

# BEST RECORDINGS of All Time

# EQ

1989-1999  
TEN YEARS OF  
PROJECT  
RECORDING

DECEMBER • 1999

*Producer  
Jon Brion  
talks about  
recording...*

# Fiona Apple

## In Review

SeaSound Solo

Gadget Labs  
Wave 8/24

Electrix Filter  
Factory

Hafler Surround  
System

TC Electronic  
Gold Channel

Platinum Audio  
6386 Tube Limiter

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# EQ

PROJECT RECORDING  
& SOUND TECHNIQUES  
VOLUME 10, ISSUE 12  
DECEMBER 1999



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### ON THE COVER:

*Fiona Apple and Jon Brion. Photo by Mr. Bonzai.*

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**M-00** The comparison would have been flattering, however, the M-00 is worthy of high praise on its own merit. Not only is the M-00 extremely versatile, articulate and accurate, it delivers tremendous output, along with surprising bass and clarity for a monitor of any size. And while the M-00 is built to the construction standards of a polar ice breaker, its compact nature makes simple duty out of schlepping it from one session to the next. And because the M-00 is magnetically shielded, it is ideal for use with PC based workstations. Further, it is sold separately so you can easily gang together 5.1 systems or daisy chain up to 10 M-00's per channel for fixed installations. As for the toothpick, all considered, we simply figured it was something you could learn to live without. [www.nhtpro.com](http://www.nhtpro.com)

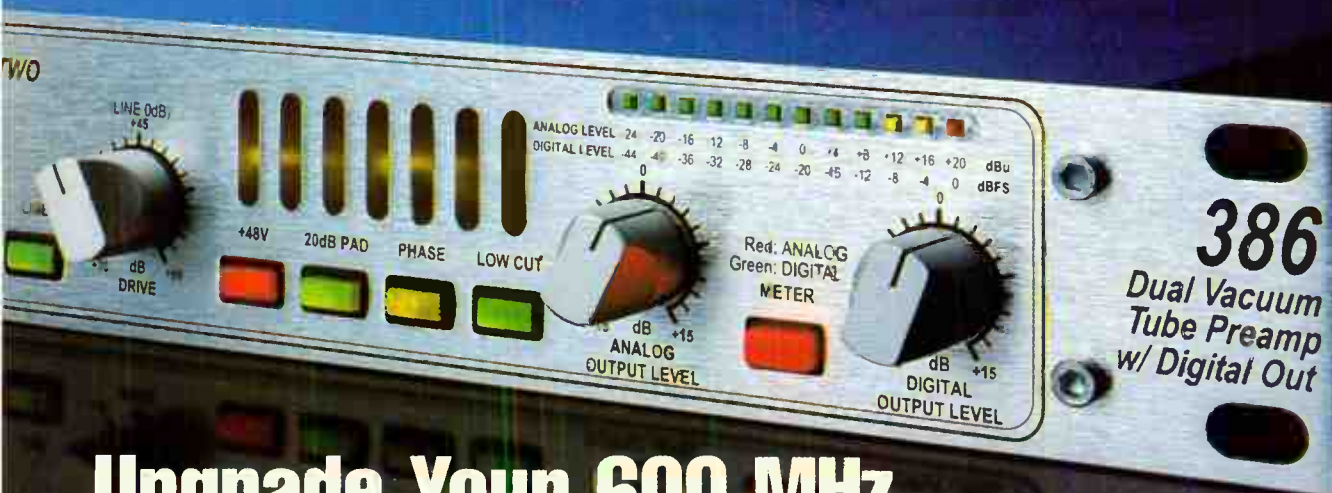


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# Tube Pre 386

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# Audio Mile Markers

## Should old technologies be forgot...

The year 2000 is not the beginning of the New Millennium, but rather the end of the current one. Nevertheless, when life's odometer registers more zeroes than other digits, it's hard not to reflect...

I did not attend the '99 AES convention (in order to assist in the process of human replication), but in September I asked readers to be my eyes and ears. Through that virtual grapevine, I found that most people were not impressed [by the new products], as if the achievement of more bits and samples — 24 and 96,000, respectively — was no big deal. We must be jaded folk not to fully appreciate the ability to apply EQ and dynamics, etc. — in real time — to each sample with no glitches, all within 1/96,000th of a second!

Because the digital revolution has made major advances about every 18 months or so, we've come to expect the next big thing around every corner. For the purpose of making a point, however, let's equate one digital year with one human year and say that "acceptable" digital recording has existed for approximately 20 to 25 years. (I'm including some of the R&D prior to the availability of commercial products.)

At age five, one year was 1/5th of your life, a time when nothing happened fast enough. At 25, that same year is 1/25th of your life. Once leaving college and becoming more absorbed by the routine of day-to-day adult life, each year seems to march (or groove) to a slightly faster beat as you are less aware of time. Ever notice how your parents always complain about how fast time flies? (And some of them are retired.)

In the 16 years since I first heard a mass-produced compact disc, we've gone from straight 44.1 kHz sampling to oversampling, never mind the price drop that makes recording to CD not only affordable but remarkably reliable. (No recording medium is perfect, so never put all your digital eggs in one basket.) Few newcomers to our industry will recall the Sony 1630 editing system — which included two, 3/4-inch, U-MATIC VCRs. Now, for the price of creating a "glass master," which is used to mass-produce CDs, you can buy a stand-alone CD recorder.

Modern mass production techniques have reduced the body count in manufacturing facilities, which, now more than ever, are separate from the corporate offices where marketing and product support are based. (When I worked at MCI in the '70s, all of the work was done in-house, from metal work to board stuffing, design to product support. The only thing that hasn't changed is that most vacuum tube products are still, predominantly, handmade.)

Affordable high technology comes at a price. At that critical moment of need, we reach for the phone expecting a human being with an instant answer, but that is rarely possible. In exchange for letting the genie out of the lamp, we've had to learn patience. Rather than wasting time in a telephone queue, however, I highly suggest the more practical e-mail approach to hunting and gathering information (when attempting direct contact with a manufacturer).

Each day, the common thread of my e-mail is clear. "Eddie, thanks for your articles in EQ and on the Web. Why don't manufacturers' Web sites contain as much useful information?"

For the past two decades, we've all been on a major learning curve — users and manufacturers alike. Manufacturers have been quick to learn production efficiency but slow to take advantage of the Web as an efficient way to disseminate information. We simply can't expect one customer service person for every product sold, but if the technological straightaway is coming, we can expect products that are more self-explanatory and more consistent out of the box. That would be an acceptable explanation of a slightly less-than-spectacular AES show.

What would you realistically like to see in the next 18 months? I am looking for a little sonic maturity — all around — in terms of user-friendliness (the physical interface), manufacturer responsibility (the spiritual interface), and consumer awareness (the human interface, a.k.a., feedback, to complete the circle of knowledge).

—Eddie Ciletti



# Why sound flat...



PHOTOS OF JEFF BY SEAN DUNGAN

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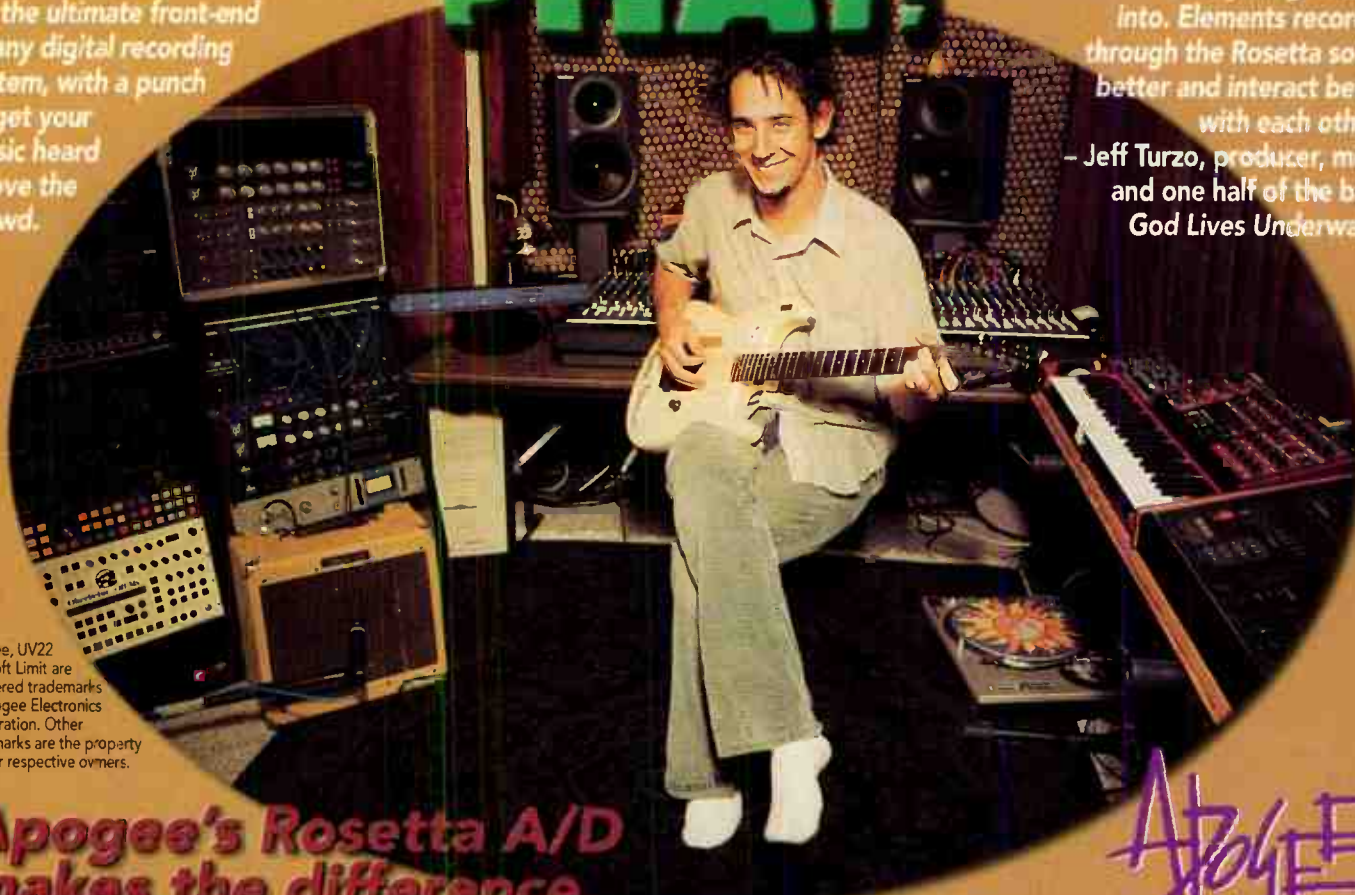
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everything I record  
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- Jeff Turzo, producer, mixer  
and one half of the band  
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CIRCLE 59 ON FREE INFO CARD

## DO WE OFFEND?

I receive your magazine monthly. My office is in my home where magazines are available for reading. I find the word "slut" extremely offensive and certainly inappropriate for the cover of a trade magazine. I assure you that I am no "goody two-shoes," as I have been in the music business all of my life and have a less than stellar vocabulary. It is completely inappropriate, unnecessary, and cheapens the quality of your magazine to use words with such an offensive connotation.

It is my opinion that your magazine would be better served by keeping locker room language off the front cover. Our language is so rich with words, why go down in the gutter describing someone's addiction to equipment.

