move the system elsewhere, Hersch planned carefully and exercised a considerable amount of thought in building the equipment racks for simple setup and tear down.

#### CUSTOM PANELING

Keeping all this in mind, Tony designed interface panels for the racks that make hook up easy. "On the back of the monitor rack, there's a custom panel made by Rapco with eight XLRs

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and eight Neutrik NL4 connectors for the eight monitor mixes. It's right there on the back panel — very easy to connect — but the amp rack is still sealed. The house rig is EAW (two KF650's per side, triamped and flown) so the EAW MX800i processor is in the rack with the house amps. In back of the house rack, there's another cus-

keep all of the gear cool, Tony placed dual high-speed boxer fan/rack panels from Middle Atlantic at the top of each rack. Each of the amp racks is 18 spaces high, and includes a six-space locking access door (also from Middle Atlantic) underneath the fan panels. Tony notes, "The key goes to the house engineer, not the club owner or manager! These racks sit side-by-side at monitor world with the monitor processing rack next to them and the monitor desk on top. Everything is centrally located so that the ME can keep an eye on it." Keyed access means Tony can get into the rack if

actually an architectural-type cabinet. According to Joe, "The architectural series has no handles and they look like furniture, so in addition to sounding great, they look good in the club." Amplification to the system is all Crown Macro-Tech, with a '5000 for the subs, '3600 on the lows, '2400 on mids, and a '1200 for the highs.

#### NOW HEAR THIS

Each of the eight stage monitor mixes is powered by one side of a Crown 1400CSL, and with approximately 550 watts per mix, there's plenty of noise to be made. Wedge monitors spec'd by Tony are Community XLT48E's with 1 x 15 and a horn. There are eight of those and then there's a JBL SR4738A (three-way with an 18-inch low-end driver) as the drum box. "All the house amps have PIP-CLP modules for loudspeaker protection," states Tony, "but the 1400CSL doesn't accept a PIP, so we put in two Behringer MDX2400 quad compressors to have a comp for each mix. The Behringer's are inserted on the mix bus, inline with the Rane GE60 EQs, one channel per mix. They are there for the engineer to play around with and they're patched on a nice Rapco multipair that comes up to the Soundcraft Monitor 2 (24-input, 8-out). Besides the eight wedge mixes, the monitor console also gives me two stereo in-ear mixes, plus a cue mix."

necessary, but it's generally locked off to prevent unwanted "modifications" by unauthorized individuals.

In addition to the four KF650's, the house system includes four JBL AS1028's (each with two 18-inch drivers) for the bottom end. These are connected via Neutrik NL4FC

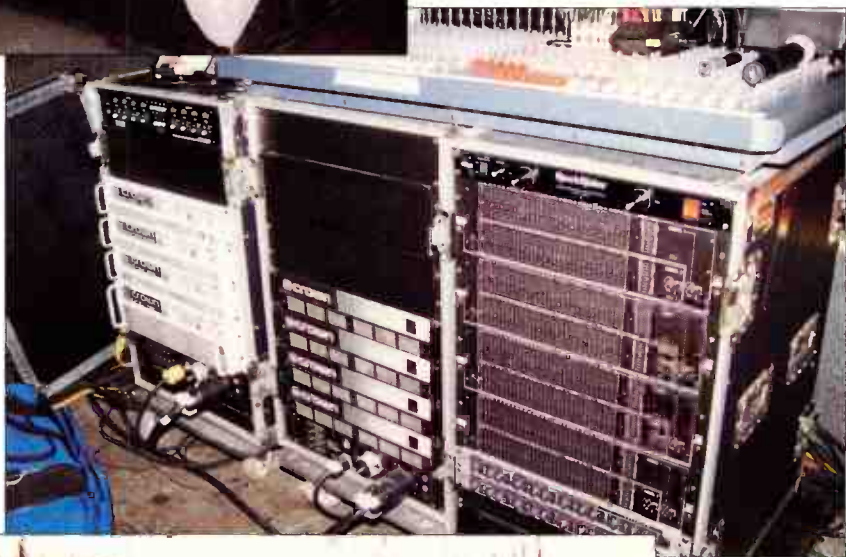
connectors at the back of the house rack, and placed two per side of the stage. It's interesting to note that Joe Z. chose the AS1028 because they are

Patching on the processors goes from the mix bus insert send to the compressor, from the compressor into the GE60, and then from the GE60 out to the mix bus insert return. The reason that Tony has it patched this way is because, "you can always EQ a compressed signal and change the EQ after compression. If you EQ before the comp, then any EQ changes can trigger compression. The house console (Spirit 32x8) is wired in the same manner with a Behringer Composer MDX2100 inserted on the main L/R bus before the EQ. This way, when you are viewing the meter on the console, the main meter is postcompression and postEQ. So you really get a true reading of what you are sending to the amps, as opposed to looking at what the console is sending to the EQ/comp." All

*continued on page 128*



*Left: Behind that innocent looking stalagmite sits FOH. Below: Monitor land also holds the FOH amps.*



*The house features a combination of EAW and JBL speakers.*

tom panel with drive-line inputs as well as outputs for the speakers on Canon AP6 connectors (AP6's carry three pairs/six conductors —Ed.) To

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# GALAXY CRICKET POLARITY TEST SET AND FAR OUTLET



By **MIKE SOKOL**

Long ago, in a Galaxy far away...

Those clever people at Galaxy Audio are at it again. First they change the way stage monitor speakers are used by designing the Hot Spot monitor, then they come up with a couple of new gadgets that are really useful for anybody doing field sound.

## HEY, THAT'S REALLY FAR OUT(LET)!

The Far Outlet is (basically) a sealed lead-acid battery in a box with a 120-volt AC charger and inverter built into the case. The idea of being able to get a power outlet at a location far from the existing power grid may not grab you at first, but believe me, there are lots of applications. Lucky for my review, it turns out I recently needed a small PA system in a pavilion. While the job was intended to require a simple two cabinets on sticks and a little amplifier/mixer solution, there was a

mission-critical problem — the closest power outlet was a quarter-mile away. I didn't want the noise and smell of a gasoline generator, and I didn't have a 12-volt amplifier and mixer that could be run from a car battery. The solution? Far Outlet. It easily powered a standard 100-watt amplifier and mixer for the hour-long presentation.

Next up, an engineering buddy wanted to do

a little remote recording at the beach. He had a nice DAT recorder, but it was AC powered. So I loaned him the Far Outlet for the weekend and asked him to report back. It ran the deck and a mic preamp for four hours with power to spare. Of course, for a remote wildlife recording, a noisy generator would have spoiled everything. The Far Outlet, though, is noise-free.

Other possible applications include powering your laptop computer and cellular phone at a campsite, playing your keyboards through a small PA system on the street, or running a CD player and powered speakers on a holiday float — all without the noise and smell of a generator or the hassle of a long extension cord. Anything that draws less than 250 watts of 120-

## ROAD TEST

**MANUFACTURER:** Galaxy Audio, 601 East Pawnee Ave, Wichita, KS 67211. Tel: 800-369-7768. FAX: 316-263-0642. Web: [www.galaxyaudio.com](http://www.galaxyaudio.com).

**APPLICATION:** *Far Outlet:* Remote recording, sound reinforcement, and computers — anyplace you need a 120-volt outlet. *Cricket:* Tests for proper polarity on speakers, amplifiers, mics, and other audio gear.

**SUMMARY:** *Far Outlet:* A 120-volt inverter, charger, and battery in a handy carrying case. *Cricket:* Two-piece, battery-powered test set that produces a "click" tone that is injected into the gear to be tested.

**STRENGTHS:** *Far Outlet:* Quiet AC power without the noise, smell, and fire hazard of a gasoline generator. *Cricket:* XLR and 1/4-inch phone inputs and outputs included; built-in microphone and speaker; level controls for mic or line level outputs; nicely packaged in a road-worthy case.

**WEAKNESSES:** *Far Outlet:* A little heavy because of the big battery, but well within grab-and-carry weight; can't be used as a UPS (plugged into the AC line for simultaneous charging and AC output). *Cricket:* None.

**PRICE:** *Far Outlet:* \$399. *Cricket:* \$399.

**EQ FREE LIT. #:** 137



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volt AC is a candidate. Also included is a 30-amp, 12-volt outlet that allows you to directly power any 12-volt devices via a cigarette-lighter adapter. The 120-volt output seems nicely filtered, and while I didn't put an oscilloscope on the output, it never added any buzzes or whines to my audio. Plus, it looks like the battery capacity is sufficient for at least several hours under intermittent/full-load usage like you might have in a typical small sound system.

Do not try to recharge the internal battery while using the 120-volt outlet. I don't think the charger has enough capacity for it to act as a UPS (Uninterruptible Power Supply), but it does bring the battery up to full-charge overnight. *Warning:* Use caution while installing a battery in this or any 12-volt powered gadget. If you have never seen a car battery shorted-out terminal to terminal, it's serious business. Be careful that you don't bridge the battery terminals with a mounting bracket or tool while installing or removing it. Any lead-acid battery is capable of hundreds of amperes of current in a direct-short situation. And it's enough to literally weld a screwdriver to the terminal as you look on helplessly while the connections heat up cherry-red. (Been there,

done that.) So while you can't get shocked from a 12-volt battery (unless you put your tongue

across it), you can do something stupid like get your wedding ring between a wrench on one terminal and the opposite battery post. This will result in a complete circuit with your wedding ring heating up to several hundred degrees in a few seconds....'Nuff said.

### IS THAT A CRICKET IN YOUR POCKET...

Next we have the Galaxy Cricket. You won't think you need it until you have had it in your tool case for a month. Then you'll understand. Cricket is a polarity tester that comes in two parts — the sender and the receiver — packed in a portable tote-case. The sender injects a chirp/click sound into a speaker or amplifier, and that sound is then picked up by the receiver and tested for proper polarity. If the wiring and amplifier stages are non-inverting,

you'll get a green light on the receiver; improper reverse-polarity wiring will give you a red light. The sender is battery-powered and has both XLR and 1/4-inch phone jacks on the back and a small speaker on the top. A switch on the front panel allows you to select low, high, or speaker level. The low level is for mic preamps; the high level for amplifiers; and the speaker output will directly drive the internal or a remote speaker.

The receiver has a built-in microphone, gain control, and a selector switch for pin-2 (or Tip) hot or pin-3 (or Ring) hot. XLR and 1/4-inch phone inputs allow you to directly plug in the signal from a low-impedance or RF microphone without resorting to kludge connectors.

This seems like a complicated solution to a simple problem until you realize that there's no good way to verify the proper polarity of large speaker systems, especially where the woofers are in a folded

horn. You can even use a cardboard tube to act as a stethoscope to be able to reach flown speakers above your head. And you can also use cricket to test microphone polarity (not all mics are wired the same). Cricket can even be pressed into service to verify XLR and TRS cable polarity, but I think that's a better job for a dedicated cable tester.

Why go through all the bother to verify proper polarity? Well, lots of time when you think a sound system has weak bass, it's really that a few speakers are wired in reverse polarity. This not only sucks up the bass energy from the rest of the stack, it can also damage the speakers due to over excursion. Absolute polarity is critical for system punch. You want all the woofers to push out on the impulse from the kick drum, not suck in. (How do you like those technical audio terms?) Cricket allows you to do a quick test on any sound system, so you don't waste time looking for other problems that don't exist.

**EQ**

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# KRK V8 Powered Nearfield Monitor

It's like at first listen for KRK's latest powered studio monitors

BY BOBBY OWSINSKI

Are first impressions of a monitor valid? In some cases, certainly not. I've heard many a speaker with which I became comfortable, and maybe even grew to love, over time only after I learned the idiosyncrasies of the unit. But in the case of the new KRK V8's, my first impression was both a positive and, so far, a lasting one. If I had to pick some adjectives that express my perception of this monitor, "smooth," "silky," "deep," and even "fun" come instantly to mind.

The KRK V8 is another in the industry-wide trend of powered near- and mid-field monitors. The biamped unit features a distinctive yellow 8-inch Kevlar®-woven woofer coupled with a 25-mm fabric soft dome tweeter that is electronically crossed over at 1.66 kHz, and features a 130-watt amplifier for the low frequencies and a 70-watt amp for the highs. The input to the V8 utilizes the popular Neutrik combo connector, allowing for either balanced or unbalanced XLR or 1/4-inch TRS. There is also a recessed system gain control, a HF Gain Adjust (+1, 0, and -1 dB increments, shelving above 1 kHz) and an adjustable LF Turnover Frequency control that selects 45, 50, or 65 Hz. A built-in 12-dB-per-octave subsonic filter with a 3-dB-down point at 31 Hz prevents some nasty unheard low frequency from harming the unit. And if specs are important to you, the manufacturer claims that the frequency response of the V8's is a rather stellar 47 Hz to 23 kHz, ±2 dB.

The 11 inches W x 16 inches H x 12 inches D, 38 lb. V8 is constructed from 3/4-inch medium density fiberboard (except for the 1-inch front baffle) and features stylishly rounded cabinet and port edges that help to reduce diffrac-

tion and port flutter. The cabinet is finished in a neutral fingerprint-proof gray Zolatone®, and is shielded to allow placement close to television or video monitors without creating interference.

The power switch is located on the rear of the V8, and, when power is applied, a yellow LED on the front of the unit is illuminated (although it didn't work on one of my sample units). KRK also provides a nice feature with the turn-on/turn-off thump protection thanks to some built-in muting and delay circuitry. The AC input is via the now-standard grounded IEC inlet and cord set.


If there is a failing with these monitors, it lies outside the cabinets with the owner's manual, which was a mere seven pages — three of which were safety instructions written in multiple languages. Although there was a page describing the V8's parameter settings, I still wasn't quite sure exactly what the LF Turnover control actually did until I looked at the graph located on the back of the monitor. It would have saved a moment of confusion if the same chart were included in the manual. That being said, there's not much that really needs explaining, as there's not that many controls or selections, but I still



would've liked to have more than three pages of real info here. It should also be noted that KRK told me in a subsequent discussion that the manual was in the process of being upgraded.