Steven Durr  
President  
Steven Durr & Associates, Inc.  
Nashville, TN

## MENTOR: THE FRESHMAKER

I am sitting here on a retreat after the New York AES in the beautiful hills of Tuscany, Italy. I just read the October '99 editorial and had to let you know how much I agree with Hector La Torre and Eddie Ciletti about the value of mentoring. Eddie is a really great guy who has, in the past, come to my rescue via mentoring.

I feel it is my duty to add that there is a formal/informal forum where mentoring happens all the time — between studio owners, engineers, managers, maintenance people, and, yes, manufacturers. It's called SPARS (Society of Professional Recording Services).

SPARS is a non-elite group of proactive people who care about their work and their industry. Its members freely share all sorts of information, ideas, problems, etc. There is a wonderful camaraderie and pride among the membership. We appreciate the most valuable asset of this industry — its people.

There is also an invaluable synergy within SPARS between studios and manufacturers, where both sides listen to each other's needs.

As a studio owner/engineer, I have found solutions to problems from other guys who were there already, thereby saving myself crucial time and money.

The SPARS membership is people like you and me, with sleeves rolled up, working every day doing what they love

best — recording audio. And by sharing their love and knowledge — by mentoring — they create a stronger industry.

Fred Guarino  
President, Tiki Recording  
Director, SPARS

## EASY READING

A hearty congrats to Mike Sokol for explaining the differences between AES/EBU and S/PDIF in the October issue. This is absolutely the first time I have seen it explained so understandably!

Wally Knapp  
Custom Recordings  
Ellicott City, MD

## BEAT THE RAP

Al Kooper, you are hereby charged with the following crimes of "enhancing" a musical performance: mic selection, preamp selection, EQ, compression, gating, limiting, reverb, amp selection, speaker selection, speaker placement, acoustical design, and mixing. Don't whine about how justifiable your enhancements are — screaming singer, square brick room, etc., or how your enhancements are acceptable and others are "crimes," — you are guilty of trying to create the best possible performance. Any activity you engage in, other than selling tickets, is an attempt to improve the experience and your only hope is to throw yourself on the mercy of the court. Hope you get the cell next to mine.

Real Audio Policeman,  
Larry Fisher  
Huntington Beach, CA

[Al Kooper responds: I'm sorry you missed the point of my column, but I appreciate the spirit in which you replied. The gist of what I was saying is — let's leave the sound of the studio for recordings and let a live performance show who the men/women are and who the boys/girls are. In the old days, you'd go see a band that had a #1 record and there would always be the possibility that they would suck live. That would tell you that the producer had more to do with the success of that record than the artist. That was good information, Larry. Muddy Waters, Howling Wolf, Cream, The Cars, and even Janis Joplin didn't have an engineer intent on removing every possible flaw from a live performance. They were just

trying to take the raw performance and beam it out to the fans in a louder way. And, personally, I have never used gates or tricky reverbs live — it dilutes the live experience. If the object is to sound "just like the record," then the audience is advised to stay home and listen to the CD. The price of the concert tix, parking, refreshments, and the possibility of being the recipient of projectile vomiting make the trip to the concert hall questionable to hear it sound "just like the record." Viva la difference!]

## HOLE IN TWO

In the Aug. '99 issue of EQ, Roger Nichols mentioned that "nobody makes a one-hole-to-two-hole converter box." This is not quite true. dB Technologies makes units that will handle both I/O formats. Apogee is modifying their PSX-100 for dual-format operation as well. And, while not a stand-alone converter box, Sonic Solutions's SonicStudio HD production system is equipped with both double wide and double fast AES interfaces. That product began shipping in 1997!

Oliver Masciarotte  
DVD-A Services  
<http://serieschal.net>

## CORRECTION

In the November issue of EQ, the sidebar on the D8B console V.3 operating system said that the cost of the system is \$99, when, in actuality, it is free. Also, in the Product Views section of the same issue, the Akai AMX10 photo was run with the Digitech Vocalist VR copy. Both products are run with their correct images in this issue. We apologize for any confusion we may have caused.

## WRITE TO US

EQ magazine likes to get your thoughts, opinions, and gifts.

Send them all to:

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# MASSIVE PASSIVE STEREO TUBE EQ



A PICTURE IS WORTH A THOUSAND WORDS...

Perhaps, but would photographs of our Variable Mu or VOXBOX have created their successes alone?

You have to hear this gear. You have to use this gear. Put your hands on the knobs and crank 'em.

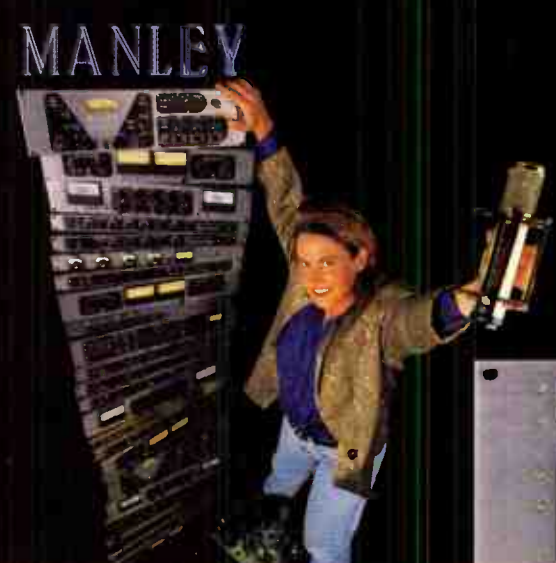
Engineers who have already gotten hold of the MASSIVE PASSIVE have told us: "Why does it make everything sound so much better?", "It's organic and orgasmic.", "It's a f%#king powerhouse.", "It's unlike any other EQ.", "This is IT. The sound I've always dreamt of but couldn't ever get until now."

**GOT THE PICTURE?**

Craig 'HUTCH' Hutchison designed these monsters...

The MASSIVE PASSIVE is a two channel, four band equalizer, with additional high pass and low pass filters. "Passive" refers to the tone shaping part of this clever new EQ design not using any active circuitry. Only metal film resistors, film capacitors and hand-wound inductors sculpt the sound, kinda like a Pultec EQ on hyper-steroids. Super-beefy, hugely-high-headroom Manley all-tube make-up gain amplifiers deliver your tunes into the next realm. You'll need to experience this.

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CIRCLE 21 ON FREE INFO CARD



[Eddie Ciletti has been busy fielding readers' questions through his Web site ([www.tangible-technology.com](http://www.tangible-technology.com)). Many of them have broad applications, so from one reader's e-mail to all our readers, here's Eddie's advice...]

## DIY DUO

**Q** My studio partner and I built the Altec mic preamp you detailed on Eddie Ciletti's Web site. We used Bauer transformers, making a few modifications to the gain control circuitry. It is now one of our favorite input devices.

Since you seem so well informed about a variety of vintage pieces, do you have a copy of a Pultec or Lang EQ schematic? I've searched the Web and found only one place that has it: Pat's Tube Schematics. However, there is a cost involved there. How much I don't know, but it seems to indicate a substantial one. I don't know if that means \$5, \$50, or \$500.

Scott  
via Internet

**A** My site is free, but I do not have a complete schematic. Only the amplifier circuit was ever published as part of the owner's manual. Creating a complete document would require a considerable amount of reverse engineering — not the least of which includes melting wax from "cans" to access components. I have done this to service the "problem children," rather than see a Pultec with a missing frequency.

Congrats on building the Altec preamp. As an alternative to the Pultec, I suggest you try the EQ circuit in the RCA tube manual. It is only a shelving circuit, but, by adding a selector switch, you could add versatility by dialing in the desired frequency range. Who knows, I might even feature the project in 2000....

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

## KEEP IT CLEAN

**Q** I'm having a problem with my TASCAM DA-88 (version 4.01). I just finished cleaning the machine by hand after following Eddie Ciletti's

instructions. Then, the first tape I inserted stopped and the display now reads "S-Err 02"; in addition, the Warning LED is flashing.

Pressing Eject does nothing. I've also powered off, then on, with no luck. Maybe I screwed something up? I was using S-711 Intraclean from American Recorder Technologies. I did use a dry cloth after each wet one, but may not have allowed enough time for the cleaning solution to evaporate. I opened the unit and found the tape wound around the head drum.

Can you help me retrieve the tape and/or reset the machine?

Martin B.  
via Internet

**A** I use denatured or 99-percent isopropyl alcohol — both of which take a while to evaporate. The cleaning cloth should be damp, not soaked, because you do not want solvent getting into the rotary transformer, where clearance between the stationary and rotary core is less than .0005 inches! It's good you remained so calm, because the solution is relatively easy. I've made the same mistake in the past. So, first the procedure (for all helical machines), and then the fix.

1. Place a lint-free cloth against the rotary head drum and turn the drum counterclockwise. Inspect the cloth, and "rotate," or use a new piece as necessary, until no more dirt is removed.

2. Same as above, but with a dry cloth. Then wait at least five minutes (with the machine on to circulate warm air). (You could also create a dummy cassette by cutting the tape so that the heads will "spin dry.")

3. If the tape wraps around the head drum, turn the machine off, and rotate the drum so that the tape unwinds. Power up the machine in Test mode. (Press FF, Stop, and Play on power up, then Stop-again-until "Test" appears in the display.) The machine will now wait before attempting to thread tape.

Pressing Eject should allow the reel motors to wind up the slack. It may take more than one attempt.

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## RADIO DAZE

**Q** I am the CE (Chief Engineer) for the local Public Radio NPR FM stations in the Phoenix market. We have a 10-source, stereo satellite downlink system, consisting of Comstream ABR700 units. They have menu-driven output level controls, accessible only by the uplink user. Needless to say, the users all use a different standard for "zero," and this sometimes goes outside the input window for our digital audio storage system (BE Audiovault). Trying to coordinate the various parties involved — NPR, PRI, and BBC — is an exercise in futility. Obviously, some type of interface device is necessary here.

What I need would have the following attributes: ten separate stereo channels; balanced 600-ohm input; sonic circuitry designed to highest audio standards; automatic soft programmable AGC (automatic gain control) with minimal artifacts (no limiting) and able to accept wide variances; AES digital output; indicators for I/O levels and gain reduction; 19-inch rack mount, preferably in module & cage topology; cost-effective (i.e., less than \$800 per module).

Any recommendations?

Dennis Gilliam  
Chief Engineer  
KJZZ-KBAQ

**A** A combination of off-the-shelf products in dedicated hardware form would be your most efficient problem solver. Since this will be the more expensive route, I will also suggest an affordable "virtual" solution, after breaking the solution into its component parts.

First, I am assuming your satellite downlink outputs are analog. You won't ever get each network to agree on a standard, and their reference tone probably doesn't even relate to the actual level of complex audio program.

Voice, classical, and pop typically have a "sound" that is loosely based on the amount of dynamics processing used. Granted, you are talking about three conservative networks, rather than the more commercial variety, so the following is for example only.

Classical program uses less obvious dynamics processing, and therefore requires a lower reference level, e.g.,

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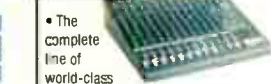
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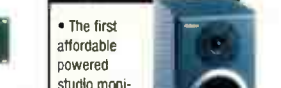
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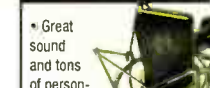
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-20 dBfs to -16 dBfs. Pop music, however, is aggressively compressed, raising the nominal level from a low of -16 dBfs to the higher -12 dBfs. (Heavy compression of a typical FM pop station is frightening. I hazard to guess that the nominal is never below -6 dBfs.) I am talking in absolute digital terms — "fs" means "Full Scale" — since the purpose of lower nominal levels is to increase headroom, which, it seems, is what you want to do.

Assuming the following: Since each downlink has an inaccessible output level control, use a separate line amp/distribution amplifier such as those manufactured by Grass Valley Group (GVG). Each downlink line amp feeds an audio switcher, the output of which is connected to a metering system capable of both RMS display (the typical VU meter) and Peak display (digital style with "0 dB" as max) to monitor the raw signals. GVG also makes switchers; Dorrough Electronics (818-998-2824; [www.dorrough.com](http://www.dorrough.com)) is a metering manufacturer.

Tweak the output of each link/line amp-using program to yield a similar "nominal" level hovering about "0 VU." Then, observe and note the peak information, which may be considerably higher.

Your next request is more difficult — AGC with minimal artifacts for under \$800 per stereo pair. You didn't say whether the level from each network fluctuated, so I will assume the problem occurs when switching from network to network. You also didn't state whether you wanted a single AGC (Automatic Gain Control) or separate stereo units. The latter will substantially increase the price.

Crane Song Ltd. (715-398-3627; [www.cranesong.com](http://www.cranesong.com)), for example, makes extremely neutral dynamics processors. Their STC-8 is a stereo unit with a peak limiter that tells the compressor to do more of the work. This interaction, combined with bipolar Class A operation, yields a sonically transparent gain control. It is not, however, \$800 per stereo channel, listing for \$3400.

In order to convert the analog signal to digital, without fear of overload, you will need to set the unprocessed peak level with enough headroom to accommodate the network-to-network variations, as well as the program-to-program variations. This is the best application of 24-bit converter technology, whatever product you choose.

Then, dial in the amount of compression-for AGC to raise the nominal level, if necessary. When satisfied with the consistency, apply the peak limiter to provide a margin of safety.

You could do much of this on a personal computer using a sound card. A single Soundscape MIXTREME card can handle eight stereo pairs with enough on-board DSP to do level trim, dynamics, and EQ on each channel. Two cards would cover your current needs, leaving room for expansion. I/O is handled by TDIF (8-channel TASCAM digital interface), so you can choose your front-end from Soundscape's own SS8-I/O (8-channel AD-DA converters). Apogee also makes an 8-channel package. TASCAM provides a TDIF-to-AES interface. Via computer monitor, MIXTREME can give you metering on all channels before and after dynamics manipulation.

While I do not know the dedicated hardware prices, I can speculate enough to say that it would probably exceed your \$800 per (stereo?) module target.

However, the "virtual" solution would probably weigh in at \$4000 to \$5000 (sans PC) using Soundscape and TASCAM components, and closer to target when using Apogee converters.

Eddie Ciletti

Manhattan Sound Technicians  
West St. Paul, MN

### FINDER OF LOST COMPANIES

**Q** *I'm trying to find any further info about the Walker Audio Visual Engineering Company. I know they produced mixing consoles from 1980 until about 1992. I have lots of questions.*

Doug Jackson  
via Internet

**A** Doug, you have stumped the band. Although one of our brilliant contributing editors, Bobby Owsinski, was able to come up with an old address and phone number in San Bernardino, CA, we checked and that contact information is no longer accurate.

If anybody out there knows what happened to Walker Audio Visual Engineering, or if any other company is now servicing that line, send us an e-mail or drop us a line.

Hector La Torre  
Executive Director  
EQ magazine

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World Radio History

# EQ NEWS

DECEMBER • 1999

## Surround Issues Raised at Scheiner/Sting Listening Gig

A 5.1 surround listening session that was held during AES and was sponsored by KRK Systems, Inc. raised some important issues concerning surround sound for music. Held in Studio A at Clinton Recording Studios in Manhattan, attendees were treated to a sneak preview of the upcoming 5.1 release of Sting's latest release *Brand New Day*. Among those in attendance were Grammy Award-winning engineer Elliot Scheiner (who recently engineered the 5.1 remixes for *Brand New Day*), engineers Bernie Grundman and Chuck Ainlay, and guitarist Vernon Reid. KRK was represented by Keith Klawitter, Karen Brinton, Greg Brinton, Larry Altman, and Jim Arvanitis. Clinton personnel present at the session included studio owner/chief engineer Ed Rak, Lynn Berry (studio manager), Bill Foley (booking manager), and Roger Deller (chief tech). The evening's proceedings were moderated by *EQ* magazine's Hector La Torre and Steve La Cerra.

Clinton's Studio A control room was setup entirely with KRK loudspeakers for the session; the 5.1 monitoring system included five Exposé E-8 powered monitors and a RoK Bottom powered subwoofer. Mixes were routed

through Control Room A's beautiful Neve 8078 console for playback.

The open discussion with Elliot Scheiner following the preview of *Brand New Day* was very informative. Led by Steve La Cerra, guests were invited to address questions to Scheiner as well as each other. Elliot explained the importance of creating a "phantom center" channel from the front left and front right speakers in addition to using the discrete center channel, and described his philosophy of instrument placement in the 5.1 field — including what should and shouldn't be routed to the sub.

On the artistic side, Vernon Reid brought up some of the contractual concerns for artists who may be affected by the 5.1 surround format. As an example, let's suppose a record was released only in stereo, and now the record label decides to issue a 5.1 version. Who will pay for the new production costs such as studio time, engineering fees, mastering costs, etc.? Is it reasonable for these costs to be advanced against royalties from the artists' sales? Does the artist get the same royalty rate as for the stereo release? Is the artist involved in the 5.1 sessions and if so, do they receive additional compensation for producing such a variation of their work?

### EQ Asks: Who Are You?

Our *EQ* sleuths have been hard at work. They've lifted some preliminary factoids from a forthcoming exclusive report on the state of the project studio marketplace and are releasing it here — for our readers — first. Who are you? What's hot and what's not? Here's some data to chew on, based on our recent mailing of 1000 reader surveys:

- Audio for the Internet will be the biggest growth area for project studios in the next 12 months according to 31.7 percent of our readers.

- Your biggest planned purchase next year will be some form of microphone, followed by signal processing equipment and CD-R recorders/writers.

- The Mac is back! Over 23.1 percent of you are planning to buy an Apple computer next year, as opposed to the 11.5 percent who are planning to buy a Windows PC of some form.

- Digidesign has the #1 manufacturer Web site.

- Almost half of the readers say that music recording has been the fastest growing part of their business over the past 12 months, followed by video post (14.1 percent).

- Even commercial studio employees are deep into the project studio scene, with 62 percent saying they own their own project studio and 36 percent saying they own a home studio.

- Most important magazine? *EQ*. (Who loves ya, baby!)

### Surround 2000 Record Maker

Music and tradeshow history were made at last month's Surround 2000 Conference & Technology Showcase in Beverly Hills, where producers Bob Margouleff and Brant Biles produced a 5.1 channel remix of a recording right on the conference floor, and then transferred it onto a DTS-encoded multichannel CD at the show the very next day. The single was mixed during a marathon six-hour session on the Studer D950 and then was mastered in the next-door DTS exhibit and demonstrated for show attendees. The so-called "White Knuckles Session" will be released on the DTS surround label later this year (yes, they also signed a record deal at the show).



PARTY PACK: (l-r) Jim Arvanitis, Keith Klawitter, Karen Brinton, Chuck Ainlay, Larry Altman, Ryan Hewitt, Greg Brinton, Elliot Scheiner, and Vernon Reid.



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## ConnectSound Launches Pro-Audio Retailing Site

ConnectSound, Inc., a division of mVest Technology Solutions, Inc., is a new business providing e-commerce solutions for the sound products industry with an initial focus on an Internet retail Web site ([www.connectsound.com](http://www.connectsound.com)).

The Web site offers the first of its kind online shopping experience for pro audio and A/V products for people and groups such as churches, DJs, and musicians. People can simply type [www.connectsound.com](http://www.connectsound.com) into their Web browser and instantly search for various products and easily purchase them directly from the site.

Visitors can also use a state-of-the-art Configurator that utilizes expert system software and automatically assembles and configures sound reinforcement systems over the Internet. The customer simply has to

answer a short series of questions and the Configurator rapidly formulates a system with the exact equipment and connectors that will provide a complete sound system solution. The Configurator takes the mystery and guesswork out of the buying experience.

Also, the Web site contains an extensive technical data warehouse that viewers can use to find information on various sound issues. The objective is to become the leading and most comprehensive information bank for the sound products industry.

Mark Loschivo, co-founder, president, and COO of ConnectSound, comments, "Music has always been a passion of mine and it is outstanding to harness the power of the Internet in order to benefit the sound products industry. I strongly believe our tagline says it all; [www.connectsound.com](http://www.connectsound.com) is the place 'Where Technology and Sound Connect.'"

For more information on ConnectSound, call 610-359-9488 [Ext. 303] or visit [www.connectsound.com](http://www.connectsound.com).



## Musician's Friend's Member Card

Musician's Friend, the world's largest direct mail and e-commerce music gear company, has introduced a new Platinum Member Card to extend the buying power of musicians and offer exclusive member privileges.

The new Platinum Member Card requires no annual fee and offers musicians credit limits up to \$10,000 and payments as low as \$30 a month for

every \$1000 charged. In addition, exclusive member sales events offer extra savings, a frequent buyer program allows members to accumulate Platinum Points that can be used for special member discounts, and new gear bulletins notify members of upcoming product introductions.

To apply, call 800-776-5173 or visit [www.musiciansfriend.com](http://www.musiciansfriend.com).

## Alesis Announces Y2K Compliance

With the millennium quickly approaching, the much-hyped Y2K problem is on everybody's minds, but at least ADAT users can breathe a sigh of relief. Alesis Corporation has announced that products manufactured and distributed by the company in general do not use or rely on a date-based software system that references any particular day, date, or year for operation, and are therefore safe from Y2K (year 2000) concerns.

Although Alesis's digital audio products often use a highly technical software-based operating system, the

year 2000 transition is not expected to have any effect on those products or impact their performance.

The ADAT/EDIT computer interface and card and software package was designed with Y2K compliance in mind, and should not be affected by the coming of the new year unless other elements of the operating system of the end-user's computer are not compliant with Y2K regulations.

For more details, call Alesis Corporation at 310-255-3495 or visit [www.alesis.com](http://www.alesis.com).

## Drummer Mark W. Hill's N'Focus Studios Installs Hafler Monitoring Systems

Acclaimed drummer, percussionist, and producer Mark W. Hill's production company, N'Focus Entertainment, has increased its inventory of Hafler monitoring systems to meet the sonic demands of new and diverse artists. Hill installed a pair of Hafler TRM8 active monitor speakers in the studios last year, and recently installed a pair of TRM6 active monitor speakers and a TRM10s Trans\*ana powered subwoofer.

Hill's upgrade keeps his TRM8 system as his primary monitoring package and brings in the TRM6 and TRM10s for when he needs the mix to have that high-end sound with a tight, low end when the TRM10s come into play.

For more information on N'Focus Entertainment, call 714-505-0516 or visit [www.MP3-Sound.com](http://www.MP3-Sound.com). For further information on the Hafler TRM Series or any of their other monitoring or amplification products, call Hafler at 480-967-3565.