I used the V8's on a variety of rather demanding source material — ranging from a percussion ensemble doing African tribal music for a TV show to the *Zappa-on-Funk* of the new Doc Tari project I was mixing. The Doc Tari project contained everything from big, loud Bonham-style drums to metal guitar to quiet acoustics to Tower of Power horns.

Unlike other KRK's that I've used in the past that sounded a tad bright to me (no wonder they're the television standard), these V8's sounded smooth right out of the box. The low end was very good on these speakers, and, although it didn't have quite the bass extension that I would have liked (maybe I'm searching for the perfect wave here), it always seemed accurate and never hyped to me. The imaging was also very good, with a wide sweet spot.

One of the things that I like best about the V8's is the phase coherence in the midrange through the crossover region that gives you the ability to hear deep into the mix. While this can certainly be attributed in some small degree to the biamping itself, the smoothness in this area is also a characteristic of a well-thought-out design. As a small aside, most nonpowered monitors suffer not only from phase anomalies, but also from a serious frequency response dip in the crossover region (which is not a problem with the biamped V8's). This is but one reason why I loudly applaud any company that chooses to self-power their monitors. KRK has done this unusually well, and the results are some fine-sounding loudspeakers that are very easy to listen to for long periods of time. Couple their pleasant sonic qualities with a rather modest retail price of \$1249 per pair, and the KRK V8's rate some very strong consideration for your choice in powered nearfield monitors. 

**MANUFACTURER:** KRK Systems, distributed by Group One Ltd., 200 Sea Lane, Farmingdale, NY 11735. Tel: 516-249-1399.

**PRICE:** \$1249 per pair.  
**EQ FREE LIT. #:** 104

# In the Studio?

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# AKG C3000 Studio Microphone

Shining some light  
on one of pro audio's  
best-kept secrets

BY DAVID MILES HUBER

I recently had the good fortune of co-writing a book with Phil Williams on the subject of microphone placement. In addition to outlining and graphically detailing time-tested techniques for all of the common instruments from A-Z, we decided that a companion audio CD should be included so folks could hear the placement differences for themselves.

We also decided not to record the CD using esoteric, cream-of-the-crop mics, but instead opted to use a handful of more common affordable mics such as the A-T 4050, Shure SM58 (for electric instruments), beyerdynamic M 160, AKG C1000, and the AKG C3000.

Once we got started recording all sorts of instruments and drum sets in several studios, I found myself starting to automatically reach for the AKG C3000 condensers. Having never used them before, they quickly became my favorites—and I was then blown away by the fact that they have an asking street price of around \$275 apiece! Simply put, I was truly astounded that they could sound as good or better than mics costing four or more times their asking price.

Although this mic has been on the market for years, I thought that this well-kept secret could use some attention.

## JUST THE FACTS

The transformerless C3000 is a rugged, compact mic that uses a unique dual pickup to achieve its sound. In short, its design employs a larger 1-inch gold-vapored diaphragm (similar to the one used in the AKG C414B) to work as a hypercardioid transducer. A smaller omnidirectional pickup is used in combination with the larger diaphragm as a phase-cancellation device to achieve its cardioid pattern. Thus, the small capsule is only used in the cardioid mode, while the larger one is tuned to achieve a hypercardioid pattern response.

Although its Euro-styled case was pre-

viously made using a basic black finish, AKG has now begun shipping the C3000 with a new silver finish. Three recessed switches are included for selecting polar patterns (cardioid and hypercardioid), low-frequency rolloff (10-dB-per-octave rolloff beginning at 100 Hz), and a 10-dB overload attenuation pad.

On the electrical front, the C3000 has a very low self-noise and can be phantom powered over a wide voltage range (9–48 V). This means that it'll work well with DAT recorders and other devices that have low powering voltages, or you could make a simple battery power pack for on-location use.

## IN THE STUDIO

As you're well aware, this mic-testing stuff is totally subjective, but when comparing the C3000 to several "golden ear"-type microphones in the studio, my suspicions as to how good these mics are were quickly verified. For example, when comparing the C3000 with the venerable AKG C414 on acoustic guitar, I found the C3000 to have a "tighter" low end and a better overall presence. It also sounded slightly fuller than its 414 cousin did (both share a similar diaphragm design). When compared to the Neumann U87, the C3000 lacked a bit of the U87's characteristic warmth, but still compared very favorably. When being unfairly compared to the Neumann TLM170, I

could easily tell that the C3000 had a slight rasp at the high end over the smoother and fuller sound of the 170. However, the difference definitely didn't warrant a seven-fold price tag. In fact, when we panned the C3000 in the left channel and a TLM170 on the right, the signal was balanced dead center when listening to acoustic guitar, mandolin, and vi-

**LOOK FAMILIAR?:** Although on the market for a few years, the C3000 can hold its own against more expensive mics.



olin. This meant that the basic response of the two mics was fairly closely matched.

When comparing a coincident stereo pair of C3000's to my Swiss army knife stereo mic, the A-T 825, there wasn't even a close contest on vocals, flute, and percussion. The A-T nearly sounded dull by comparison.

During a handheld test, it was amazing how few handling noises the mic picked up. Due to the capsule's internal shock-mount suspension, the C3000 is extremely resistant to handling, and cable- and floor-borne transmission noises — so much so that it could easily be used as a handheld mic.

From a "pop" standpoint, it's much better than most of the condensers I've come across. Although you can definitely cause it to pop, its built-in screen reduces blasts by about half, when compared to most large-diaphragm mics. When I followed the manual's directions and sang just over the

top of the mic, I couldn't get it to pop at all.

Its uniform off-axis frequency response really helped to reduce off-axis sound coloration and feedback when used on-stage. In the hypercardioid polar position, the mic's tight pickup results in a natural sound that's well worth checking out. Like I said, it's a natural for high-quality on-stage and on-location applications.

#### MY 2 CENTS

I really like the AKG C3000's sound, but my main reason for clueing you in on this little gem is to open your eyes (ears?)

When comparing the C3000 to several "golden ear"-type mics, my suspicions as to how good these mics are were quickly verified.

to the fact that you don't need to blow your entire mic budget on a single, expensive, name-brand pickup in order to justify your sound. There are a number of great-sounding condenser mics out there that cost a mere fraction of the top-flight alternatives.

When it comes to mics, you should never skimp on quality. However, these days, by doing some careful comparison shopping, you can pick up four or more professional mics for what you'd expect to pay for a single prestige pickup. The

AKG C3000 sonically has what it takes to be a serious contender in the bang-for-the-buck toy bag. I know it has made it into mine.

MANUFACTURER: AKG Acoustics, US, 1449 Donelson Pike, Nashville, TN 37217. Tel: 615-399-2199. Web: [www.ake-acoustics.com](http://www.ake-acoustics.com). E-mail: [akgusa@harman.com](mailto:akgusa@harman.com). PRICE: \$438 EQ FREE LIT. #: 105

# M-1

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# Yamaha MSP5 Monitors

Call them multimedia or small-studio monitors, but don't call them an NS-10 upgrade

BY BOBBY OWSINSKI

Mention the words "NS-10's" in any recording studio, and you'll get one of two reactions: a resigned sigh or outright revulsion. While I must admit that I fall into the latter category, I have friends that get wonderful, deep, big (not to mention platinum) mixes on NS-10's and can't seem to get comfortable on anything else. That being said, you might think that this month's audition is about either an updated model or a replacement for the NS-10. Before anyone gets confused, this is *not* the case. However, the new Yamaha MSP5's have much of that same NS-10 sound, for better or worse; a fact that we'll speak much of later.

First, though, the particulars. The MSP5 is a bi-amplified monitor featuring a 5-inch woofer and a 1-inch titanium dome tweeter that utilizes a waveguide for wide and uniform dispersion. A black matte grille covers the speakers. The two-way system is crossed over at 2.5 kHz and powered by a 40-watt amplifier for the woofer and a 27-watt version for the tweeter. The input can be either a balanced XLR at +4 or unbalanced phone jack at -10, both of which are mounted on the rear. The black matte cabinet weighs a rather

ample 16-1/2 lbs., which is plenty hefty considering that it measures only 6-5/8 x 11 x 8-3/4 inches. Since the cabinet is a bass reflex, two ports are mounted directly above the woofer on the front panel. There is also a front-panel green LED to indicate power-on status, as well as a front-mounted input level control. Power comes to the unit via a nondetachable AC cord mounted on the rear.

The rear panel features two sets of

switches for altering the frequency response of the unit. The set for the low frequency is labeled -2, -1, 0, and +1, while the set for the high frequency is labeled -1, 0, and +1. The EQ markings are quite deceiving in that they indicate the response at the edges of the power bandwidth, or the -3 dB points, according to the supplied frequency response graph. In reality, these EQ points have much more of an effect than would seem the case. For instance, the low frequency +1 selection provides a +2 dB boost at 80 Hz, while the -1 selection is down -4 dB at 80 Hz and -2 a little less than 6. The high-frequency response of the monitors actually goes out to an impressive 40 kHz where they're about 10 dB down, but the high-frequency EQ selections give you either -1.5 dB, 0, or +1.5 dB at 15 kHz.

I used these speakers on two projects — first on a commercial that used a lot of sampled instruments, and then on a mix for the metal (it's baaaack) band Sledgehammer. As I said before, the MSP5's have that Yamaha sound, which, to me, means a little hyped on both the top and bottom end. I also noticed that there's a dip in the midrange response in the region of the crossover that was especially evident on thrash guitars — but this is in line with what happens with most other monitor systems as well. Cymbals and source material with lots of high-frequency content sounded a bit bright to me on these speakers, but never harsh, as the reproduction was always very clean. Bass guitar always sounded surprisingly





large for a speaker of this size, but maybe a tad bit too much.

So, although not that far off, the high- and low-end hype of these speakers didn't give me the exact sonic picture that I wanted. I wanted to bring the low end in line a bit, so I set the EQ to the -1 position, but found it affected too much of the lower midrange as well. So I ended up setting it back to 0. I still found the high end a bit bright despite being set to the maximum cut at the -1 position. Well, if you can't get used to it (which I did), you can always go to the tissues across the tweeter like some people used to do on the new-style NS-10 tweeters.

Out of curiosity, I placed the speakers on their sides, but found that the dispersion collapsed (I assume because the waveguide is then angled wrong) and some notches appeared in the low and high midrange — although this could have been attributed to splash off the console. The other thing that I noticed is that these suckers really move some air from the two ports on the front. So much that I thought I had a window open in my studio. This is not a bad thing, but it is a bit disconcerting if you're not used to being blown at when the monitors are at eye level. But thanks to the movement of all that air, you get a very high SPL level and a fair amount of low end — especially considering the small size of the cabinet.

I found the MSP5's to be a small speaker with a very big sound. Although I wouldn't mind using them as an alternative speaker choice in some of my more upscale mixes, they really are designed for applications such as keyboard/computer workstations, small project rooms, or by the home recordist who wants a good speaker offering a reasonable price and size. In these situations, they really do shine. For the retail price of \$599 a pair (you can also buy them singly if you're setting up for surround), the MSP5's have the look and feel of an up-market monitor and a sound similar to an industry standard. Just don't call them NS-10 updates.


**MANUFACTURER:** Yamaha Corporation of America, 6600 Orangethorpe Avenue, Buena park, CA 90620. Tel: 714-522-9011. Web: [www.yamaha.com](http://www.yamaha.com).  
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# 5.1 Ways To Lose A Lover

Panning for gold,  
part II — 5.1 surround  
sound on a budget

BY EDDIE CILETTI



Edison first recorded sound 122 years ago (as of November 29, 1998). In the '70s, Paul Simon recorded a song describing "50 ways to leave your lover." Now it's 1999. There are fewer steps and a twist — you get to stay and, assuming an aversion to "extra furniture," the lover goes.

Most people who have stopped by my shop for a tape machine repair haven't even considered surround sound. Even though they're audio people, they are surprisingly uninformed and barely curious about surround. No one expects much from my nickel surround tour, but all are impressed by the "deep impact" of the subwoofer and "space" (the final frontier) created by spreading out a 24-track mix among six monitors. One of the greatest benefits of surround is that the combined power of six channels minimizes the need for dynamics compression. (That's for a whole 'nother discussion, *after* you're hooked!)

You may still be uncertain about the necessity of surround sound. My goal here is to arouse curiosity and to encourage all of you to experiment. While meeting this DIY challenge head-on, keep in mind Thom Edison's theory of "one-percent inspiration, ninety-nine percent perspiration." It's not

just about genius anymore. Surround is almost a no-brainer, but there is a surprising amount of wiring involved.

## [1] SET UP THE STACK, MACK

Most consumer surround systems have dedicated monitors: full-range for the front pair, limited bass response for the center-channel and surround speakers. The center channel is designed for dialog localization at the video monitor (it should have a tweeter). Rear monitors do not usually match the front stereo pair. A subwoofer, placed in the corner, takes care of low bizz.

As professionals, we take our control room environment much more seriously. Most of us have one pair of really great speakers. My front monitors are Dynaudio BM15A's. It makes sense to have five identical monitors, but at a list price of \$3559 per pair, you can easily see that five monitors, a subwoofer, monitor control, and wiring could tip the scales around \$10,000! (And that doesn't include a DVD player....) I understand that Dynaudio has a "package price" for a surround system, but you get the idea.

So, in the interest of science and a severe DIY mentality, here's what I did...

For the center, I placed a modified (magnetically shielded) pair of Auratones left and right of a TV monitor. To bring up the rear, I chose my old main monitors — EV MS-802's — similar in size to the Dynaudio BM-15A. A Tannoy PS115 subwoofer adds the low-end factor.

## [2] MAKE A NEW (WIRING) PLAN, STAN

I already had a passive surround system (see the September '98 issue), so the rear-channel wiring was in place. It was only necessary to add the center and sub cables. Surround is mixed to a digital 8-track — either an Alesis ADAT or a TASCAM DTRS. How you get there depends on whether the source is an analog or digital mixer. The latter in my case is a Soundscape workstation.

Monitor control is the real challenge. If this is just an experiment, you can wire directly from the 8-track to the power amps, using the tape machine's input control to monitor source or tape. For flexibility and control, I chose (and bought) the StudioComm 68/69 controller/console [Studio Technologies, Inc.; [www.studio-tech.com](http://www.studio-tech.com)]. It has two surround and two stereo inputs, a level control, and mute/solo switches.

## [3] GO TO THE SHACK, JACK

Once the wires are all connected, it's time to calibrate the monitor level. Bob Katz wrote an article about establishing a reference level for stereo monitoring back in the September '98 issue. Surround level calibration is even more important — especially in my case. You don't want to make EQ decisions when the monitors don't all sound the same. It's also not possible to equalize/tune out the differences. My way around the problem was to not use the rear speakers to evaluate EQ. (I spend much more time on balances anyway.)

To balance all of the monitors, you need a sound pressure level (SPL) meter. Radio Shack has two — cat. 33-2050 (\$35) and 33-2055 (\$60) — that are nearly identical except for the analog and digital displays, respectively. For a noise source, I used *Sound Check*, a CD by Alan Parsons and Stephen Court. It not only has full-frequency pink noise, but also filtered bands of noise, tones, sweeps, audio samples of music and voice, timecode, and a tuning reference.

## [4] LET'S MAKE SOME NOISE, BOYZ

Lest you think I am a renegade, there is actually an established procedure for calibrating the monitors. The Dolby Web site, located at [www.dolby.com](http://www.dolby.com), is rich with details, theory, practical applications, and, of course, their product line. You don't, however, need any Dolby products to create a discrete surround mix. In order, though, to create a Dolby Digital (AC-3) version of your mix, you must use their DP-569 encoder. Their professional DP-562 decoder does provide some extremely useful tools, such as the ability to hear how your 5.1 mix will sound in stereo or Pro Logic surround. (There are TDM plug-ins for both the encoder and the decoder for use with Pro Tools.)

To calibrate the system, pink noise is applied to each monitor. I recorded the noise at -20 dBFS to six tracks of tape. The SPL meter — placed equidistant from all monitors — should be set to SLOW and "C" weighting. Playing back the noise tape, I adjusted the Master level control of the StudioComm for 85 dB SPL from the Left Front monitor. (Adjust as necessary using one monitor at a time.) Mark the "reference level position" on the control room monitor pot. If going straight from tape-to-monitors, try to not kill yourself! (Start with the power amp gain trims way down.)

When matching the level of the subwoofer to the full-range monitors, Dolby more than recommends a spectrum analyzer. In fact, they are emphatic about it. When you are ready to compete with the big boys, you will need to get on the serious good foot. In the meantime, using the band-limited noise from the CD worked out OK for me. The bass band on the test CD is limited to 200 Hz. Using this instead of full-frequency noise keeps the tweeters from tricking the SPL meter. I used the same technique to balance the center channel speakers using the 200 Hz–1 kHz band. (Dolby specifies that the subwoofer response should not go above 120 Hz.)

*(Please note:* This article is about creating a mix using 5.1 discrete surround channels. Dolby Pro Logic surround is a method of “embedding” surround information within a traditional stereo pair of tracks.)

If you intend to “down-mix” the 5.1 channels into two channels, you absolutely need a Dolby Pro Logic encoder to do a Dolby Pro Logic surround mix. Even if you are not using a Dolby Surround encoder, it is a good idea to monitor the stereo bus through a Pro Logic decoder in order to minimize the potential for the unpredictable. Either the analog SDU-4 or the digital DP-562 decoders will work well, and have no auto steering (the balancing function found in many consumer decoders that could cause inaccurate decoding in a mix situation).

One other point: if a program producer wishes to use Dolby trademarks on their products (i.e., Dolby Digital, Dolby Surround, etc.), they must obtain a royalty-free license from Dolby (a very simple procedure, described on the Web site).

#### [5] LET'S WHIP UP A MIX, CHICKS

Unlike the setup procedure, there are no rules for mixing but there are “conventions.” Film mixers place dialog in the center channel. This is OK when watching a movie in a theater. L-C-R speakers are directly behind the screen, which is elevated enough to avoid “obstructions,” a.k.a. human heads.

At the time I was preparing to create a 5.1 mix, a DVD produced by A&M records served as a practical reference. The sampler disc featured 10 music videos with 5.1 surround mixes by engineer Ted Hall. I especially liked Sounds of Blackness, Jonny Lang, Suzanne Vega, and Soundgarden. Sheryl Crow's massive compressed sound (which I assumed is on the multitrack and could not be “undone”) didn't transfer to the surround environment.

On all mixes, Ted used the lead-vocal-in-the-center convention. This is cool for karaoke purposes (if the center channel is muted, then you can be the star), but it is not my preference. My first musical surround experience was at the MPGA demo last May. I was sitting directly behind someone and the lead vocals were unintelligible coming from a single center-channel monitor.

For this reason, I chose to route the lead vocal to both front and rear pairs so that it would “appear” in the virtual center above my head. This also served as a reference for front-to-rear balance. I played the finished multitrack tape on several systems, from San Francisco to New York. It sounded great at the JBL demo room (tweaked by Mr. John Eargle and David Kimm) at the AES convention. It also played well in Dolby's private theater located in their Midtown Manhattan offices.

My mix did not play well in one room — the front-to-rear balance was completely out of whack. I suspect that particular control room had been calibrated to accommodate a dozen visitors and that the mix had been specifically tweaked for that demo. (No one has come clean as to the specifics, yet....)

#### [1] JUST TURN UP THE BASS, GRACE

Of all the steps, this one will ensure that your lover will leave (either your life or head to the bathroom) and that your neighbors will complain (after realizing that you are the earthquake). Nothing makes bass easier than a subwoofer; nothing is missed more when it goes away.

There are “low-frequency management” issues. You can not rely on the subwoofer exclusively for low-frequency instruments. On the cheapest consumer systems, the sub is barely a six-inch woofer supporting five satellites — which in the Bose system are 3-inch diameter drivers. In the big picture, six discrete channels are encoded into a digital bitstream, as is the case with Dolby Digital (AC-3). On the decode side, the six channels emerge as discrete as the original. If, however, the destination is only a stereo pair of speakers, the decoder is smart enough to mix the rear-channel and center info to the front pair, but it will ignore the “sixth” channel (subwoofer) information.

I treated the center and sub channels as one “monitor system” with an electronic crossover. Routing bass and kick to the Auratones gave the expected midrange *sans* boom. Adding the subwoofer made ‘em large, alive, and natural. (Remember that

*continued on page 128*

# EQ

## COMING UP IN FEBRUARY

### **NAKED LYNCH.**

Famed film director David Lynch shows us his musical side as he lets EQ into his project studio for a look at this creative mind at work.

### **MORE TIPS AND TECHNIQUES**

EQ keeps rolling through 1999 with expert audio advice from the people you trust. Look for tips and techniques from Craig Anderson, Roger Nichols, Al Kooper, Mike Sokol, Eddie Ciletti, Demo Queen, FezGuys, Mr. Bonzai, and lots more.

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# To Rip, Or Not To Rip...



PHOTO BY STEVE JENNINGS

## A look at Xing's AudioCatalyst MP3 encoder

BY JON LUINI  
AND ALLEN WHITMAN

To rip, or not to rip? That's the question...and why not? Before the year 2000 kicks in, there'll be plenty of playback devices for "ripped" MP3-encoded files. So let's get a head start by firing up software specifically designed to rip music from CDs and turn it into files on your desktop, ready to transfer to any digital playback device. The software we're talking about is AudioCatalyst from Xing Streamworks.

The term "ripping" is unfortunate because it fans the flames of the raging debate over consumer playback technologies. Record companies are concerned over the ease with which their intellectual property can be transferred without payment from one listener to the next in the same pristine condition the manufacturer first sold the product. Music listeners want to easily transfer their favorite songs from CD to computer to portable listening devices. Who will win the debate? That's not our concern this month. We're just going to

explain how to create encoded files simply, quickly, and cheaply.

The Xing AudioCatalyst Encoder is available through an online secure server for \$29.95. Go to [www.xingtech.com/products/audiocatalyst/](http://www.xingtech.com/products/audiocatalyst/). There is a free demo version available. The AudioCatalyst is based on an encoder we reviewed

recently (see *EQ* Oct. '98 or FezGuys column #24 on [www.fezguys.com](http://www.fezguys.com)), and is the software packaged with the groundbreaking RIO MP3 personal music player from Diamond Multimedia. Also, in keeping with the ways of MPEG, Xing has released the source code for its MP3 decoder on the Web (go to [www.freeamp.org](http://www.freeamp.org)).

### A LIST OF THINGS THAT ARE NEW

[1] RealNetworks (claiming 85-percent marketshare of streaming audio on the Web) is loosing itself from the Microsoft influence (MS is divesting themselves of Real) and jumping deeper into the arms of AOL and Netscape. The marketplace may have lost confidence in Real (stocks went south fast), but Real hasn't lost confidence in themselves. "Woo-Hoo! Check us out," they said.\*

[2] Microsoft's WebTV has given up on RealAudio and Java in the hopes that people will opt for MS's own like-minded products: Media Player and ActiveX. That's relevant to you content providers. RealAudio-encoded music using any version after 3.0 is unlistenable to the half-million WebTV users. Microsoft shoots itself in the foot by limiting content available to WebTV subscribers. The Headspace audio engine is part of the next version of Java. WebTV users will be out of luck there, too. No Java! No Real! No way! If you are a subscriber, let them know how silly they're acting.

[3] Keep an eye out for an improved QuickTime streaming product to be launched in January at MacWorld. QuickTime works with almost everything.

[4] Sony Music has a Web site called The Jukebox. [www.sonymusic.com/jukebox/](http://www.sonymusic.com/jukebox/). Their brilliant notion is that you'll pay a fee to hear RealAudio files streamed over phone lines! Sony, like so many record companies, is trying to fit a square peg in a round hole. Who will pay to hear crappy audio when you can often hear the same crappy audio for free elsewhere? Get real, gang.

[5] Amazon.com invites unsigned musical

acts to join them at [www.amazon.com/](http://www.amazon.com/) advantage for product distribution. You're still responsible for your own marketing. The contract can be terminated at any time by either party and all intellectual property rights remain with the original rights holder. Seems pretty clear that all they want to do is distribute physical product. Very straightforward.

[6] At the recent Webnoize conference in Los Angeles, a so-called verbal "fireworks display" was touched off during a debate between members of the vocal MP3 community and a posse of representatives from Liquid Audio, a2b Music, RealNetworks, and Microsoft. Go to [www.broadcast.com/music/shows/webnoize/](http://www.broadcast.com/music/shows/webnoize/) to listen in either RealAudio or NetShow. Go to the Wed., November 4, panel discussions and jump forward to 2:38:00 to enter that exact conversation.

[7] Visit [www.public-enemy.com](http://www.public-enemy.com) and see how some modern musicians are dealing with record companies' valiant attempts to use, co-opt, control, or abuse the Internet. Public Enemy's public voice, Chuck D., speaks frankly (as usual) about the band's trials and tribulations as a Web-enabled music group. Great, honest reading. No punches pulled.

[8] And, finally, we were gonna review the "final release" of Real Network's new G2 player, but it's still Windows-only. What's a Fez gotta do to get a Mac app around here? After promising a Mac version for many months, is RealNetworks using the word "final" as in "you Mac-offs can kiss my bits?"

\* OK. They didn't really say that. But we're sure they'd like to.

This indicates Xing's confidence in themselves, their technology, and the benefits of releasing source code into the public domain. People who use the product on a daily basis directly contribute to its improvement for all.

Installation of the Windows-only AudioCatalyst is easy, with one exception: if you are running an NT system, you might need to install specific drivers for your CD-ROM drive. Documentation within the app explains exactly how and where to do this. The AudioCatalyst allows for a wide variety of encoding parameters. You can create MP3 files optimized for streaming on everything from 28.8 modems to dual ISDN and up. You can encode from 32 kbps to 320 kbps, in any of several mono or stereo modes. You can rip to a WAV file independently and then compress to an MP3 or just rip directly to an MP3. Ripping to a WAV file is useful because a normalize option in the AudioCatalyst is avail-

able to optimize source audio for MP3 encoding. Also, some CD-ROM drivers won't allow direct encoding to an MP3. Making a WAV file first allows you to bypass that occasional limitation.

For our demonstration purposes, we're going to use a legally purchased copy of the Ultimate Rock Album: Pink Floyd's *The Dark Side Of The Moon* (digitally remastered — catalog number #CDP7460012). We're going to rip the album directly to individual MP3 song files.

After launching AudioCatalyst and slapping the CD into the computer's CD-ROM drive, we click on the AudioCatalyst's CDDDB button. The CDDDB interface ([www.cddb.com](http://www.cddb.com)) is pretty cool. CDDDB allows programs like AudioCatalyst to locate our Ultimate Rock Album (or any other album) in a database on the Web. Instead of having track "one" through track "twelve" listed in our window, we get the album title, band name, song names, and running times in one click. Obviously, it's necessary to have an open Internet connection while doing this. It's so exciting to be multitasking on your home computer! The next step is to click on the MP3 settings button to select encoding parameters. We're choosing to rip to an MP3 file, in-

stead of using the intermediate step of creating a WAV file. We're using their "near-CD quality" (128 kbps, stereo) encoding default parameter. We select the ID3 Tag, which puts appropriate track info in each MP3 file. Then we select which tracks we'd like to encode. In this case, that would be all of them.