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## AES Hearing Screenings Show Hearing Loss Susceptibility

The House Ear Institute's Sound Partners Program reported, after taking hearing screening tests at September's AES, that 15 percent of those who were tested showed some degree of hearing loss. During the four-day convention, attendees were invited to stop by the mobile audiological screening unit for their free hearing screening. Especially pertinent to the convention because of the nature of the audio engineering business and other related fields exposing individuals, who rely on their acute hearing every day, to loud sound, the screenings

were conducted by a certified occupational health specialist associated with the House Ear Institute (HEI).

Of the 332 attendees who had their hearing checked, 281 were within normal range. The 1999 AES test group showed varying degrees of hearing loss in the 3K, 4K, and 6K range, and two individuals received a recommendation to see a medical specialist for further evaluation. Among the potential medical concerns are unilateral hearing loss, ear canal blockage, or low-frequency hearing loss.

The House Ear Institute has promoted the conservation message that "Hearing is Priceless" in order to educate and disseminate hearing health information to audio and entertainment industry professionals and the general public and raise the awareness of the danger of overexposure to loud sound. The Sound Partners program allows companies in the pro audio industry to promote conservation under the auspices of the House Ear Institute.

For further information on the House Ear Institute and Sound Partners, call 213-483-4431 or visit [www.hei.org](http://www.hei.org).

## Sound Dogs Becomes Digidesign Partner

Sound Dogs, Inc. recently announced that it has joined Digidesign's Development Partners program. Digidesign's list of third-party developers develop state-of-the-art solutions for the Pro Tools platform. In 1997, Sound Dogs developed [www.sounddogs.com](http://www.sounddogs.com), the world's first In-

ternet-based sound effects and production music library. Through the development partner program, Sound Dogs will work toward seamless integration of the site with the Pro Tools product line.

According to Greg King, Sound Dogs' supervising sound editor, "Pro Tools is the absolute standard in digital audio editing, and the third-party plug-ins and tools are incredible." As for Sound Dogs' contribution as a third-party developer, King says, "I hope that Pro Tools users and Avid editors will share my appreciation of the extensive online library that I use on a daily basis."

For more information on the Development Partners, visit [www.digidesign.com](http://www.digidesign.com). For further details on Sound Dogs' offerings, call 818-777-DOGS or check out [www.sounddogs.com](http://www.sounddogs.com).



## Yamaha PAC Launches Free Customer Support Program

To ensure that all purchasers of Yamaha Pro Audio & Combo (PAC) products have a positive and successful experience, Yamaha Corporation of America, PAC Division developed a new multi-faceted Customer Support Program that will provide expert assistance to customers around the clock. The program went into effect November 1, 1999. For purchasers of new PAC products, the customer support program will provide three years of free application phone support by Yamaha's Tele-Support team of product experts. Purchasers of used Yamaha products will receive 90 days of free telephone support and all purchasers will have unlimited free access to the new Yamaha Service and Support Web site, including the Yamaha Solutions Network, the online database of Yamaha product information.

The easily navigated Yamaha Service Web site ([www.yamaha.com/service.htm](http://www.yamaha.com/service.htm)) is filled with useful product information, including product features, specifications, accessories, and online Owner's Manuals, so customers will never "lose the manual." The Web site also provides links to the Yamaha Solutions Network, the online database of Yamaha product information; the first of its kind in the music and sound industries. This convenient and invaluable resource provides easy-to-find information on the broad array of Yamaha products, 24 hours a day, 7 days a week.

For more information, call Yamaha Corporation of America, Pro Audio & Combo Division, at 714-522-9011 or visit [www.yamaha.com](http://www.yamaha.com).

## IAR Student Wins AES Recording Award

Daniel Epstein, a recent graduate of the Institute of Audio Research (IAR), has been awarded 2nd place in the 107th AES Convention Student Recording Competition.

The recording was selected from among student and school submissions from around the world. The panel of judges was made up of Grammy Award-winning recording engineer/producers.

Epstein says of the experience: "Eliot Scheiner and Al Schmitt questioned me about specific aspects of recording and mixing [my project] 'Montauk,' and offered their critical evaluations of the piece. In all honesty, I never expected to be talking with engineers of their caliber

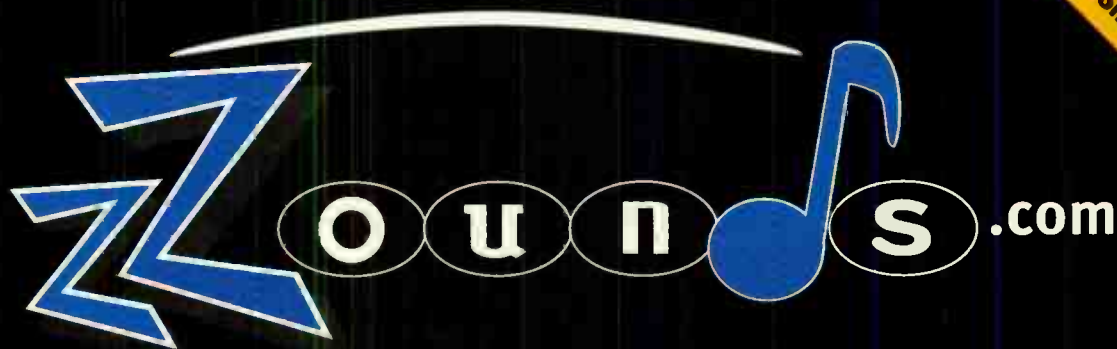
about my engineering work."

The recording and mix were done in Epstein's Recording Studio Workshop (RSW) class in IAR's digital 24-track Studio B. It was mixed to DAT and presented on CD-R. In a ceremony held in the same Studio B control room, IAR presented Epstein with an award in recognition of his 2nd place selection.

IAR instructor Rich Blakin comments: "My advice to Dan was to immerse himself in the spirit of the music and use the equipment to serve that end. We are very proud of the recognition Dan has received for his recording."

For more details, call IAR at 212-677-7580.

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# EQ PRODUCT VIEWS

## MIC-NIFICENT

**C**TI Audio introduces the first two products in its CAD end address

series of microphones, the ME F3 and ME V4. These two end address mics are designed for broadcast, live performance, and recording applications. The ME F3

features CAD's "Equitek" servoed head-amplifier and Optema Series 1.1-inch gold sputtered diaphragm capsule. The ME V4 integrates the same Optema Series diaphragm capsule and "Equitek" servo condenser technologies found in the ME F3, with the additional benefits of CAD's VX2 valve technologies. For more information, call CAD Professional Microphones, a Division of CTI Audio, Inc., at 800-762-9266. Circle EQ free lit. #114.



## SILVER MEDAL

**T**he dbx 386 Silver Series dual-channel tube mic preamp combines the warmth of vacuum tubes with dbx's proprietary Type IV conversion system. The dbx 386 boasts many of the same features as other products in the Silver Series, such as 48-volt phantom power, phase invert switches, and 75 Hz low-cut filters. But it also includes digital outputs in both AES/EBU and S/PDIF formats as standard. The 386 enables users to select from a wide range of sampling rates, including 44.1, 48, 88.2, and 96 kHz, while the digital outputs offer the ability to communicate in 16-, 20-, or 24-bit word lengths. In addition, Type IV conversion offers the ability to select the noise shapes, algorithms, and dither types that best suit its users' music and medium. The unit features two premium 12AU7 vacuum tubes. For more details, call dbx Professional Products at 801-568-7660, fax them at 801-568-7662, or visit [www.dbxpro.com](http://www.dbxpro.com). Circle EQ free lit. #115.



## OLD SCHOOL

**B**ased on a design from the 1960s, the all-tube Fairman TMEQ tube master equalizer will provide mastering engineers with a tool for transferring musical recordings to new high-resolution consumer media. The TMEQ is a 6-band stereo equalizer housed in a 6U rack frame. It employs a total of 22 vacuum tubes in 12 separate frequency-controlled amplifier sections. The result of this configuration is good phase linearity across all frequencies. The unit provides separate overlapping sections for Low Cut and Low Boost, as well as for High Cut and High Boost. The Low-Mid and High-Mid sections offer boost or cut, with Q switchable for 18

dB, 12 dB, or 6 dB per octave. The TMEQ also provides input and output gain switches from -6 dB to +6 dB in .75 dB increments. For more information, call the ATR Service Company at 717-852-7700 or check out [www.fairman.dk](http://www.fairman.dk). Circle EQ free lit. #116.



## PLAY FOR SCALE

**G**eneralmusic introduces the AS-1 Arabic Scale Converter, a small, practical device that transforms any MIDI keyboard on the market into an Arabic scale instrument. With As-1, any conventional MIDI-equipped keyboard (including Generalmusic's WK and SK Series keyboards) can play Arabic scales and microtuned notes without radical panel layout modifications. The keyboard only needs to have MIDI in and MIDI out connectors. In practice, the AS-1 is a controlling device that sends appropriate messages to the connected keyboard so that specified notes of the scale play one quarter of a tone below standard pitch, as required for Arabic scale use. User-friendly features include 12 Arabic scale memories, one-touch commands, and hassle-free programming tasks. The AS-1 is available for \$229. For more information, call Generalmusic Corp. at 630-766-8230, fax them at 630-766-8281, or visit [www.generalmusic.com](http://www.generalmusic.com). Circle EQ free lit. #117.



## FOR GOOD MEASURE

**A**udioControl Industrial's MP-400 is a 48-volt phantom power, compact, 2-channel measurement microphone preamp that includes mixer functions. It is expressly designed to work with computer sound card-based measurement systems. The MP-400 includes switchable input gain, variable output pink noise generator, pre- and post-sound processor loops, and input and output connections on the front and rear panel.

The MP-400 can work with most 24- to 48-volt phantom power measurement microphones, including the AudioControl Industrial C550 and C525. With all the inputs and outputs, the unit can handle not only two microphones, but also inputs from a mixing board, a loop through a sound processor, and line inputs from a computer or CD player. The unit comes in a rugged steel chassis for field reliability. The list price \$549. For more information, call AudioControl Industrial at 425-775-8461, fax them at 425-778-3166, or visit [www.audiocontrol.com](http://www.audiocontrol.com). Circle EQ free lit. #118.

## ON GOOD TERMS

**N**ew from Howard W. Sams and Prompt Publications is the *Digital Audio Dictionary* by Cool Breeze Systems, Inc. The *Digital Audio Dictionary* contains over 1000 useful, easy-to-use terms and definitions. It also comes with a cross-reference compatible, interactive CD-ROM, which allows searches by term, or browsing of all terms. The world of digital audio is expanding at an incredible rate. The use of this concise reference tool will keep any reader up to date. Definitions cover sound, computers, MIDI, digital audio, DAWs, plug-ins, system upkeep, and general music. For more details, call Howard J. Sams at 800-428-SAMS or visit [www.hwsams.com](http://www.hwsams.com). Circle EQ free lit. #119.

# EQ PRODUCT VIEWS

## KEYS, PLEASE

**T**echnics's new SX-KN6000 has been redesigned from top to bottom. The new SX-KN6000 features a new sound engine and new PCM Sound Source. This model is outfitted with a repertoire of over 1000 newly sampled instrument settings, all of which have been re-mastered. And each contains more memory than previous Technics models, allowing more of the dynamics and characteristics of the instruments to be captured. The Brass Simulator, which makes the human voice sound like a lead trumpet, and the built-in Vocal Harmonizer are two of the many intriguing vocal features. For more information, call Technics at 201-348-7000 or visit [www.panasonic.com](http://www.panasonic.com). Circle EQ free lit. #120.



## LIVING IN HARMONY

**P**erfect for both the studio and the stage, the new Vocalist VR from DigiTech enables singers to quickly and easily add up to four natural-sounding harmony vocals to their voice. Thanks to DigiTech's patented harmony algorithm, the Vocalist VR's harmonies maintain all the characteristics of the singer's voice for very realistic-sounding backup harmonies. The processor also allows users to choose between Chordal or Scalic harmonies, add warm reverbs, and much more. For more information, call DigiTech at 801-566-8800, fax them at 801-566-7005, or visit [www.digitech.com](http://www.digitech.com). Circle EQ free lit. #121.



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StartREC is the first Digital Audio Editing System combined with multidrive CD-R duplication capability designed specifically for the Audio Professional, from MicroBoards. The StartREC offers Audio Professionals advanced hard disk editing tools, and the ability to create simultaneously up to four custom audio CD's in a convenient rackmountable or desktop configuration.

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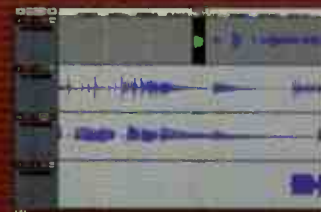
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DECEMBER 1999

World Radio History

# HDR24/96. 24-TRACK 24-BIT HARD DISK RECORDING. ADVANCED WAVEFORM EDITING. NO EXTERNAL COMPUTER NEEDED. \$4999 SUGGESTED U.S. RETAIL.



HDR24/96 editing features include 8 takes per track with non-destructive comping, non-destructive cut/copy/paste of tracks, regions or super-regions, drag-and-drop fades & crossfades, 1x/2x/



4x/8x/24x waveform views, true waveform editing with pencil

tool, bi-directional cursor scrub, unlimited locators and loops, DSP time compression/expansion, invert, pitch shift & normalize and much, much more... with unlimited undos — but without requiring an external computer!

- Built-in 20-gig Ultra-DMA hard disk plus front panel bay for additional easily available pull-out drives
- Intuitive analog tape deck interface and monitoring
- Syncs to SMPTE, MIDI, Black Burst, PAL & NTSC without extra cards
- Unlimited HDR24/96 linking! Sync 48, 72, 96, 128 or more tracks
- 96kHz upgradable via software
- Uses Digital 8 • Bus I/O cards
- 3.5-inch disk drive for software upgrades & tempo map importing
- Fast Ethernet port built-in
- Optional SCSI port
- Remotes available.

New hard disk recorders were all over the place at this fall's AES convention. A fair amount of the buzz was at the Mackie booth.

The HDR24/96 was the only recorder with built-in non-destructive graphic waveform editing. Just plug in a mouse, keyboard and SVGA monitor to view all recorder parameters on screen in real time. And enjoy complete editing control with unlimited levels of undo, drag-and-drop crossfades with 9 preset combinations plus fade/crossfade editor, DSP time compression/expansion, pitch shift and lots more.

The HDR24/96 was the only recorder that uses pull-out Ultra-DMA hard drives, so affordable that you can keep one for each project — over 90 minutes of 24-track recording time costs less than a reel of 2-inch tape!

The HDR24/96 was the only recorder with built-in 100Mbps Ethernet. And of course the only one that interfaces directly with the Digital 8 • Bus.

No wonder Pro Audio Review Magazine gave it a "PAR Excellence" Award right on the spot.

Call toll-free or visit our website for preliminary info on the new HDR24/96. Shipping soon from Mackie Digital.

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# EQ PRODUCT VIEWS

## PICK A PATTERN

**A**static has introduced its 230 VP variable pattern condenser boundary microphone, which offers a range of four set adaptable polar patterns (cardioid, super cardioid, figure eight, and omnidirectional) and infinite alternatives in between. Switching is done with a soft-touch membrane switch (push-to-talk, push-to-mute, or push on/off). A LED in the switch bezel indicates when the microphone is on and a switchable 12 dB-per-octave, high-pass filter helps to reduce sibilance of feedback. For more information, call CTI Audio's Astatic Division at 800-762-9266. Circle EQ free lit. #122.



## BURNIN' FOR YOU

**Y**amaha has introduced the CDR1000 professional audio CD recorder designed for recording studios. The CDR1000 features the Apogee Electronics UV-22 Super CD Encoder, which allows 16-bit encoding of sources originally recorded at higher bit rates, without additional equipment. The recorder includes a built-in sample-rate converter capable of handling a wide range of digital sources (29.76-48.8 kHz) and a word clock input, which provides AES/EBU

in and out connection pass-through. For more information, call Yamaha at 714-522-9011 or check out [www.yamaha.com/proaudio/](http://www.yamaha.com/proaudio/). Circle EQ free lit. #123.

## PROCESSED SURROUND

**U**sers can get full surround sound recordings using a SoundField microphone with the new SoundField 5.1 processor. Whether the output is in mono, stereo, or full surround depends only on the way the outputs from the four capsules are combined. The 5.1 Processor 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 using a Dolby Processor, 5.1 surround, or, with the addition of an optional card, formats of up to eight channels, including 7.1 Surround. For more information, call Transamerica Audio Group at 805 375 1425 or fax them at 805 375 1424. Circle EQ free lit. #124.



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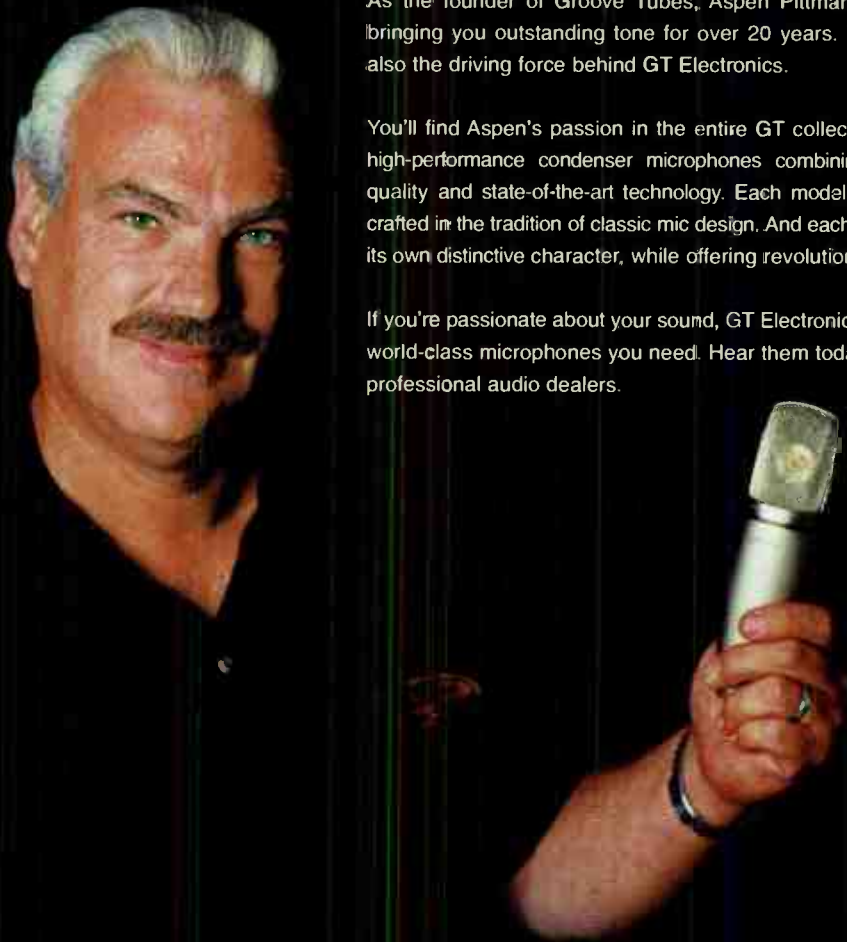
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**AM61**  
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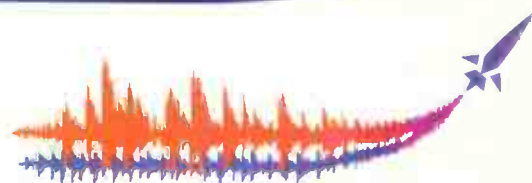
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# Fairlight Merlin Hard Disk Recorder

Fairlight debuts a future-friendly, all-in-one digital workstation

Merlin is Fairlight's new 24-channel hard-disk-based recorder. Built on a new DSP foundation incorporating the 40-bit SHARC processor from Analog Devices, Merlin is upgradeable to 48 tracks and to 96 kHz, and uses a new streamlined recording controller that is optimized for fast operation in music, TV, film, and radio recording.

Built on the MFX3plus codebase, Merlin inherits a vast software capability that includes file exchange with leading industry platforms and graphics performance such as scrolling waveforms, networking, and editing.

Merlin records 24 tracks with 24-bit resolution at all the industry standard sample rates up to 48 kHz. In the future, this will be increased to 48 tracks, with a maximum 96 kHz. The system is prewired for these upgrades, incorporating the clocks, converters, and digital interface chips needed to operate at the sample rates of the future.

Despite recording all 24 tracks to a single disk, Merlin is capable of seamless, gapless punch in and punch out on all tracks simultaneously. This allows simple file management and object-oriented editing, as well as straightforward exchange with Fairlight's editing and dubbing platforms.

Analog inputs and outputs may be separately optioned in groups of eight, up to the maximum of 24 per system. AES/EBU inputs and outputs are optioned in groups of eight I/Os, also up to the maximum 24 channels. Thus, the machine can be purchased cost-effectively for studio installations where the console I/O is either all-digital or all-analog.

Merlin uses standard SCSI disk drives. Disk drives up to 200 GB are supported by the operating system, with capacity for six drives and a backup device. Using today's 36 GB drives, it is possible to remain in record continuously for up to 18 hours on all 24 tracks!

All forms of removable storage are supported, including removable hard drive, magneto-optical drives, and Exabyte tape backup systems. Backing up and restoring are background processes, automatically

detecting and making use of idle time between recording or playback passes.

The recording controller is a new, purpose-designed work surface designed to replicate the operation of traditional multitrack tape recorders while offering the benefits of random accessibility. The controller comes with an optional roll-around platform for the studio floor, including a high-resolution flat-screen display for complete portability of operation.

Merlin allows any input to be patched to any track. This is just like having a 24 x 24 crosspoint switcher at the input of the recorder. Inputs are not restricted to a single destination, so it is possible to patch one input to many tracks, allowing multiple tracking of one source to be performed with ease.

A special grouping command makes it possible to patch multiple inputs to multiple tracks, multiple times, with a single command. The unit can store up to 999 timecode memory locations for instant access. The first 48 of these are accessible through the Track Select keys. Two dedicated keys above the transport controls provide the means to store and retrieve timecodes from memory locations.

Merlin provides a full-color video screen with fast response, thanks to its ded-

icated graphics controller, which has been designed purely for audio purposes. Update is almost instantaneous, making for efficiency in completing projects. Most importantly, the creative process is not interrupted by the machine at any time.

The video screen is switched between different displays to show, for example, tracks, files, memory locations, meters, or layers. Although there are user commands to access particular displays, these are not usually needed, because Merlin will switch video displays in context. For example, when the Project menu button is pressed, the file display is immediately shown so that file management operations can proceed.

Fairlight claims to have pioneered multichannel scrolling waveforms as part of its MFX2 development, and pushes that advantage here. Waveforms are calculated on the fly while playing or recording, so there is no waiting period after a recording pass for the waveforms to be calculated and stored to disk. Recording may resume immediately.