Encoding to a WAV file is very fast (depending on the speed of your drive and computer), but ripping directly to an MP3 file involves the computer

*continued on page 129*

*The MP3 compression algorithm is a great standard because the source code is easily available to anyone to create their own encoder.*

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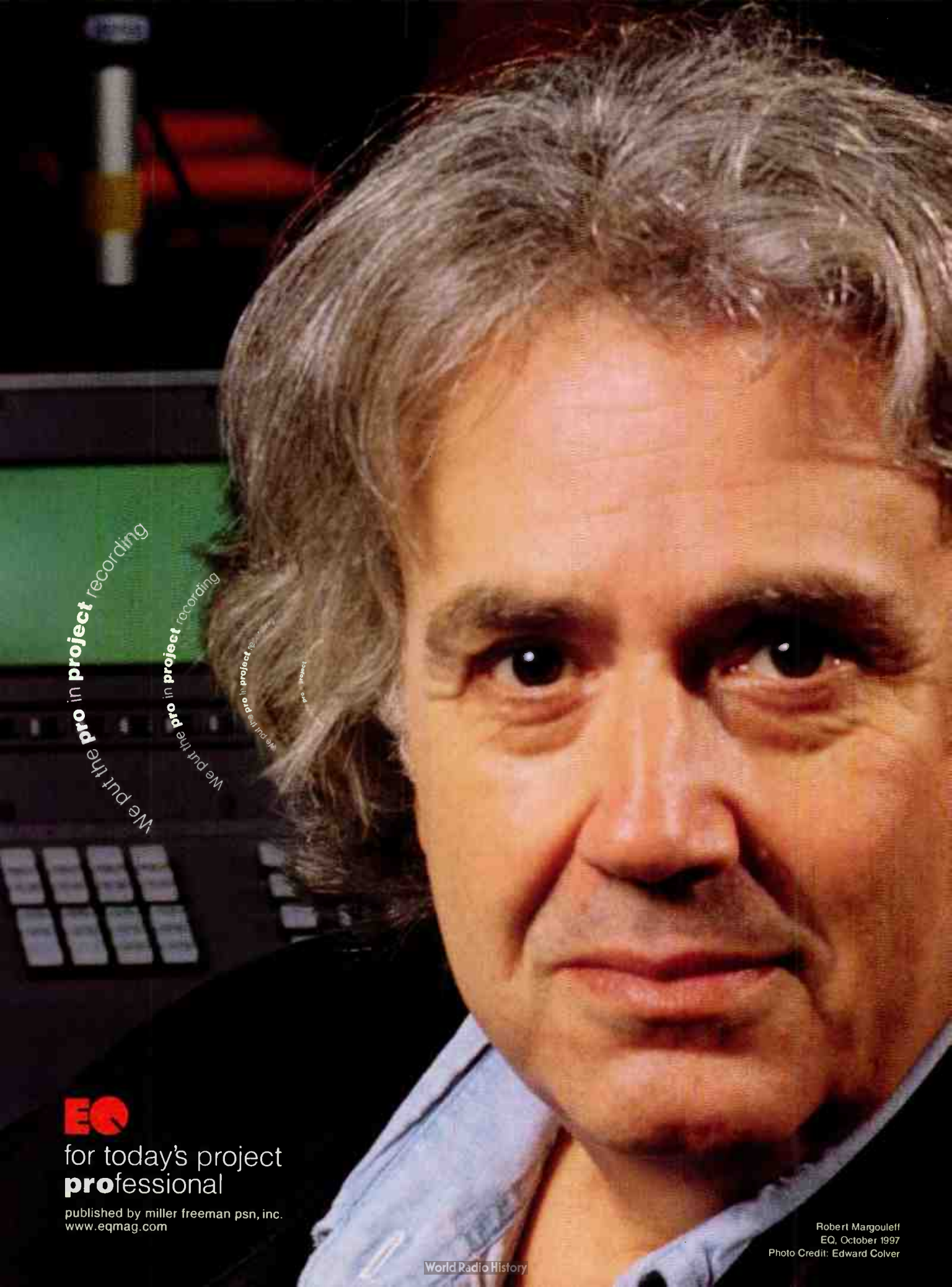
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We put the **pro** in **project** recording

We put the **pro** in **project** recording



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World Radio History

Robert Margoulef  
EO, October 1997  
Photo Credit: Edward Colver

# Who Are You?

The project studio is the recording revolution of the decade. Help us quantify this dynamic marketplace by copying these pages and returning it via fax: 516-767-1745 or by visiting our Web site [www.eqmag.com](http://www.eqmag.com)

## PROJECT RECORDING STUDIO MARKETPLACE SURVEY

### 1. Which description below best describes your facility? (Please check one only.)

- |   |   |
|---|---|
| <input type="checkbox"/> Project/Private Studio | <input type="checkbox"/> Music Club     |
| <input type="checkbox"/> Commercial Recording   | <input type="checkbox"/> Regional Sound |
| <input type="checkbox"/> Mobile Recording       | <input type="checkbox"/> Record Label   |

### 2. How much revenue did your facility generate in the last 12 months? (Please check one only.)

- |  |  |
|--|--|
| <input type="checkbox"/> None              | <input type="checkbox"/> \$25,000-\$49,999   |
| <input type="checkbox"/> Under \$5,000     | <input type="checkbox"/> \$50,000-\$99,999   |
| <input type="checkbox"/> \$5,000-\$9,999   | <input type="checkbox"/> \$100,000-\$249,999 |
| <input type="checkbox"/> \$10,000-\$24,999 | <input type="checkbox"/> \$250,000-\$499,999 |
|  | <input type="checkbox"/> \$500,000 or more   |

### 3. How many people, including yourself, are employed full-time or part-time in your facility?

- |                              |                                     |
|------------------------------|-------------------------------------|
| <input type="checkbox"/> 1   | <input type="checkbox"/> 7-10       |
| <input type="checkbox"/> 2-3 | <input type="checkbox"/> 11-20      |
| <input type="checkbox"/> 4-5 | <input type="checkbox"/> 21 or more |

### 4. Do you own the facility (project room) that you primarily work in?

- Yes  No

### 5. Choose one category that describes your primary and secondary function(s) at the above facility?

	Primary	Secondary
Music Recording	<input type="checkbox"/>	<input type="checkbox"/>
Live Sound Engineer	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance	<input type="checkbox"/>	<input type="checkbox"/>
Sound Designer	<input type="checkbox"/>	<input type="checkbox"/>
Producer	<input type="checkbox"/>	<input type="checkbox"/>
DJ	<input type="checkbox"/>	<input type="checkbox"/>
Songwriter	<input type="checkbox"/>	<input type="checkbox"/>
Audio-for-Video/ Post	<input type="checkbox"/>	<input type="checkbox"/>
Product Dealer/ Rep	<input type="checkbox"/>	<input type="checkbox"/>
Mastering/Archiving	<input type="checkbox"/>	<input type="checkbox"/>
Jingles/Commercials	<input type="checkbox"/>	<input type="checkbox"/>

### 6. How often do you participate in the primary activity?

- Every day  Once or twice a month  
 Once or twice a week  Less than once a month

### 7. How much of your annual income do you derive from the primary activity indicated above?

- |                                 |                                  |                                 |
|---------------------------------|----------------------------------|---------------------------------|
| <input type="checkbox"/> 100%   | <input type="checkbox"/> 75%-89% | <input type="checkbox"/> 25-49% |
| <input type="checkbox"/> 90-99% | <input type="checkbox"/> 50-74%  | <input type="checkbox"/> 0-24%  |

# Who Are You?

**8. How long have you been involved with recording/live sound or related activities? (Please check one only.)**

- Under one year
- 1 year
- 2-5 years
- 6-10 years
- 11 years or more

**9. How much is your total investment in your current studio? (Please check one only.)**

- under \$5,000
- \$5,000-\$9,999
- \$10,000-\$24,999
- \$50,000-\$99,999
- \$100,000-\$249,000
- \$250,000-\$499,999
- \$500,000-\$999,999
- \$1,000,000

**10. How much money do you plan to spend on sound/recording equipment in the next 12 months? (Please check one only.)**

- under \$5,000
- \$5,000-\$9,999
- \$10,000-\$24,999
- \$50,000-\$99,999
- \$100,000-\$249,000
- \$250,000-\$499,999
- \$500,000-\$999,999
- \$1,000,000

**11. Are you involved in Live Sound Engineering?**

- Yes
- No

**12. IF YOU ARE INVOLVED IN LIVE SOUND ENGINEERING, how much money do you presently have invested in Live Sound Equipment? (Please check one only.)**

- Under \$5,000
- \$5,000-\$9,999
- \$10,000-\$24,999
- \$25,000-\$49,999
- \$50,000-\$99,999
- \$100,000-\$249,999
- \$250,000-\$499,999
- \$500,000-\$999,999
- \$1,000,000 or more

**13. IF YOU ARE INVOLVED IN LIVE SOUND ENGINEERING, how much money do you plan to spend on Live Sound Equipment in the next 12 months? (Please check one only.)**

- Under \$5,000
- \$5,000-\$9,999
- \$10,000-\$24,999
- \$25,000-\$49,999
- \$50,000-\$99,999
- \$100,000-\$249,999
- \$250,000-\$499,999
- \$500,000-\$999,999
- \$1,000,000 or more

**14. Are you currently involved in video production/post-production?**

- Yes
- No

**15. IF YOU ARE INVOLVED IN VIDEO PRODUCTION/ POST-PRODUCTION, how much do you presently have invested in equipment?**

- Under \$5,000
- \$50,000-\$99,999

- \$5,000-\$9,999
- \$10,000-\$24,999
- \$25,000-\$49,999
- \$100,000-\$249,999
- \$250,000-\$499,999
- \$500,000-\$999,999
- \$1,000,000 or more

**16. IF YOU ARE INVOLVED IN VIDEO PRODUCTION/ POST-PRODUCTION, how much money do you plan to spend on equipment in the next 12 months?**

- Under \$5,000
- \$5,000-\$9,999
- \$10,000-\$24,999
- \$25,000-\$49,999
- \$50,000-\$99,999
- \$100,000-\$249,999
- \$250,000-\$499,999
- \$500,000-\$999,999
- \$1,000,000 or more

**17. What video production/post-production tasks are you personally able to perform?**

- Camera/Acquisition
- Lighting
- Editing
- Graphics
- Special Effects
- Voice Overs

**18. What area of your business has grown the most over the past 12 months? (Please check one only.)**

- Music Recording
- Surround Recording
- Game Sound Design
- Sound Effects
- Video Post
- Internet Audio
- Mastering
- Corporate Sound

**19. What is the most significant new product trend of the past 12 months? (Please check one only)**

- Digital Consoles
- CD-R
- Streaming Web Audio
- Digital Editing
- Surround Sound
- Low Cost Gear
- Hard Disk Storage
- PC Cards

**20. How did you start your career in project recording? (Please check one only.)**

- Musician
- Studio Engineer
- Record Producer
- Label Owner
- Sound Designer
- Keyboard Player
- Computer Nerd
- Total Accident

**21. Who influences most of your buying decisions? (Please check one only.)**

- Colleagues
- Customers
- Famous Engineers
- Product Designers
- My Own Opinion
- Product Reviewers
- Famous Producers
- Studio Musicians



**22. Which of the following products do you already own and which do you plan to purchase in the next 12 months? (Please check all that apply.)**

**RECORDING**

	PRESENTLY OWN	PLAN TO BUY
Analog Mixer (>\$5,000)	<input type="checkbox"/>	<input type="checkbox"/>
Digital Mixer (>\$15,000)	<input type="checkbox"/>	<input type="checkbox"/>
Analog Mixer(<\$5,000)	<input type="checkbox"/>	<input type="checkbox"/>
Digital Mixer (<\$15,000)	<input type="checkbox"/>	<input type="checkbox"/>
DAT Recorder	<input type="checkbox"/>	<input type="checkbox"/>
ADAT SVHS Digital Recorder	<input type="checkbox"/>	<input type="checkbox"/>
DTRS 8mm Digital Recorder	<input type="checkbox"/>	<input type="checkbox"/>
Digital Multitrack Recorder (24 Tracks)	<input type="checkbox"/>	<input type="checkbox"/>
Analog Multitrack Recorder	<input type="checkbox"/>	<input type="checkbox"/>
CD-R Recorder/ Writer	<input type="checkbox"/>	<input type="checkbox"/>
CD Player	<input type="checkbox"/>	<input type="checkbox"/>
D.A.W./Hard Disk Recorder	<input type="checkbox"/>	<input type="checkbox"/>
Studio Monitors	<input type="checkbox"/>	<input type="checkbox"/>
Microphones	<input type="checkbox"/>	<input type="checkbox"/>
Microphone Pre-amps	<input type="checkbox"/>	<input type="checkbox"/>
Headphones	<input type="checkbox"/>	<input type="checkbox"/>
Signal Processing Equipment	<input type="checkbox"/>	<input type="checkbox"/>
Digital Sound Card	<input type="checkbox"/>	<input type="checkbox"/>
Keyboard/Workstation	<input type="checkbox"/>	<input type="checkbox"/>
Test & Measurement	<input type="checkbox"/>	<input type="checkbox"/>

**LIVE SOUND**

	PRESENTLY OWN	PLAN TO BUY
Live Console	<input type="checkbox"/>	<input type="checkbox"/>
F.O.H. Speakers	<input type="checkbox"/>	<input type="checkbox"/>
Stage Monitoring Systems	<input type="checkbox"/>	<input type="checkbox"/>
Portable PA System	<input type="checkbox"/>	<input type="checkbox"/>
Power Amplifier	<input type="checkbox"/>	<input type="checkbox"/>
In-Ear Monitors	<input type="checkbox"/>	<input type="checkbox"/>
Live Sound Microphones	<input type="checkbox"/>	<input type="checkbox"/>
Cables and Wiring	<input type="checkbox"/>	<input type="checkbox"/>
Signal Processing/Special Effects Gear	<input type="checkbox"/>	<input type="checkbox"/>