Twenty-four track meters appear whenever needed so that levels can be monitored. The scale can be adjusted so that, if required, the loudest part of the scale is seen in more detail, or a more normal view can be seen.





# The Complete Digital Studio



Truly a complete digital studio, the DPS12V2 combines a powerful 12-track random-access digital disk recorder and 250 virtual tracks, with a digital mixer, and a 4-bus effects processor. This compact package fits easily into any personal studio space, and it even includes the ability to master direct to CD. Audio is recorded in uncompressed format in order to maintain the complete integrity of the source, and the graphic waveform display provides a detailed view of the recorded material. Recordings are stored to SCSI hard disks, allowing the flexibility to create recordings of any length, limited only by the size of the storage medium. Akai's M.E.S.A. PC mixer software allows total control of the transport and 20 channel mixer via computer. When you are finished with your project, it is a breeze to archive all tracks, virtual tracks, effects and mix settings to CD for permanent storage.

Contact your local Akai dealer today to learn more about the DPS12V2 and how to turn your home into a digital studio.

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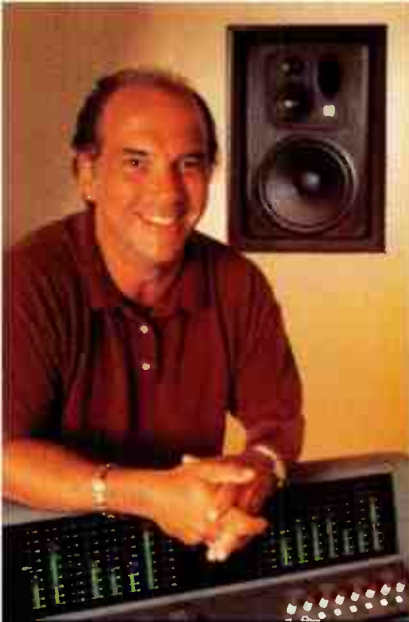
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Neil Karsh is the Vice President of Audio Services for New York Media Group. Recently, Karsh selected LSR monitoring systems for two of his Manhattan facilities, *Lower East Side* and *East Side Audio*.

“We’ve installed the first of our LSR 5.1 surround systems at East Side Audio and it’s a great addition. The sound is extremely clear and is enjoyed by our mixers and our clients. Everyone is very pleased with the result.”

New York

## The World’s Best Performing THX® Monitoring Systems Are Also The World’s Most Applauded.

Since its introduction in 1997, the system-engineered JBL LSR Series has become a favorite choice of engineers, producers and performers, many of whom have also become its most loyal advocates. More important, this acceptance is found in every major geographic area of the recording industry; from Los Angeles and New York to Nashville and London.



LSR 32

LSR 28P

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During a half century of building the most technically advanced studio monitors, JBL has developed a long list of working relationships with key recording professionals around the globe. As a direct result of this unique collaboration, these industry leaders have chosen JBL monitors more often than any other brand. Not once or twice, but consistently for decades. In fact, JBL monitors are a part of the history of recording itself. Consider as examples, the now fabled JBL 4200 and 4400 Series that, at their launch, actually defined an entirely new standard and new category of monitor. Such is the case now with the entire LSR line.

# LSR. Profiles

The world’s most noted recording professionals discuss the world’s most advanced monitoring systems.

**NO.1: New York / Los Angeles**



David Kershenbaum is a Grammy Award winner who has been on the cutting-edge of music production for decades. His discography is a remarkable ‘who’s who’ of popular recording.

“Speakers have always been important to me and I’ve had many systems that I have really loved. When Kevin Smith told me about LSRs, I tried them and was amazed at the accurate, flat response and how the mixes translated so well compared to other monitoring systems. Now we’re using them to track our new records and we’ll use them to mix, as well.”

Los Angeles



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# Horizon Music Stereo Tube Direct Box

Horizon Music enters the tube DI world with a mid-priced contender

BY MIKE SOKOL

Horizon Music has entered the tube DI market with their first product offering, and it looks like they might have a real contender in the mid-price DI world. If you've never used an active DI, be aware that a good DI box can really help bring out the quality of passive pickups when compared to a passive DI box. A problem with passive DI boxes is that the output of your instrument is hooked directly to an isolation transformer, which is simply an iron core with a lot of thin copper windings. Not only will the inductance of the transformer interact with passive pickups, it will also cause impedance loading that will roll-off the high-frequency signature of the sound, as well as reduce signal level and increase distortion. An active DI box places a transistor or tube amplifier stage in between the instrument and the transformer, which isolates it from the

negative effects. Tube DI boxes are especially nice, since the natural, soft-limiting action of a tube in the signal path can help tame undesirable transients while adding the even-order distortion products that human beings find so pleasing.

## TIE-DI

The Horizon Stereo Tube Direct Box is two separate DI boxes side-by-side in a 1 RU space. An isolated 1/4-inch input on both the front and back panels makes it easy to plug in your instrument, no matter which side of the rack you find yourself on. The front panel has switches for instrument, line, or speaker level inputs. A Flat/Cabinet switch enables the speaker emulater filter, while a Normal/Lift switch lifts the ground to the console. There's also a level control for the isolated outputs, while passing the thru signal unaffected.

Outputs on the back include Thru, Mic level XLR, Line-Level TRS, and -10 RCA. All outputs are electrically isolated from the chassis — a factor that make this direct box good at breaking ground loops. A switch changes the chassis ground for either rack-mounting or freestanding operation, which

can eliminate ground loop-induced hum when mounted in an equipment rack. A standard Euro power connector is included for the 120-volt AC input.

Since it's a true, dual-channel unit, users, for example, can patch one channel in for stand-up bass, while using the other channel for acoustic guitar or mandolin. Another interesting possibility is that, if you have an instrument with stereo outputs (e.g., a Rickenbacker bass), this would be a great DI to try. Horizon builds this DI for years of road abuse. The chassis and switches are built for real-world use. Just put this in a little SKB rack and it will find a home either on the road or in the studio. This is an excellent addition to a product line from a company that that's been our partner on the road for years.

Check out the full, hands-on review of the stereo DI in the next EQ.

Price is \$699.99. For more information, contact Horizon Music, 230 North Spring St., Cape Girardeau, MO 63701. Tel: 573-651-6500. Web: [www.horizonmusic.com](http://www.horizonmusic.com). E-mail: [horizonmusic@ltd.net](mailto:horizonmusic@ltd.net). Circle EQ free lit. #102.



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remains an enigma. Historians  
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other microphone in existence.  
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delivers what the world hears

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Tommy Dog does it all from the privacy of his NYC-based project studio

**STUDIO NAME:** CrawlSpace N.Y.C

**LOCATION:** New York, NY

**OWNER:** Tommy Dog

**STUDIO ANIMALS:** Otis (rottweiler), Igor (box turtle)

**PROJECTS:** The Brain People, Suicide King, Sony, MTV: True Life "I'm A Hacker," Geoffrey Holder "Prodigal Prince" for the Alvin Ailey Company, Estee Lauder, Bob Vila, Fredrik Lenz, Flash Cooney & The Deans of Discipline, Law & Order (NBC), Rebecca Stenn, Midian, Trips On Tape, The Remains, Screaming Semon, various other stuff ranging from obscure to the weird, corporate voice overs.

**CONSOLE:** Soundcraft Spirit Studio 2482/RW1286

**RECORDERS:** Alesis "blackface" ADAT [2] and ADAT XT; JVC XD-Z507; Panasonic SV-3700; TASCAM DA-38

**MICROPHONES:** AKG C 414 B-ULS, D 112, and D 120 E; Electro-Voice N/D 757 and RE-20; Neumann U871; Sennheiser MD-421 [2] and MD-441; Shure SM57 [2] and SM81 [2]; Sony ECM-220T; Western Electric 633A

**MONITORING:** Alesis RA-100; B+W Rock Solid Sounds; Yamaha NS-10M

**OUTBOARD GEAR:** Alesis Microlimiter and Midiverb; Aphex Compellor and Type C Aural Exciter Model 103; BBE Sonic Maximizer 422A; Boss SE 50; Carver Model C-9 Sonic Hologram Generator; dbx 120X-DS, 166, 172 Super Gate, and 563X Silencer [2]; DigiTech DHP-55, Time Machine RDS 8000, and Vocalist VHM 5; DOD Graphic Equalizer R 430; Electrix Warp Factory; Eventide

H30002 Ultraharmonizer; Fairchild 602 Conax; Fletcher Electroacoustics JOE-MEEK VC3 Pro Channel; Hughes Audio AK-100; Korg Kaoss Pad and SE-300; Lexicon Jamman, LXP-15, and Vortex; Magneco mic preamp [2]; Micmix Audio Products XL-404; MXR Omni; Neve 1272; Roland Space Echo RE-201; Sherman Filter Bank; Sony DPS-M7 Sonic Modulator and DSP-F7 Digital Dynamic Filter Plus; Tech 21 SansAmp; Telefunken V72 [2]; Yamaha SPX 90 II

**ELECTRONIC INSTRUMENTS AND MIDI TOYS:** 360 Systems MIDibass; Ace Tone Rhythm Ace FR-3; Akai S2000 and S950; ARP 2600 and Odyssey; Big Briar Etherwave Theremin; Casio DG-20, DH-100, SK-1, and VL-Tone; Charlie Collins Theremin; CM/RDSI Syn-drum; Kat Drumkat 3.0; Dubreq Stylophone; EMU Systems E-Drum, Morpheus, Proteus/1, Proteus/2, Proteus/3, and Vintage Keys Plus; Electro Harmonix Clap Track, DRM 16, Instant Replay, RTG, Space Drum, and Vocoder; Ensoniq ESQ 1; Ham-

mond Solovox Model K and Solovox Model L; Hohner D6 Clavinet; Interactive Light Dimension Beam; Korg DDD1, DDM-110 Super Drums, and Prophecy; Linn LM-1; Mattel Electronics Synsonics Drums; Moog Music Minimoog; Multivoix MX 150, MXR Junior; Oxford OSCar; Q.R. Ghazala Photon Clarinet; Q. R Ghazala Trigon Incantor; Roland R-8m, TB-303, TR-505, TR-606, and TR-727; Simmons Clap Trap and SDSV; SoundShimmer Triwave Picogenerator; Synchro-Voice MidiVox; TechnoMage L.I.F.E.; Triadex The Muse; Wave Access WaveRider Jr.; Wurlitzer 7300; Yamaha FS1R and TQ5

**GIZMOS AND STOMP BOXES:** Arion Stereo Flanger; Boss CE 1, CE-3, DF-2, OC-2, and PS-2; DigiTech PDS-1002, Wammy Pedal, and XP-300 Space Station; DOD FX25 and Phaser 490; Dunlop Cry-Baby and TS-1; Electro Harmonix Bass Microsynthesizer, Bassballs, Big Muff Pi, Deluxe Electric Mistress, Frequency Analyzer, Memory Man, Muff Fuzz, Octave Multiplexer, Small



PHOTOS BY WES BENDER

Clone, and Small Stone; Greco HA-9P; Heet Sounds E-Bow; Korg Toneworks G5; Maestro Fuzz-Tone; Mike Matthews Soul Kiss; Mooger Fooger 12-step Phasor; Musitronics Mu-Tron Bi-Phase and Mu-Tron III [2]; MXR Distortion + and Time Delay; Pefftronics SB-101 Super Rand-O-Matic; Pro Co Rat; Schaller Yoy-Yoy Bow-Wow; Tech 21 XXL; Vox Repeat Percussion


**MUSIC AMPLIFIERS AND PREAMPLIFIERS:** Ampex SVT11P; Electro Music Leslie 60; Fender Super Reverb; Harry Kolbe Silent Speaker; Marshall JMP-1; Valco Supro Thunder Bolt S6420; Yamaha JX 30 B

**COMPUTERS:** Apple Power Macintosh 8500/132 [184 MB of RAM], 9.5G HD; Sonnet Crescendo G3 PCI [300/152] with Digidesign Audiomedia III; Yamaha CRW4260T; Apple Macintosh Quadra 650 [40 MB of RAM] with Digidesign Audiomedia II

**SYNC:** JL Cooper Datasync; Mark Of The Unicorn MIDI TimePiece II

**SOFTWARE:** Adaptec Toast; Cycling '74 MSP and Pluggo; Digidesign Pro Tools and Sound Designer; Intelligent Music M, IRCAM Software package; Macromedia Director Multimedia Studio; Mark Of The Unicorn Performer; Opcode Systems Max; PG Music Band In A Box

**EQUIPMENT NOTES:** Tommy Dog states: Besides using the ADATs and digital software, I really love the Soundcraft console. It's a perfect organizational tool that sounds really clear and has great EQs. I have always run a label out of my home [Stoned Turtle Productions/SOD records]. With the advent of CD-R, I no longer need to rely on manufacturers when I do a record — I just fill the orders from my Web site as they come. My audience is an underground/avant/punk crowd, and that is my background. I'm not "moving units" here, I'm making music for its own sake.