**VIDEO**

	PRESENTLY OWN	PLAN TO BUY
Video Cameras	<input type="checkbox"/>	<input type="checkbox"/>
VTR	<input type="checkbox"/>	<input type="checkbox"/>
Non-Linear Editor	<input type="checkbox"/>	<input type="checkbox"/>
Editing Equipment	<input type="checkbox"/>	<input type="checkbox"/>
Graphics/Animation	<input type="checkbox"/>	<input type="checkbox"/>
Sound Effects Library	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>

# Who Are You?

## SOUND AND RECORDING SERVICES

	PRESENTLY USE	PLAN TO USE
Mastering Services	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance Services	<input type="checkbox"/>	<input type="checkbox"/>
CD Replication	<input type="checkbox"/>	<input type="checkbox"/>
Studio/Acoustic Design	<input type="checkbox"/>	<input type="checkbox"/>
Mastering Services	<input type="checkbox"/>	<input type="checkbox"/>
Commercial Recording Services	<input type="checkbox"/>	<input type="checkbox"/>

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Feature Product Focus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product Reviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New Products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EQ Live	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EQ Live Road Test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Columnists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Celebrity Profile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rooms with a VU	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recording Techniques/Workshops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EQ & A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Letters to the Editor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PC Recording Quarterly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do It Yourself Articles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. Please indicate your interest in the following topics:

	EXCELLENT		POOR		DO NOT READ
	1	2	3	4	5
Recording	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Live Recording	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sound Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A/V- Multimedia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital Recording	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MIDI/Computer Interface	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. Please rank the importance of the following magazines to your recording and sound activities:

	MOST IMPORTANT		LEAST IMPORTANT		DO NOT RECEIVE	
	1	2	3	4	5	6
EQ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pro Sound News	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mix	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Musician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keyboard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recording	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pro Audio Review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AudioMedia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pro Audio Review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**26. What is your involvement with purchasing sound/recording equipment?**

- Approve/authorize purchase  
 No involvement in purchasing  
 Recommend/specify brands/supplier

**27. How do you normally purchase your sound/recording equipment?**

- Local music store  
 Through telephone (800) dealer  
 Pro audio dealer  
 Manufacturer Direct  
 Mail order catalog/retailer

**28. Which of the following computer platforms do you already own and which do you plan to purchase in the next 12 months?**

	PRESENTLY OWN	PLAN TO BUY
Windows	<input type="checkbox"/>	<input type="checkbox"/>
Macintosh-based	<input type="checkbox"/>	<input type="checkbox"/>
Silicon Graphics	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____		

**29. Which type of recording software do you already own and which do you plan to purchase in the next 12 months?**

	PRESENTLY OWN	PLAN TO BUY
Sequencing	<input type="checkbox"/>	<input type="checkbox"/>
Editing	<input type="checkbox"/>	<input type="checkbox"/>
Recording	<input type="checkbox"/>	<input type="checkbox"/>
Sampling/Looping	<input type="checkbox"/>	<input type="checkbox"/>
Multimedia	<input type="checkbox"/>	<input type="checkbox"/>
Notation	<input type="checkbox"/>	<input type="checkbox"/>
Composition	<input type="checkbox"/>	<input type="checkbox"/>
Studio Business	<input type="checkbox"/>	<input type="checkbox"/>
DAW Plug-In	<input type="checkbox"/>	<input type="checkbox"/>

**30. How much do you plan to invest in software in the next 12 months?**

- Under \$1,000     \$2,500-\$7,499  
 \$1,000-\$2,499     \$7,500 or more

**31. Which of the following computer peripherals do you already own and which do you plan to purchase in the next 12 months?**

	PRESENTLY OWN	PLAN TO BUY
Monitor	<input type="checkbox"/>	<input type="checkbox"/>
Enhanced Memory	<input type="checkbox"/>	<input type="checkbox"/>
Accelerator Card	<input type="checkbox"/>	<input type="checkbox"/>
Hard Drive Upgrade	<input type="checkbox"/>	<input type="checkbox"/>
Optical Drive System	<input type="checkbox"/>	<input type="checkbox"/>

- Removable Storage          
 Sound Cards

**ABOUT YOUR MAGAZINE READERSHIP**

**32. How long have you been reading EQ? (Please check one only.)**

- 1 year or less     3 years  
 2 years     4 years  
 5 years or more

**33. How many people, including yourself, read your copy of EQ? (Please check one only.)**

- 1     4  
 2     5  
 3     6 or more

**34. What do you do with the typical issue of EQ when you have finished reading it?**

- Save entire issue for future reference  
 Give issue to someone else  
 Clip or copy items of interest  
 Discard issues

**35. IF YOU SAVE EQ FOR REFERENCE, how often do you refer to it?**

- 1-2 times     6-10 times  
 3-5 times     11 times or more  
 never

**36. How often do you read the classified advertisements in EQ? (Please check one only.)**

- Always     Sometimes

**37. Which of the following actions have you taken as a direct result of seeing an advertisement in EQ? (Please check all that apply.)**

- Purchased product  
 Rented/leased gear  
 Contacted manufacturer/local rep  
 Sent in Reader Service card  
 Visited dealer for demo  
 Took no action in past 12 months

**38. Which of the following actions have you taken as a direct result of reading articles or columns in EQ? (Please check all that apply.)**

- Purchased product  
 Rented/leased gear  
 Contacted manufacturer/local rep  
 Sent in Reader Service card  
 Visited dealer for demo  
 Took no action in past 12 months

# Who Are You?

**39. What is the most important trend currently facing your business? (Please check one only.)**

- Computer-based technologies
- Competition from home studios
- Technological obsolescence
- Record label cutbacks
- New digital technologies
- Insufficient staffing

**40. Did you attend or do you plan to attend a dedicated recording/sound school/program?**

- Yes  No

**41. How many different model microphones do you currently own and regularly use in your recordings?**

- 1-3  5-10

3-5

More than 10

**42. How many CDs per year do you replicate via an outside replication service ?**

- |   |   |
|---|---|
| <input type="checkbox"/> Under 1000     | <input type="checkbox"/> \$10,000-20,000  |
| <input type="checkbox"/> \$1,000-5,000  | <input type="checkbox"/> \$20,000-50,000  |
| <input type="checkbox"/> \$5,000-10,000 | <input type="checkbox"/> \$50,000-100,000 |
|   | <input type="checkbox"/> \$100,000+       |

**43. Do you currently offer 5.1 mixing services or plan to offer 5.1 mixing services in the next 12 months?**

- Yes  No

**44. Do you currently operate your own Web site or plan to operate one in the next 12 months?**

- Yes  No

## COMMENTS

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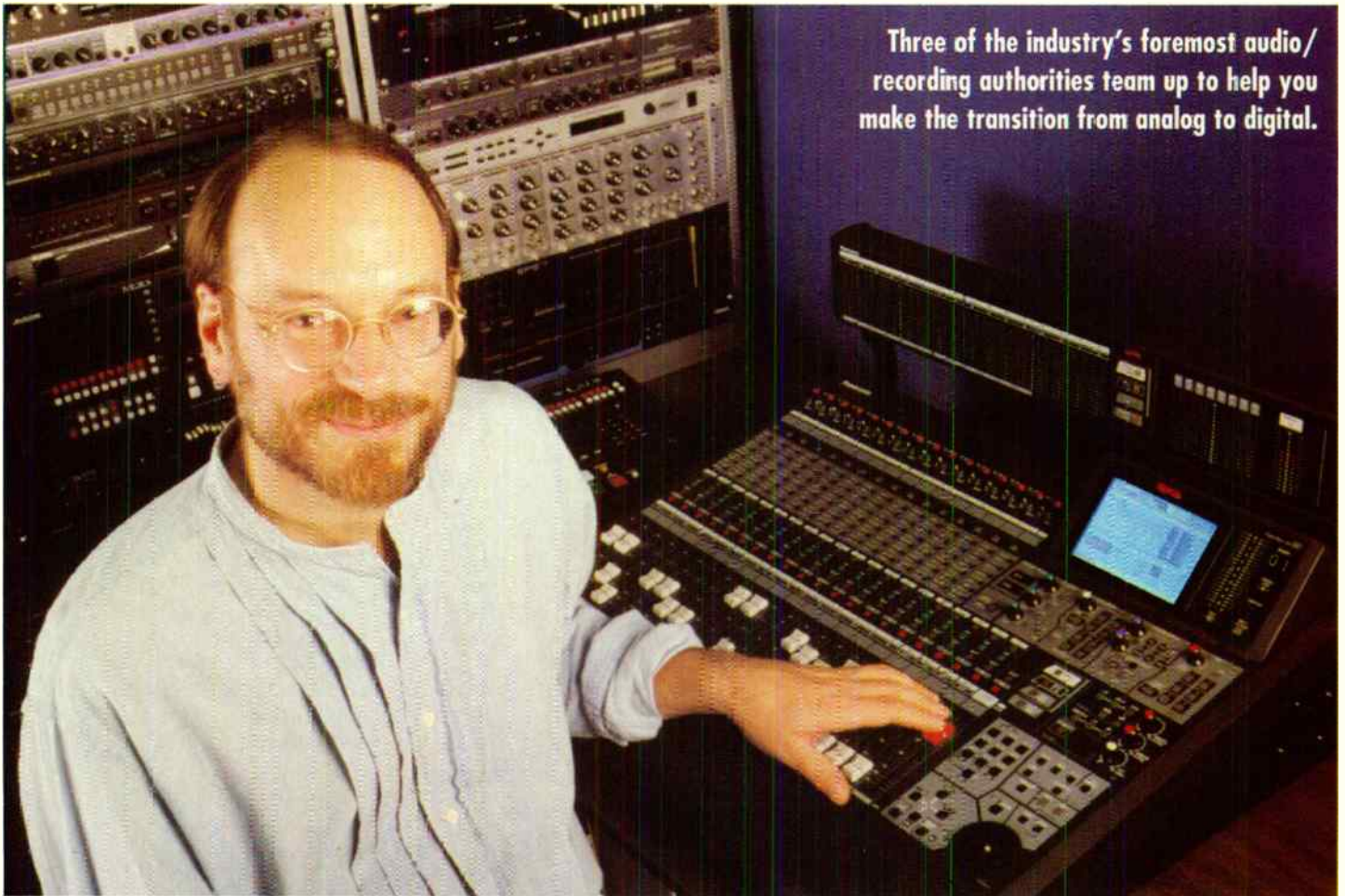
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## TECH TIPS

*continued from page 32*

the sequence. Somewhere in the sequence, send a program change message to channel 16 and assign the second preset that was just created. You will notice that when you assign the second preset, the reverb mix reflects the new 50 percent level. Note: This is a basic setup. You can create as many "FX Presets" as you want with various settings. By sending a program change message to channel 16 (in this example), you will be able to then automate FX changes in your sequence. Hint: Try this with various settings. Choose a delay and change the Feedback or Delay time. Try changing the Preset Effects A "FxB=>FxA" amounts. Try using the same reverb, but change the Decay Time and/or HF Damping. **EQ**

## USED CONSOLES

*continued from page 54*

sist on a 90-day parts warranty. Remember that it'll take time to get the console installed and bugs don't show up right away (particularly patchbay bugs).

- Inquire about payment installations: How about 50 percent up front, 25 more after 30 days, and the balance after 60 days? This gives you a chance to get the console hooked up and the system debugged.

- Run an oscillator tone through two modules by multing it and see what happens when you flip the phase of one channel. Set the output of the tone to +4 dBm (1.23 volts) and run it into the 2-track returns, effect returns, multitrack busses, and L/R master bus. Are you getting back what you put in? Next, use a sweep tone and see if the bottom end falls off (maybe the desk needs to be recapped). Check the meters: do they work? Do they stick? Are they calibrated? Try every mic pre with a condenser mic so that you can make sure the phantom power operates on all channels.

- Remove the modules and have a look inside the bucket (you'll be amazed at what you find...). Look for signs of water damage or beverage spillage. If you even *remotely* suspect that the desk had liquid damage, run like hell — it'll *never* be the same as before it took a bath. Some consoles survive a coffee or soda spill, but if you find any residue in the bucket, check the nearby modules. While you're at it, check all of the module circuit boards for sloppy mods or

questionable parts. Check all the bussing cables for brittleness and make sure the connectors are tight. Ditto for the cables that internally connect the patchbay to the rear panel of the desk (if the bay uses ribbon cable, make sure that the retaining clips on the ribbon connectors are tight and intact, or you'll have to replace them). If you find a broken connector or cable, figure out how much effort it will take to fix.

- Don't forget to budget time and money for your tech to wire everything up and work out the bugs.

Purchasing a used console can be scary because it's such a huge part of your studio. But with a little research, a lot of questions, and a reliable dealer, it can also be fun and exciting. Good luck!

*Ralph Marsella is the chief engineer and owner of End Result Recording in New York (718-499-4237).*

## CLUB PROFILE

*continued from page 104*

electronics are run through Rack Rider power conditioners to keep the gear safe. At the mix position, there's a Furman PM-8 power conditioner with a volt/amp meter for keeping an eye on the AC supply during the show.

Front-of-house toys also include three more Behringer Composers for channel patching, a Behringer XR1400 (quad gate), two Alesis Microverb IV's, and a Symetrix 606 digital delay. The microphone complement includes Crown CM700's, five Shure SM57's and six SM58's, five Sennheiser MD504's, a beyer M88, and six Rapco DB101 SL direct boxes. Mic signals are routed to the house and monitor consoles through a Rapco Venue 40 (32 x 8) multipair snake with a 150-foot run to the house and a 25-foot run to the monitor desk. As a convenience, there are three-space rack drawers at various places in the system (house amp and monitor amp racks, for example) for storage of cables and microphones.

### JUSTIN CASE

Keeping in mind that Sound Decision Live might (at some point) need to move this system, Tony had all of the racks built into road cases. "I had Jack Klinger at Art\*Tec (Collingdale, PA) make the cases for me, and they're just unbelievable — he builds the most beautiful road cases you've ever seen,

with nickel-plated hardware that doesn't dull the way typical zinc-plated hardware does. When a lid goes on, the clamps line up so tightly that you can't fit a piece of paper into the seal. He's so precise that you can just grab a lid and it'll go on any case. These cases look like they could survive being hit by a truck" — which ain't a bad idea, just in case.

*Tony Hersch can be reached at AudioBahn, (tel.) 610-495-6168 or online at [tony@audiobahn.net](mailto:tony@audiobahn.net).*

## MAINTENANCE

*continued from page 117*

Dolby's upper limit for the subwoofer is 120 Hz.) If subsonic muck appears in the low-frequency channel (from a bass guitar, for example), judicious use of a high-pass filter should clean things up. You could also go the traditional route, sending kick and bass to the front pair. Your mixes will maintain compatibility on a wider range of systems so long as the subwoofer isn't exclusively used for bass.

### ASSIGNMENT

The track assignment I am about to give differs from the one detailed in the September '98 issue. The reason for the re-assignment is for "compatibility." (Video decks have four channels, and it was felt that the most important information should be a no-brainer to patch: L, R, and C to tracks 1, 2, and 3.) In the big zoom-out, this is no big deal, but you should regularly check the Dolby site for procedural updates.

Speaker .....	Tape
Front Left .....	1
Front Right .....	2
Center .....	3
Subwoofer .....	4
Surround Left .....	5
Surround Right.....	6

One final note. DTS is also a major player in the surround business ([www.dtstech.com](http://www.dtstech.com)). While their Web site provides no technical information, there are many DTS albums that have been remixed for 5.1 surround. Dolby Digital decoders are built into all DVD players, but to decode DTS, an external converter is required.

*Visit Mr. Ciletti's Web site at: [tangible-technology.com](http://tangible-technology.com) or e-mail him at: [edaudio@interport.net](mailto:edaudio@interport.net).*

## FEZGUYS

continued from page 119

(depending on the speed of your drive and computer), but ripping directly to an MP3 file involves the computer reading off the CD-ROM and encoding simultaneously, and that translates to the approximate running time of the source audio. It's too bad we can't listen to the music while encoding, but the process is worth the wait. The encoded file sounds great. But wait: there's more options! While digging around inside the AudioCatalyst we find that it's possible to choose start and stop times from within your source audio (very useful if you only want to encode portions of material). There are dialog boxes to enter your own file names and, conveniently, any WAV file can be source audio. Amusingly, you can set the AudioCatalyst to shut down your computer after finishing a designated task.

The compression algorithm in Xing's AudioCatalyst, MP3, is a great standard because (unlike Dolby's AC-3; the algorithm behind Liquid Audio and most of RealAudio) the source code is easily available to anyone to cre-

ate their own encoder. This way everyone contributes to the evolution of the code and that means better code in the long run. Over the past couple of years, MP3 has morphed into the most user-friendly, high-quality software to digitally encode music. All the common MP3 players (WinAmp, MacAmp, FreeAmp, Audioactive, and even Shockwave) can play your encoded files. An MP3-encoded file created on a Windows machine with AudioCatalyst can be listened to by Windows, Mac, or even UNIX users. MP3 is a real-world standard that works on almost everything and with almost everything.

Xing appears to have learned a lot about user interfaces over the past year. Much more attention is being paid to documentation and troubleshooting. Comprehensive support is provided for a plethora of drives and drivers.

This is an intuitive, flexible, powerful, and reasonably priced product. There's a wide array of parameters to choose from, it sounds great, and, as encoders go, it is very fast.

*The FezGuys should welcome your comments, but we know better. Visit them at [www.fezguys.com](http://www.fezguys.com).*

## EQ&A

continued from page 16

### FOSTEX FD-4 QUESTION

**Q** I was searching the web for Fostex FD-4 digital recorder info and found Eddie Ciletti's page that included his review of the Fostex FD-4 [Nov. '98], which I just bought. I was hoping he could answer a question. If I understand the manual correctly, you can only record two tracks simultaneously — so how do you record drums with only two mics? Do I understand this correctly?

Todd Borgman  
via Internet

**A** Don't confuse the recordable tracks with input channels. Not only can you use as many inputs as the FD-4 provides, you could also connect an external mixer for more inputs. The only catch is getting the correct mix in real time. And, incidentally, some of the greatest Jazz and Blues recordings were made using "only" two mics on an entire drum kit....

Eddie Ciletti  
Manhattan Sound Technicians  
NYC, NY

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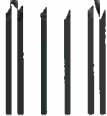
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1 Check one category that describes your primary involvement in recording & sound:

- 1 \_\_\_01 Musician  
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 3 \_\_\_03 Studio owner  
 4 \_\_\_04 Engineer  
 5 \_\_\_05 Songwriter  
 6 \_\_\_06 Educator  
 7 \_\_\_07 Sound reinforcement  
 8 \_\_\_08 Videographer/Editor  
 9 \_\_\_09 Technician/Consultant  
 10 \_\_\_10 MIDI Prog./Multimedia  
 11 \_\_\_11 Record Company/A&R  
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 13 \_\_\_13 Manufacturer/Rep/Agency  
 14 \_\_\_14 Other (Specify)

2 Describe your level of involvement in music, recording and sound:

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- 17 \_\_\_c. Serious hobby  
 18 \_\_\_d. Student  
 19 \_\_\_e. Other (Specify)

3 Check the one editorial section in EQ that is most important to you:

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 24 \_\_\_5. People profiles

4 Check the one that best describes your current investment in music, recording & sound equipment:

- 25 \_\_\_a. Under \$5,000  
 26 \_\_\_b. \$5,000-\$10,000  
 27 \_\_\_c. \$10,000-\$25,000  
 28 \_\_\_d. \$25,000-\$50,000  
 29 \_\_\_e. \$50,000-\$100,000  
 30 \_\_\_f. \$100,000-\$250,000  
 31 \_\_\_g. Over \$250,000

5 Check one to describe your budget for music, recording & sound equipment during the next 12 months:

- 32 \_\_\_a. Under \$5,000 36 \_\_\_e. \$50,000-\$100,000  
 33 \_\_\_b. \$5,000-\$10,000 37 \_\_\_f. \$100,000-\$250,000  
 34 \_\_\_c. \$10,000-\$25,000 38 \_\_\_g. Over \$250,000  
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1 Check one category that describes your primary involvement in recording & sound:

- 1 \_\_\_01 Musician  
 2 \_\_\_02 Producer  
 3 \_\_\_03 Studio owner  
 4 \_\_\_04 Engineer  
 5 \_\_\_05 Songwriter  
 6 \_\_\_06 Educator  
 7 \_\_\_07 Sound reinforcement  
 8 \_\_\_08 Videographer/Editor  
 9 \_\_\_09 Technician/Consultant  
 10 \_\_\_10 MIDI Prog./Multimedia  
 11 \_\_\_11 Record Company/A&R  
 12 \_\_\_12 Pro Audio/Video Dealer  
 13 \_\_\_13 Manufacturer/Rep/Agency  
 14 \_\_\_14 Other (Specify)

2 Describe your level of involvement in music, recording and sound:

- 15 \_\_\_a. Full-time occupation  
 16 \_\_\_b. Part-time occupation

- 17 \_\_\_c. Serious hobby  
 18 \_\_\_d. Student  
 19 \_\_\_e. Other (Specify)

3 Check the one editorial section in EQ that is most important to you:

- 20 \_\_\_1. New products  
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 23 \_\_\_4. Columns  
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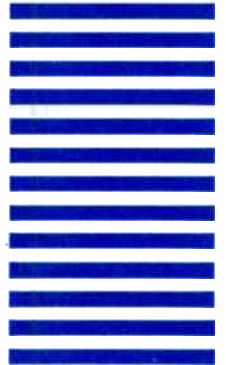
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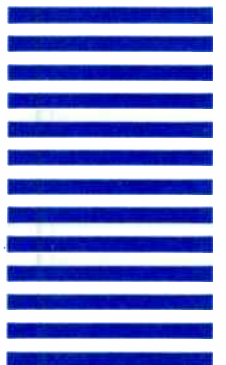
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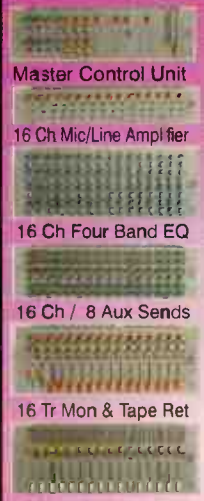
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16 Ch Four Band EQ  
16 Ch / 8 Aux Sends  
16 Tr Mon & Tape Ret  
16 Ch / 16 Tr Routing & Pan

Malcolm Toft, a former recording engineer and founder of Trident Audio, has developed one of the most unique mixing systems to date.

The beauty of this system is that each Module can be used as a stand alone device, or to enhance an existing Console.

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## DIGITAL MIXERS



### Digital 8 Bus Mixing Console



Everything you've been waiting for and more!!! The new digital 8 bus from Mackie features great sound quality, full recording and mixdown capabilities, motorized faders and an array of digital features geared to take you flying into the next century. See for yourself what the entire industry is raving about.

#### FEATURES-

- 48 channels of automated compression, gating, EQ and deay
- Built in 3-way meter display keeps you on top of your mix.
- Built-in meter bridge.
- Ultramax II automation for complete control, hook up a 15" S-VGA monitor and you'll feel like you spent a lot more money.
- All functions can be automated, not just levels and mutes. Store EQ, reverb, compression, gating and even Aux send information.
- Fast SCENE automation allows you to change parameter snapshots on every beat.
- Reads Standard MIDI tempo maps, displaying clock info on the built-in position counter.
- Truly the cutting edge of mixing technology.



## Panasonic

### WR-DA7 Digital Mixing Console



Stop dreaming about your digital future, it's here! The Panasonic WR-DA7 digital mixer features 32-bit internal processing combined with 24-bit A/D and D/A converters as well as moving faders, instant recall, surround sound capabilities, and much more. Best of all, it's from Panasonic.

#### FEATURES-

- 32 Inputs/6 AUX send/returns
- 24-bit converters
- Large backlit LCD screen displays EQ, bus and aux assignments, and dynamic/delay settings.
- 4-band parametric EQ
- Choice of Gate/Compressor/Limiter or Expander on each channel
- 5.1 channel surround sound in three modes on the bus outputs
- Output MMC
- Optional MIDI joystick



## TASCAM

### TMD1000 Digital Mixing Console



You want to see what all the digital mixing buzz is about? The NEW TMD1000 from Tascam will have you smilin' & automatin' in no time. It features fully automated EQ, levels, muting, panning and more in an attractive digital board with an analog 'feel'. Your digital future never looked, or sounded, so clear.

#### FEATURES-

- 4 XLR mic inputs, 8 1/4" balanced TRS inputs.
- 20-bit A/D conversion, 64x oversampling on input, 128x on output.
- Store all settings, fully MIDI compatible.
- Optional IF-TD1000 adds another 8 channels of TDFI and a 2-channel sample rate converter.
- Optional FX-1000 Fx board adds another 4 dynamic processors and another pair of stereo effects.



## MIC PREAMPS

### Focusrite Green 3 "Voicebox MKII"



The Voicebox MKII provides a signal path of exceptional clarity and smoothness for mic recording, combining an ultra-high quality mic amp, an all new Focusrite EQ section optimized for voice, and full Focusrite dynamics. The new MKII now includes a line input for recording and mixdown applications.

#### FEATURES-

- Same mic pre section as found on the Green Dual Mic Pre includes +48V phantom power, phase reverse, and a 75Hz high-pass filter. Mute control and a true-VU response LED bargraph are also provided
- EQ section includes a mid parametric band with frequency and gain control as well as a gentle bell shape to bring out the character of the voice.
- Dynamics section offers important voice processing functions of compression and de-essing combined with a noise reducing expander
- Single balanced Class A VCA delivers low distortion and a S/N ratio as low as -96dBu



## EFFECTS PROCESSING



### Finalizer Plus



Improving on the multi-award winning Finalizer platform, The Finalizer Plus delivers an unprecedented level of clarity, warmth and punch to your mix. Inserted between the stereo output of your mixer or workstation and your master recording media, the Finalizer Plus dramatically rounds out your material, creating that "radio ready" sound.

#### FEATURES-

- Balanced Analog as well as Digital outputs including AES/EBU, S/PDIF, & TOS.
- 24-bit precision A/D & D/A Converters
- 5-band 24-bit stereo EQ
- Enhance - De-essing, stereo adjust or digital radiance
- Real-time gain maximizer
- Variable slope multi-band expander
- Multi-band compressor • Word Clock Sync
- MIDI section useful for controlling sequencer fades or any of the Finalizer's parameters from a remote MIDI controller.



### PCM81 Multi-Effects Processor



The PCM-81 has everything that made the PCM80 the top choice among studio effects processors, and more. More effects, more algorithms, longer delay and full AES/EBU I/O.

#### FEATURES-

- 300 Presets include pitch, reverb, ambience, sophisticated modulators, 20 second stereo delays, and dynamic spatialization effects for 2-channel or surround sound applications
- 2 digital processors including Lexicon's Lexchip for the reverb and a second DSP engine for the other effects.
- 24-bit internal processing
- Dynamic patching matrix for maximum effects control.
- PCM card slot

## EQUALIZERS

### Focusrite Green 2 "Focus EQ"



The Green 2 Focus EQ is suitable for a variety of applications combining a Focusrite equalizer section with a multi-source input section. Use it as a high-quality front end for recording applications or patch it into the send/return loop to upgrade a single channel of console eq, either way, it sounds great.

#### FEATURES-

- XLR & 1/4" inputs are similar to the Dual Mic Pre but have been adapted to cope with a wider range of levels.
- VU metering via a 10-LED bargraph
- EQ section derived from the Red and Blue range processors for superb audio quality.