**STUDIO NOTES:** Tommy Dog continues: Going from a project studio to having a commercial studio and then going back to the project thing, I've seen this job from different angles. Right now, I'd rather work here behind the bubbles of my turtle tank and have access to my record collection. I can work at home then bring a CD-R over to Sony or one of the other studios and continue there. Since everything I do is different, I have to be able to create any sound that I or whomever I am working with can think of. Here at home, I have musical instruments of every nature — from traditional to toy. I can lay down a solo on a Strohviol for one client and the next day create just the right sound for someone else with a rewired Speak & Spell. I can only tell people to listen to music — listen to everything. 



# AKG C60

The mic that beget  
the popular C451

**MICROPHONE NAME:** AKG C60

**FROM THE COLLECTION OF:** Ken Avant, Avant and Associates, Upland, CA

**PRICE WHEN NEW:** Approximately \$400

**YEAR OF MANUFACTURE:** 1960 through 1969

**TYPE OF MIC:** Vacuum tube condenser

**POLAR PATTERN:** Cardioid

**FREQUENCY RESPONSE:** 30 to 18,000 Hz  $\pm 2.5$  dB; 20 to 20,000 Hz when used with omnidirectional capsule

**SENSITIVITY:**  $-62$  dBV (1 volt/dyne/square centimeter)

**RATED SOURCE IMPEDANCE:** 50 or 200 ohms with N 60A power supply

**TUBE:** AC 701k

**FILAMENT VOLTAGE:** 4 volts DC at 105 milliamps

**PLATE VOLTAGE:** 120 volts DC at 0.6 milliamps

**RESIDUAL NOISE:** less than 20 dB SPL

**SOUND PRESSURE LIMIT:** For 0.5% harmonic distortion, 117.5 dB SPL

**DIMENSIONS:** 20 mm diameter x 130 mm length

**MIC NOTES:** Originally distributed in the United States by Norelco (a division of North American Philips Company), the AKG C60 was the tube-based predecessor to AKG's extremely successful C451 and (later) C460 microphones. Initially, the C60 was supplied with the CK28A cardioid capsule that employed an aluminum diaphragm. The CK28A was later revised to the CK1 cardioid capsule that featured a gold-deposited mylar diaphragm; the CK1 was subsequently used for the C451, and became a popular choice among studio and live sound engineers. An optional omnidirectional capsule — the CK26A — was also available. The C60 was discontinued by AKG in 1969.

**USER TIPS:** Since response of the C60 extends down to 20 Hz, the microphone includes a low-frequency rolloff switch with positions for 0,  $-7$ , and  $-12$  dB at 50 Hz. AKG recommends the  $-12$  dB position for vocal or solo use. Power to the C60 is delivered by the AKG N 60A outboard power supply, which connects to the microphone via AKG's MK 60 cable. **EQ**



PHOTO BY EDWARD COLVER



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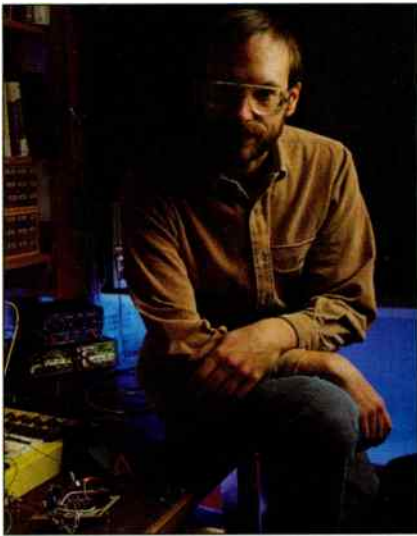
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CIRCLE 36 ON FREE INFO CARD

World Radio History

# Prophets of the Future

Ten recordings that technologically pushed the envelope and helped make recording what it is today



BY CRAIG ANDERTON

To go along with the “greatest recordings of all time” theme, I wanted to highlight ten recordings that were significant for technical, not just musical, reasons. What ties them together for me is that they were ahead of their time, using techniques and concepts that are now mainstream, but once were radical. These were the explorers who discovered new worlds, and reported to the rest of us...and whether you’ve heard them or not, you’ve been influenced by what they did.

• Wendy Carlos, *Switched on Bach*. It’s easy to forget that synthesizers were once unstable, expensive, and limited devices that were often considered a novelty. In the late ’60s, though, Wendy Carlos tamed Bob Moog’s modular monster sufficiently to put the musical community on notice that synthesizers were indeed musical instruments. I don’t consider *SOB* her best work (I’d vote for *Digital Moonscapes*),

but, remember, this was pre-MIDI and pre-polyphony, so all the parts had to painstakingly layered, one at a time, onto analog tape. Nonetheless, the album had a degree of expressiveness that was rare for synthesized work, even by today’s standards.

• Miles Davis, *Shhh/Peaceful*. This landmark recording sounds like just another outstanding Miles track, until you listen on headphones and hear just how many splices there are. The music came from playing into hours of analog tape. The recording was then edited down, via razor blade, into about 18 minutes. Technologically, *Shhh/Peaceful* anticipated today’s recording mode where bits and pieces of music can be composited into final, produced works. However, *Shhh/Peaceful* was done without hard-disk editing, digital backups, or visual displays, which makes the result all the more remarkable.

• David Arkenstone, *Valley in the Clouds*. I should probably disqualify myself from mentioning this because I was involved in the mixing, but back in the mid-’80s, this was the first project I’d seen that delivered on the promise of MIDI and DAT. David had put together a demo cassette using primitive equipment — some Yamaha TX7 modules, a Casio CZ-101 kid’s keyboard, Ensoniq Mirage, and a Commodore-64-based MIDI sequencer. After the demo got him signed, he transferred those same sequences over to the Mac at a pro studio, and used the MIDI data to drive far better-sounding instruments. Those, in turn, were recorded onto tape and mixed down through an automated console to DAT. The CD went on to sell hundreds of thousands of copies — not bad for a project started on a \$199 computer with 64K of RAM.

• The Mothers of Invention, *We’re Only in it for the Money*. Around the time leading up to this album, Frank Zappa had been working at Apostolic Studios in

New York, which had a 12-track tape machine. The band I was in at the time (Mandrake) worked there in between Frank’s sessions; he had dozens, and maybe even hundreds, of plastic reels hanging on the walls with short bits of tape containing various sound samples (each was named — my favorite was “Dynamite Blurch Injector”). In a way, he was doing analog sampling, but had to use tape recorders rather than keyboards as the playback devices. I’ve

always considered Zappa as someone who made academic electronic music concepts, such as *musique concrète*, work in a pop context.

• Jimi Hendrix, *Electric Ladyland*. For this recording, Hendrix treated the Record Plant studios more like a gigantic signal processor than a simple recorder of events. Mandrake had booked time to do our second album after Hendrix’s sessions, and since he usually ran over, I often got to see him in action. Tony Bongiovi (later of Power Station studio fame) was doing most of the engineering [Gary Kellgren and Eddie Kramer are credited in the liner notes] and then would segue over to us, so we’d benefit from some of the techniques, too. (Incidentally, Hendrix’s flanging was not the result of pressing on the reel flange. Bongiovi hooked up a variable sine wave oscillator through a Macintosh power amp,

which drove the recorder’s capstan motor. Varying the oscillator frequency changed the speed of the motor.) In any event, with *Electric Ladyland*, the processing of sound itself became a core component of the music, not just an aspect of recording quality.

• Karftwerk, *Trans-Europe Express*. Although they had a hit in the mid-’70s with *Autobahn*, that was more the result of an experimental electronic music band dabbling with rock chord progressions. Meanwhile, over in the U.S., guys like Kool Herc were re-

*These were the explorers who discovered new worlds, and reported to the rest of us...and whether you've heard them or not, you've been influenced by what they did.*

defining dance music. The two worlds collided to perfection on *Trans-Europe Express*, which matched the hard beats of American R&B with the experimental electronic sensibilities of post-war Europe. Anticipating elements of trance, techno, and loop-based music, when *TEE* shows up today in a DJ's set, it still sounds fresh.

• Phil Spector. It's pointless to mention individual recordings, because, on almost all his recordings, Spector's "Wall of Sound" brought sound qualities of Wagnerian proportions to rock 'n' roll. Prior to Spector, rock had tended to be a stripped-down affair. But Spector piled on the instruments and hired the cream of session musicians (like Hal Blaine, whose drumming was a major brick in that Wall of Sound), creating powerful sonic backdrops that exploded from your speakers. In particular, Ike and Tina Turner's "River Deep, Mountain High" shows what happens when you marry a stunning vocal performance with a Brobdingnagian instrumental track — guaranteed goosebumps, no matter how many times you've heard it.

• LA Style, *James Brown is Dead*. Okay, a disposable tune from a one-hit wonder.

Nevertheless, in the early '90s, this blast of overcompressed techno didn't only challenge R&B conventions (hence the title), but challenged using the studio in the pursuit of perfection. It was fast, rebellious, relentless, and very lo-fi. While not the first to embrace this style, *James Brown is Dead* arbitrarily gets the nod here because it actually charted in the U.S., which, as a whole, was oblivious to the musical revolution forming around techno.

• Public Enemy, *It Takes a Nation of Millions to Hold Us Back*. It's probably unfair to credit Public Enemy with integrating the elements that are now the staples of '90s-style music making (raps, loops, samples, turntables, etc.); they had all existed before. But with this CD, PE took rap to the next level by mastering these tools as no other group had done. They created a kind of organized chaos that was (and remains) unnerving, exhilarating, provocative, and original; even today, older PE cuts show up regularly in DJ playlists.

• The Beatles, *Sgt. Pepper's Lonely Hearts Club Band*. As the old saying goes, *Sgt. Pepper's* shows just how much you can do with a 4-track (well, several 4-tracks, but

who's counting). Actually, though, what *Sgt. Pepper's* really showed was what happened when you combined songwriters at the peak of their art, a producer (George Martin) who was old-school enough to lay a solid foundation based on fundamental musical values (like arranging) but forward-thinking enough to take it further, and the multitrack technology that was just starting to blossom. When *Sgt. Pepper's* arrived, the art of recording had, to use a quantum mechanics analogy, jumped one entire electron shell.