## COMPRESSORS

### JOE MEEK VC1

### Studio Channel



The Joe Meek Studio Channel offers three pieces of studio gear in one. It features an excellent transformer coupled mic preamp, a great compressor and an enhancer unit all in a 2U rack-mount design. Fine out why more and more studio owners can live without one.

#### FEATURES-

- 48V phantom power Fully balanced operation
- Mic/Line input switch
- Mono photo-optical compressor
- High pass filter for large diaphragm mics
- Extra XLR input on front makes for easy patching
- Compression In/Out and VU/compression meter switches
- Twin balanced XLR outputs with one DI XLR output for stage use
- Enhancer In/Out switch and enhance indicator
- Internal power supply 114/230V AC



### Blue Series 160S Stereo Compressor



The dbx 160S combines the best features of all the great dbx compressors in a well-built unit where the craftsmanship is as stunning as the engineering is innovative. This is truly a desirable compressor.

#### FEATURES-

- 127dB dynamic range • Program dependent "Auto" or fully variable attack and release
- Hard knee/OverEase switchable.



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## HARD DISK RECORDERS



### VS1680 Digital Production Studio



The new VS-1680 Digital Studio Workstation is a complete 16 track, 24-bit recording, editing, mixing and effects processing system in a compact tabletop workstation. With its advanced features, amazing sound quality and intuitive new user interface, the VS-1680 can satisfy your wanderlust.

#### FEATURES-

- 16 tracks of hard disk recording, 256 virtual tracks.
- 24-bit MT Pro Recording Mode for massive headroom and dynamic range.
- Large 320 x 240 dot graphic LCD provides simultaneous level meters, playlist, EQ curves, EFX settings, waveforms and more.
- 20-bit A/D A/D converters
- 2 optional 24-bit stereo effects processors (VS8F-2) provide up to 8 channels of independent effects processing.
- New EZ routing function allows users to create and



save various recording, mixing, track bouncing, and other comprehensive mixer templates for instant recall.

- 10 audio inputs: 2 balanced XLR-type inputs w/ phantom power, 6 balanced 1/4" inputs, and 1 stereo digital input (optical/coaxial)
- 12 audio outputs: 8x RCA, 2x stereo digital & phones.
- Direct audio CD recording and data backup using optional VS-CDR-16 CD recorder.

## SOFTWARE

SONIC

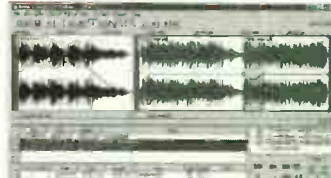


### SONIC FOUNDRY CD Architect & CD Factory

CD Architect is the perfect solution for designing professional audio CDs to Red Book spec of Windows NT and Windows 95. Sample audio from compact disks, record from DAT, or digitize material through a sound card. It comes complete with an editor including dozens of effects and tools to process sound files and can optionally operate as a Sound Forge plug-in. CD Factory adds a CD burner, SCSI card and cable for a complete production package.

#### FEATURES-

- Multi file playlisting
- Master volume faders (-96dB to +20dB)
- Adjustable envelope levels for any region
- Mix or crossfade overlapped regions
- Convert from mono to stereo on the fly
- Multiple levels of undo/redo
- Jp to 99 tracks with 99 subindexes per track
- Make glass-masters directly from burned CDs.



## STUDIO DAT-RECORDERS

### Panasonic SV-3800 & SV-4100

The SV-3800 & SV-4100 feature highly accurate and reliable transport mechanisms with search speeds of up to 400X normal. Both use 20-bit D/A converters to satisfy even the highest professional expectations. The SV-4100 adds features such as instant start, program & cue assignment, enhanced system diagnostics, multiple digital interfaces and more. Panasonic DATs are found in studios throughout the world and are widely recognized as the most reliable DAT machines available on the market today.



#### FEATURES-

- 64x Oversampling A/D converter for outstanding phase characteristics
- Search by start ID or program number
- Single program play, handy for post.
- Adjustable analog input attenuation, +4/10dBu
- L/R independent record levels
- Front panel hour meter display
- 8-pin parallel remote terminal
- 250x normal speed search

### AKAI DR16 16-Track HD Recorder

The Akai DR16 is a digital hard disk recorder with sophisticated non-destructive editing functions for near instant data access. Recording & playback is as straight forward as tape. The DR16HD ships with an internal 2GB drive for 24 minutes per track of record time.

**TURN YOUR DR16 INTO A PRODUCTION WORKHORSE WITH THESE POWERFUL EXPANSION OPTIONS!**

- **MT8 Mixer controller** • **DL16 Remote control unit** • **IB801S SCSI Interface board**
- **IB802T SMPTE interface board** • **IB803M MIDI interface board** • **IB804A ADAT interface board**
- **IB805R RS422 Interface board** • **IB806B Bi-phase interface board**
- **IB807V VGS monitor interface board** • **EQ16 16-channel digital EQ board** • **ALX50 Remote Cable**



## DIGITAL MULTI-TRACK RECORDERS

### TASCAM DA-98 Digital Audio Recorder

The DA-98 takes all the advantages offered by the DTRS format and significantly ups the ante for the professional and post-production professional alike. With enhanced A/D and D/A converters, a comprehensive LCD display and full compatibility with the DA-88 and DA-38, the DA-98 delivers the absolute best in digital multitrack functionality.

#### FEATURES-

- Confidence monitoring for playback and metering
- Individual input monitor select switch facilitates easier checking of Source/Tape levels
- Switchable reference levels for integration into a variety of recording environments with internal tone generator
- Digital track copy/electronic patch bay functionality
- Comprehensive LCD display for easy system navigation
- Dedicated function/numeric keys make operation easier
- Built-in sync with support for MMC and Sony P2
- D-sub connector (37-pin) for parallel interface with external controller
- Optional RM-98 rack-mount ear for use with Accuride 200 system



**DA-88** A standard digital multitrack for post-production and winner of the Emmy award for technical excellence, the DA-88 delivers the best of Tascam's Hi-8 digital format. Its Shuttle/Jog wheel and track delay function allow for precise cueing and synchronization and the modular design allows for easy servicing and performance enhancements with third-party options.

**DA-38** The DA-38 was designed for musicians. Using the same Hi-8 format as the highly acclaimed DA-88, the DA-38 is an 8 track modular design that sounds great. It features an extremely fast transport, compatibility with Hi-8 tapes recorded on other machines, rugged construction, ergonomic design and sync compatibility with DA-88s.

### TASCAM DA-30MKII

A great sounding DAT, the DA-30MKII is a standard mastering deck used in post-production houses around the world. Among many other pro features, its DATA/SHUTTLE wheel allows for high-speed cueing, quick program entry and fast locating.



#### FEATURES-

- Multiple sampling rates (48, 44.1, and 32kHz).
- Extended (4-hour) play at 32kHz.
- Digital I/O featuring both AES/EBU and S/PDIF.
- XLR balanced and RCA unbalanced connections.
- Full function wireless remote.
- Variable speed shuttle wheel.
- SCMS-free recording with selectable ID.
- Parallel port for control I/O from external equipment.

### Fostex D-15

The new Fostex D-15 features built in 8Mbit of RAM for instant start and scrubbing as well as a host of new features aimed at audio post production and recording studio environments. Optional expansion boards can be added to include SMPTE and RS-422 compatibility, allowing the D-15 to grow as you do.



#### FEATURES-

- Hold the peak reading on the digital bargraphs with a choice of 5 different settings
- Set cue levels and cue times
- Supports all frame rates including 30df
- Newly designed, 4-motor transport is faster and more efficient (120 minute tape shuttles in about 60 sec.)
- Parallel interface • Front panel trim pots in addition to the level inputs

### D-15TC & D-15TCR

The D-15TC comes with the addition of optional chase and sync capability installed. It also includes timecode reading and output. The D-15TCR comes with the further addition of an optional RS-422 port installed, adding timecode and serial control (Sony protocol except vari-speed)

### ALESIS ADAT XT20 Digital Audio Recorder



The New ADAT-XT20 provides a new standard in audio quality for affordable professional recorders while remaining completely compatible with over 100,000 ADATs in use worldwide. The XT20 uses the latest ultra-high fidelity 20-bit oversampling digital converters for sonic excellence, it could change the world.

#### FEATURES-

- 10-point autolocate system
- Dynamic Braking software lets the transport quickly wind to locate points while gently treating the tape.
- Remote control
- Servo-balanced 56-pin ELCO connector
- Built-in electronic patchbay
- Copy/paste digital edits between machines or even within a single unit. Track Copy feature makes a digital clone of any track (or group of tracks) and copies it to any other track (or group) on the same recorder.



### SONY PCM-R500

Incorporating Sony's legendary high-reliability 4D.D. Mechanism, the PCM-R500 sets a new standard for professional DAT recorders. The Jog/Shuttle wheel offers outstanding operational ease while extensive interface options and multiple menu modes meet a wide range of application needs.

#### FEATURES-

- Set-up menu for preference selection. Use this menu for setting ID6, level sync threshold, date & more. Also selects error indicator.
- Includes 8-pin parallel & wireless remote controls
- SBM recording for improved S/N (Sounds like 20bit)
- Independent L/R recording levels
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## MIDI HARDWARE



### Mark of the Unicorn **MIDI Time Piece™ AV** 8x8 Mac/PC MIDI Interface



The MTP AV takes the world renowned MTP II and adds synchronization that you really need like video genlock, ADAT sync, word clock sync, and even Digidesign superclock!

- FEATURES-**
- Same unit works on both Mac & PC platforms.
  - 8x8 MIDI merge matrix, 128 MIDI channels.
  - Fully programmable from the front panel.
  - 12H scene, battery-backed memory.
  - Fast 1x mode for high-speed MIDI data transfer.

### Digital Time Piece™ Digital Interface



Think of it as the digital synchronization hub for your recording studio. The Digital Timepiece provides stable, centralized sync for most analog, digital audio, and video equipment. Look together ADATs, DA-88's, ProTools, word clock, S/PDIF, video, SMPTE, and MMC computers and devices flawlessly. It ships with "Clockworks" software which gives you access to its many advanced features and remote control of some equipment settings such as record arm.



### Studio 64XTC Mac/PC MIDI Interface



The Studio 64XTC takes the assorted, individual pieces of your studio-your computer, MIDI devices, digital and analog multitracks and even pro video decks, and puts them all in sync.

- FEATURES-**
- 4 In / 4 Out, 64 channel MIDI/SMPTE interface/patchbay with powerful multitrack & video sync features
  - ADAT sync with MIDI machine control
  - Simultaneous wordclock and Superclock output, 44.1kHz or 48kHz for perfect sync with ADAT, DA-88 and ProTools
  - Video and Blackburst in NTSC and PAL
  - Cross-platform Mac and Windows compatibility

## SAMPLING

### E-MU e-6400 Sampling and more!



The e-6400 from EMU features an easy interface that makes sampling easy. Automated features like looping, normalizing and more allow you to flexibly create your own sound palettes or access any of the 400 sounds provided on 2 CDs for unlimited sound creation. It is upgradeable to 128MB of RAM (4MB standard) and features 64 voice polyphony, 8 balanced analog outputs, SCSI, stereo phase-locked time compression, digital re-sampling and more. A dream machine.

## KEYBOARDS & SOUND MODULES



### XP60 & XP80 Music Workstations

The XP-80 delivers everything you've ever wanted in a music workstation. An unprecedented collection of carefully integrated features provide instant response, maximum realtime control and incredible user expandability. The XP-80 features a pro-quality 76-note weighted action keyboard while the NEW XP-60 features the same sound engine in a 61-note keyboard.



**XP80 FEATURES-**

- 64-voice polyphony and 16-part multibrain capability
- 16 Mbytes of internal waveform memory; 80Mbytes when fully expanded (16-bit linear format)
- 16-track MRC-pro sequencer with direct from disk playback. Sequencer holds approx. 60,000 notes
- New sequencer functions like "non-stop" loop recording and refined Groove Quantize template
- Enhanced realtime performance capability with advanced Arpeggiator including MIDI sync and guitar strum mode and Realtime Phrase Sequence (RPS) for on-the-fly triggering of patterns
- 40 insert effects in addition to reverb and chorus
- 2 pairs of independent stereo outputs; click output jack with volume knob
- Large backlit LCD display

### SR-JV80 Series Expansion Boards

Roland's SR-JV80-Series wave expansion boards provide LV and XP instrument owners a great-sounding, cost-effective way to customize their instruments. Each board holds approx. 8Mb of entirely new waveforms, ready to be played or programmed as you desire.

**Boards Include-**

- Pop, *Orchestral, Piano, Vintage Synths, World, Super Sound Set, Keys of the 60's & 70's, Session, Bass & Drums, Techno & Hip-Hop Collection.*



## KURZWEIL

### K2500 Series Music Workstations

The K2500 series from Kurzweil utilizes the acclaimed V.A.S.T. technology for top-quality professional sound. Available in Rack mount, 76-key, and 88 weighted key keyboard configurations, these keyboards combine ROM based samples, on-board effects, V.A.S.T. synthesis technology and full sampling capabilities on some units.

**FEATURES-**

- True 48-voice polyphony
- Fluorescent 64 x 240 backlit display
- Up to 128MB sample memory
- Full MIDI controller capabilities
- 32-track sequencer
- Sampling option available
- Dual SCSI ports
- DMTi Digital Multitrack interface option for data format and sample rate conversion (Interfaces with ADATs or DA-88s)



### Trinity Series Music Workstations DRS

Korg's Trinity Series represents a breakthrough in sound synthesis and an incredible user interface. It's touch-screen display is like nothing else in the industry, allowing you to select and program patches with the touch of a finger. The 24MB of internal ROM are sampled using ACCESS which fully digitizes sound production from source to filter to effects. Korg's DSP based Multi Oscillator Synthesis System (MOSS) is capable of reproducing 5 different synthesis methods like Analog synthesis, Physical Modeling, and variable Phase Modulation (VPM).

**FEATURES-**

- 16 track 90,000 note MIDI sequencer
- Flexible, assignable controllers
- DRS (Digital Recording System) features a hard disk recorder and various digital interfaces for networking a digital recording system configured with ADAT, DAT recorder and hard disk.
- 256 programs, 256 combinations
- Reads KORG sample DATA library and AKAI sample library using optional 8MB Flash ROM board

*\*[Digital IF, SCSI, Hard Disk Recorder, and sample Playback/Flash ROM functions are supplied by optional upgrade boards]*

- 88 Weighted-key/Solo Synth
- 76-key/Solo Synth
- 61-key/Solo Synth
- 61-key

## MONITORS

### KRK V8

#### Powered Studio Monitors

These new powered studio monitors from KRK supply 130 watts of clean performance. Their 8" woofer & 1" silk dome tweeter ensure crystal highs as well as the bass response needed for today's studio environments.

- FEATURES-**
- 49Hz - 22kHz
  - Magnetically shielded for use near video monitors



### Hafler TRM-8

#### Powered Studio Monitors

Winner of Pro Audio Review's PAR Excellence Award in 1997, Hafler's TRM8s provide sonic clarity previously found only in much more expensive speakers. They feature built-in power, an active crossover, and Hafler's patented Transnova power amp circuitry.

- FEATURES-**
- 45Hz - 21kHz, ±2dB
  - 75W HF, 150W LF
  - Electronically & Acoustically matched



### HR824

These new close-field monitors from Mackie have made a big stir. They sound great, they're affordable, they're internally bi-amped. "What's the catch?" Let us know if you find one.

- FEATURES-**
- 150W Bass amp, 100W Treble amp
  - Full space, half space and quarter space placement compensation
  - Frequency Response 39Hz to 22kHz, ±1.5dB



### TANNOY Reveal

The latest playback monitor from Tannoy, the Reveal has an extremely detailed, dynamic sound with a wide, flat frequency response.

- FEATURES-**
- 1" soft dome high frequency unit
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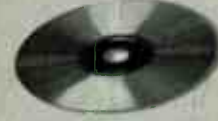
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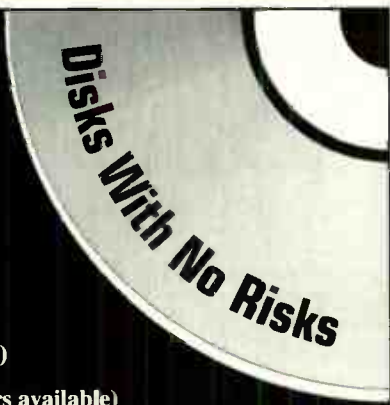
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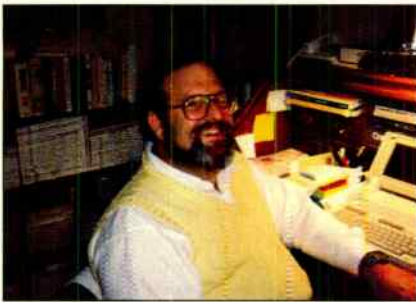
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# Liable *For What?*

Keep those lawyers at bay — protect yourself and your studio from legal action

BY MARTIN POLON



The owners of project studios, as well as those who own commercial studios, face a battle every day to keep their facilities from legal assault by those who would claim foul from any or all of the actions and activities of the studio.

In past business incarnations, the way that any venture would protect itself — by assuming an isolating corporate posture — was to some extent unavailable to the project studio operator. Incorporation under the U.S. tax code could be done as a full incorporation (expensive and complicated), requiring considerable legal help or as a less-complicated subchapter “S” incorporation, but these “S” partnerships are to a great extent limited to multi-owner businesses and to those essentially doing business in the less than \$500,000 range, with \$100,000 being nearer to optimum for such a filing.

The advantage of such maneuvers is to isolate the real estate and all other financial assets of the studio owners from any legal assault on the studio itself. The recent changes in the U.S. tax code have now made available an incorporation option for a singly owned project or other categories of small studios.

Many owners of project studios comment with skepticism about the need for li-

ability protection via tax planning. They resent the expense of lawyers needed to set up a corporation and to provide ongoing servicing of the corporation. What is important to remember is that incorporation protects ownership and their non-studio assets from the negative impact of liability action against a studio via court settlements.

There are, of course, other ways to protect the studio itself financially from liability problems — by using business insurance and not home owner’s or renter’s insurance for the studio facility. A standard business liability clause would protect a studio from liability up to \$500,000 for as little as \$100 or so and possibly up to \$300+ depending upon agent, insurance company underwriting, region, city, district, etc. External and internal circumstances also are factored into the cost of a liability clause. Obviously, a studio sharing a building with a fireworks plant will pay more for its insurance than a studio located by itself in the middle of the Kansas prairie.

The question of how liable a studio might be is a much more difficult one to assess. The problem faced by most, if not all, businesses in America today is that there are more lawyers in practice today than there is appropriate legal business waiting to be done. That means the legal profession is, to say the least, somewhat predatory. People who work at your studio, as well as your clients and their friends, all can hire a lawyer to contest some incident or injury, real or imagined, in your facility.

Above and beyond the protections offered by separating the finances of studio ownership from the studio through incorporation and/or the use of liability insurance clauses to provide financial coverage of the studio itself, the

concept of making the studio and its environment bulletproof to most common liabilities is equally attractive.

One source for evaluation is the insurance safety experts that your insurance agent can make available to you. These insurance safety engineers work for the various insurance companies underwriting policies and inspecting premises for potential safety problems. The insurance companies view this kind of diligence as quite proactive, since it can prevent claims against their policy holders.

There is another category of liability claim against studios that cannot be limited, controlled, or contained. That is the intangible category of the quality of the service provided in your studio. There will be that odd occasion when someone feels the need to take their dissatisfaction (real or imagined) with your studio’s services to court. Fortunately, this happens infrequently and should have little impact on you and your studio, for the following reasons!


A. That is what good business insurance is for.

B. The court system tends to throw away frivolous law suits.

C. Usually, those who lose a civil law suit have to pay all costs for both sides in a litigation.

D. If you fastidiously keep all records of your operations, use surveillance cameras with taped records of your parking

lot, etc., you can usually triumph in court.

Needless to say, this column, unlike most others in this space every month, is not liberally sprinkled with its usual how-to hints to solving particular problems. These would, unfortunately, in the wrong hands, serve as a do-it-yourself guide to creating unwarranted law suits for studios. 

*People who work at your studio, as well as your clients and their friends, all can hire a lawyer to contest some incident or injury, real or imagined, in your facility.*

## ACROSS THE BOARD

continued from page 146

21,231 edits and 19,127 crossfades. All of this for drums, bass, three keyboards, four guitars, two vocals, and six background vocal tracks. The reason that I was able to get the song finished just under the physical limit was because there was a physical limit.

When there were only four tracks on a professional tape machine, the records got done using those four tracks. The strings on track 1, the whole rhythm section on track 2, the vocals and backgrounds on track 3, and the horns on track 4. The first time I moved up to eight tracks, I had two tracks left over with nothing on them. All of the Steely Dan records got made using one 24-track analog machine. We once tried locking up two machines, but the brain damage from the lock-up process in the '70s was an excessive price to pay for the extra tracks.

About when the 24-track analog machine was introduced in '72, the desire for even more tracks spread like a disease. One company built a 40-track machine using 2-inch analog tape. MCI

built a 36-track machine that used 3-inch wide analog tape. Both 3M and Ampex made tape for it, but the tape was so heavy that the reel motors couldn't handle it. Second engineers had to do weight training before a tracking date just to be able to change tapes.

In the "good old days," the number of tracks was limited, so multiple instruments had to share a single track. If you needed empty tracks for vocals, you would combine instruments to a single track and add the effects during the bounce. After the bounce, you were done. That instrument with that effect was locked in. No changes were possible. In 1999, there are infinite nondestructive processes that you can perform on every track you have recorded. Just to listen to all of the possibilities will take you the better part of a lifetime.

For the past few years, Walter Becker and I have started what we call The Preset Factory. When auditioning sounds on a synth, or reverbs in a multi-verb box, or compression in a DSP plug-in, we only listen to the presets. If the sound wasn't good enough for the manufacturer to include it in their list of presets, then it probably wasn't worth hearing. This cuts down the auditioning

time considerably. Now there are only a finite number of settings to listen to. It is possible to tweak settings beyond the preset, but we need a majority vote from all involved in the session. Each member of the band is also allowed one "gotta-have-it" for the entire album project. If he invokes the gotta-have-it, it overrides the vote. Sick, huh.

Here, in 1999, we are at the dawn of new technology that will give us even more choices. DVD, DSD, AC-3, DTS, DVD-RAM, DVD-DA, DVD-R, DVD-RW, and PMS (sorry, that's an old one). Mixing in surround will give you three times as many choices. Mixing audio for DVD-DA will allow you to choose among various sample rates like 44.1k, 48k, 96k, 192k, and program material that can have multiples of these sample rates happening at the same time.

The future looks bright, and I don't have to worry as much about cutting myself with a sample-rate converter as I did when there were razor blades lying around.

*Roger just crossed 30,000 edits on his Pro Tools|24 MIXplus system and wonders if he needs to drop it off at the dealer for an oil change and tube.*

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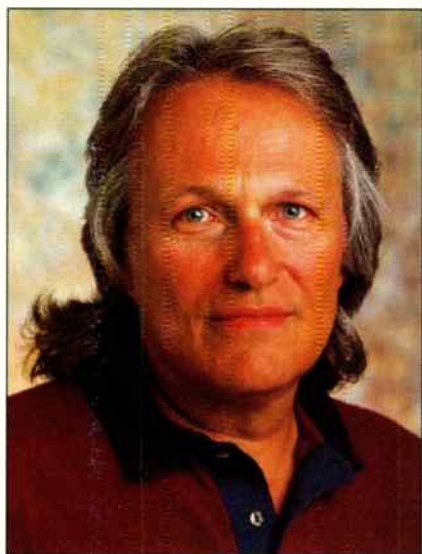
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# More Side Effects of Technology



A sequel ten years in the making

BY ROGER NICHOLS

It has been ten years since I wrote my first *EQ* column. It was titled, "The Side Effects of Technology." I think it is time to revisit our love/hate relationship with technology.

I like to think about how easy it was to work on an album (they used to call them record albums) where the musicians sat around in the same room, played together, and recorded all of the parts onto the same piece of tape. Recording, overdubbing, and mixing a pop album would usually take from three weeks to three months, depending on the artist and the budget.

Mixing before automation was easy. You usually mixed two or three tunes per day. If there was a section of the song that was particularly hard, you would mix the rest of the song and then edit the piece into the master by cutting the tape (and sometimes a finger) with a razor blade.

I have often said that automation was invented to keep you in the studio longer, not for better mixes. Console automation enabled you to spend more time fretting over minor little things that probably didn't matter anyway. The reason you spend four hours balancing the vocals in one chorus is because you can, not because you need to. After you had a great mix, automation allowed you to depart into no-mans-land and experiment with a thousand other versions of your mix. One way to know if the mix you have is good is to try every other permutation: more guitar, less bass, more bass, less vocal, more echo, less limiting, etc. After you have tried all of the other mix versions, the one you originally had turned out to be the best by process of elimination; it just took two weeks instead of four hours.

Now we have digital audio workstations. I'll bet that there are hundreds of CDs out there where not one note is actually where the musician originally played it. That guitar chink in the third verse probably came from the first verse. The keyboard pads in the first chorus were flown in from the second chorus. The sax solo came from another take of the song. That tambourine back beat in the fade was recorded on a completely different song, maybe even by a different artist!

A percussionist came into the studio the other day to play some shakers and stuff on one song. At the end of the first shaker pass, the musician said that he thought he could do a better pass.

The artist pressed the talkback and said, "That take was fine — we only need one good bar."

How about sampling? Almost every Rap record uses a sample from someone

else's record. Don't get me wrong, I like most of them. I like listening to them to try to figure out where the loop came from. Piano licks from Lee Michaels and Bruce Hornsby, guitar licks from Steely Dan, keyboards from Isaac Hayes.... There were two different artists who used the same guitar lick from Steely Dan's "Black Cow," and one of them accused the other one of stealing the lick off of his Rap record!

There are Sample Guys who have gone through all of the old records and taken everything that could possibly be used as a loop and cataloged them by tempo and instrument content. Artists hire them for a session to play loops until the artist picks one that he likes. The artist uses the loops to construct a song and sometimes does not even know where the loop came from originally. All of the major record labels have Sample Police that listen to every new CD before it is released to see if there are loops that need royalty clearance. At one of the record companies the girl is actually named Lupe.

I have some Pro Tools sessions on my computer that have reached the limit of the current v4.3 software release. They contain 120 tracks with 82 of them sharing the 64 available voices. The session document is over 2 MB and contains

*continued on page 144*

*One way to know if the mix you have is good is to try every other permutation. After you have tried all of the other mix versions, the one you originally had turned out to be the best by process of elimination.*



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- Sample-accurate editing — view and edit audio at the sample level in Digital Performer's multitrack audio editor.
- MasterWorks mastering plug-ins — 64-bit multiband compressor and limiter.
- Digidesign Direct I/O support — run Digital Performer's native real-time effects on any current Digidesign system including Project II and ProTools | 24 MIXplus.
- Plug-in enhancements — Apply any real-time MAS plug-in as a region operation.
- Support for popular audio I/O cards such as the Sonorus STUDI/O, Yamaha DSP Factory and Event Gina, Daria & Layla.
- Graphic parametric EQ — tweak up to 8 bands visually with floating numerals. Simultaneously drag multiple filters.
- Insert Measures — add time to the beginning of a project while preserving all subsequent material, including tempos and hit points.
- Navigation Enhancements — get around more efficiently than ever.
- Project copying and backup enhancements — easily "collect" all related audio, fade/analysis files when copying and archiving projects.



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