Well, that's enough for now about the past (it's a nice place to visit, but I wouldn't want to live there!). Enjoy the next century.

Author/musician Craig Anderton has lectured in 10 countries and 37 states on technology and the arts. He is the author of *Home Recording for Musicians and Multieffects for Musicians* (available at [www.musicbooksplus.com](http://www.musicbooksplus.com)). Two of his tunes were recently remixed and released on German compilation CDs; his next CD, *Sexy World*, will also be available as an ACID loop library.



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CIRCLE 66 ON FREE INFO CARD

World Radio History

# CD Stompin' Grounds



PHOTO BY JONATHAN POSTAL

In which our erstwhile columnist jousts with the CD Labeling Monster and comes out on top. Sort of....

BY AL KOOPER

Hi again! Remember me? The guy who's burning CDs until 5 AM every night? Well, someone said they had two words for me: CD Labeler. Oh no — another can of worms. However, I gave it the old college try with the "thorough journalist evaluation." At first, I even pitched it to *EQ* as a separate article — but, once I got in the trenches, I found there is only one choice for the working man's engineer/producer/project studio.

Let's examine the options: Memorex makes a "CD LabelMaker Kit." Neato gives us the "Neato 2000 CD Labeler Kit," and CD Stomper(!) manufactures the "Pro CD Labeling System." If there are other alternatives for the Mac, they are impossible to locate in Boston or New York City.

These various products all offer

three items inside their various packagings: A CD-ROM of templates and artwork, and various labels. (Some have tray cards, J cards, and four-page booklets. All of them have CD labels and J cards.) Last but not least is "the device." This is a plastic, spring-loaded, CD-size stamper that holds the label gummy-side-up and pushes the hapless CD against it, ensuring virtually error-free affixing. All the "devices" are different-looking, and yet all operate exactly the same. These guys all read the *Copyright Infringement For Dummies* book.

I went to the mega-discount-buy-in-bulk store and they had the Memorex Kit in stock. I bought that (with 100 additional labels bundled in for free) for \$29.95. I took it home, inserted the CD in my Mac, and it made some weird noises and wouldn't play or show up on the desktop. I toyed with it for the better part of the hour, until I realized by comparison with other discs that booted up okay, that the Memorex disc must be warped. I exchanged the package for another, and the same thing happened! I think their packaging is the culprit. The disc is left to fend for itself at the bottom of the package where it easily could become warped. This kinda put Memorex out of the running — without templates, you're kinda standing there in the year 2000 with a Dixie cup and a piece of string.

Next up was Neato, which had just made a distribution deal with a utilities company called Fellowes. They changed the original Neato's packaging, but the contents were still the same as the original box. In fact, they had three different packages out there in the marketplace, confusing the hell out of this writer. In actuality, as I said, they all contained the same contents. Once I got into their software, all hell broke loose. First off, a template came up with three labels on it. How dumb is that? I barely have use for a second label. CDs are not two-sided, ya know! When I tried to access their online manual, a trouble window opened and told me I had to update my copy of Adobe Type Manager. Who has time for stuff like this? I just wanna put a little label on my project and then go celebrate by watching the E channel.

It appeared that you had to work in tandem with a graphics application like Adobe Photoshop or QuarkXpress to actually design a label. I don't know about you, but musicians and engineers

use a certain side of the brain that is diametrically opposed to something like Quark. I'm not saying that some of you out there can't run a console and design a tray card at the same time, I'm just generalizing. Quark is an application that screams to have your face buried in its huge manual every step of the way. Photoshop is a little more user-friendly, and I own that program, so I tried linking it up with the templates on the Neato's disc. After a frustrating 45 minutes, I called Neato. I got the public relations department on the line and they actually admitted to me having trouble with their Mac software! They claim there is a recent upgrade on their Web site that works a lot better. They even sent it to me overnight FedEx. *I had no better luck with it.* I packed up the Neato contents into the Neato box and took it back to the Neato store. I also recommend that you don't attempt to download their upgrade on AOL, as it takes hours. That, my friends, is a fool's errand.

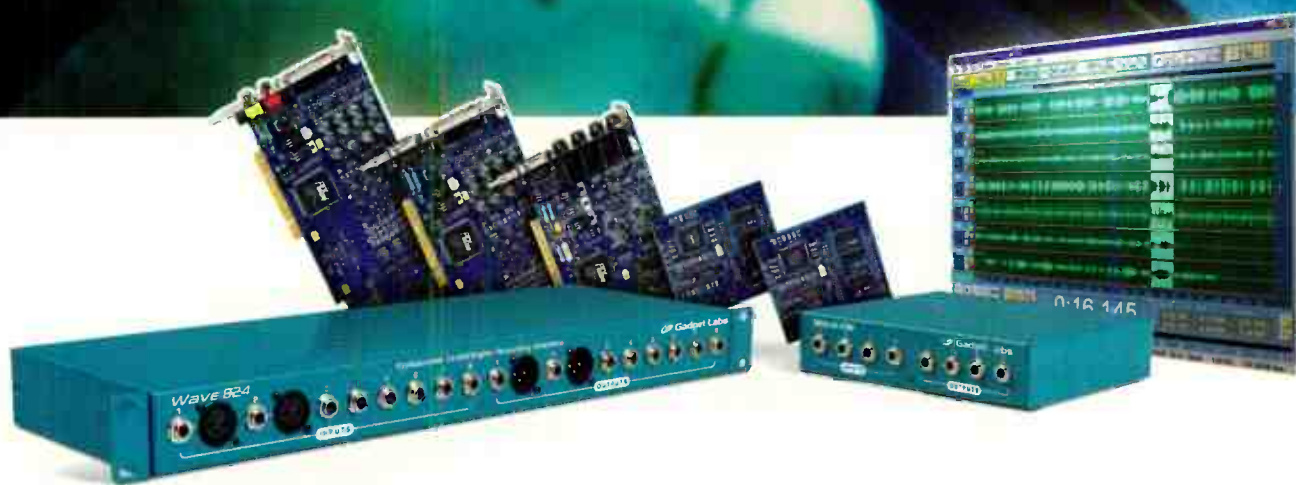
Last, but not least, was the CD Stomper. The name scared me right away. I pictured some rednecks brewing moonshine and manufacturing software and labels in a drunken stupor. I was wrong. I plugged the software in and this was, thank heavens, a *true* stand-alone application. Now their software was buggy, but I don't really *mind* that. When buggy software happens, I take it as a personal challenge to outthink the bug and the computer. If you've ever successfully worked on buggy software, you know what I mean. It's like you outsmart the computer. You get your desired final results, but you have to outthink the computer the whole way. That's how it was with CD Stomper. When you start up, it asks which of five languages you wish to work in — *every* time you start it up. This gets old the second time.

Then you select a template to work on. The templates for the disks that were supplied had two labels, two spines, and two Zip labels on each sheet(?). Well, the spines were handy, but the Zip labels were...well...optimistic. I think I own seven Zip disks and they come supplied with color labels already on them. Stomp Guys, please rethink this. So, after selecting the

*continued on page 134*

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CIRCLE 6 ON FREE INFO CARD

World Radio History

# Arif Mardin: Atlantic's Hit Man

A talk with the man behind some of the greatest recordings of all time

BY ALAN DI PERNA

*Arif Mardin's accomplishments as a record producer, arranger, and business executive have made him a mainstay at Atlantic Records. His work with artists like Aretha Franklin, Bette Midler, Chaka Kahn, Carly Simon, Roberta Flack, Patti LaBelle, Whitney Houston, and, most recently, Barbra Streisand, Diana Ross, and Jewel have earned Mardin a reputation as a "ladies man," musically speaking — a producer with a special affinity for the great divas of popular music. But he has played a role in many other genres, having produced successful records for artists as diverse as the Bee Gees, Hall and Oates, the Average White Band, Ringo Starr, and the Smashing Pumpkins.*

*An old-school gentleman and all-around man of the world, Mardin was born in 1932 in Istanbul, Turkey, the native country of Atlantic's co-founders Ahmet and Neshui Ertegun. After studies at Istanbul University, the London School of Economics, and Berklee College of Music, he joined the Atlantic Records staff in 1963 as Neshui Ertegun's personal assistant.*

*He quickly rose through the ranks, becoming manager of Atlantic's legendary New York recording studio and, in 1969, a company vice president. Working alongside the Erteguns and production pioneers Jerry Wexler and Tom Dowd, Mardin helped establish Atlantic as one of the great American record labels. His work has won six Grammys, among many other honors. He was inducted into the National Academy of Recording Arts and Sciences' Hall of Fame in 1990. Now in his 36th*

*year at Atlantic, Mardin is still actively and passionately involved in the worlds of R&B, jazz, pop, musical theater, and even opera.*

**EQ:** By the time you joined Atlantic in 1963, the in-house recording studio had already been operational for three or four years.

Arif Mardin: Correct. It was built by the legendary engineer/producer Tom Dowd, who is still very active. Through Tom's insistence, Atlantic Records had the most cutting-edge technology available at that time. They had an 8-track Ampex multitrack. It used 1-inch tape. The unit was like a little skyscraper with eight amplifiers stacked on top of each other. Of course, Tom would record live to a mono tape, with the correct EQ and reverb and everything, and that was the finished product. That's how everyone did it back then. But he would simultaneously record the session on 8-track with different instruments and vocals on separate tracks. So later on — especially when stereo became more popular — we were able to go back and remix a lot of the songs. We had them all on 8-track.

And that was the studio I entered when Neshui Ertegun brought me into Atlantic. I really learned the recording and

mixing part of the business from Tom Dowd. He was my mentor. I didn't know anything. I would mix tapes because I was asked to. There was a big backlog in jazz at the time, and I had to mix some of them — Charlie Mingus and John Coltrane. I would mix them and bring them to Tom and he would say, "Alright, a little more drums here, a little more bass there." Things like that. After that, I went on to mix a lot of Aretha's records, the Average White Band, and a lot of things. Now I don't mix the records I produce, but I still have a hands-on attitude as a result of those early experiences.

**How did you come to be appointed studio manager at Atlantic?**

Well, I was Neshui Ertegun's lowly assistant, doing tape vault research and things like that. And I guess I kind of rose up from there. I really learned the business from the bottom up. Quality control, mastering, booking the studio... I was doing everything.

**From your studies at Istanbul University at London School of Economics you had a firm grounding in business that complemented your studies in composition.**

Right. And I was a Berklee College graduate with a major in arranging, orchestra-





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World Radio History

CIRCLE 67 ON FREE INFO CARD

tion, and composition. So I was a little overqualified. But my talents were discovered two years later and I started to write arrangements for almost all our acts. String arrangements. Horn arrangements for Wilson Pickett and many other artists on the label.

Give us a sense of what it was like in those early days of in-house production at Atlantic.

It was a very heady atmosphere. Ahmet Ertegun might send in Buffalo Springfield masters from Los Angeles or Led Zeppelin masters from London. Jerry Wexler would go down South and he would send in a lot of great Stax masters. New York was sort of the hub, where all these tapes would be sent. And I was in the middle of all that. There was plenty of recording being done in New York, too. Cream would be in the studio. And Tom Dowd and I produced the Young Rascals in the mid-'60s. Later on, in 1966, when Aretha Franklin was signed, she would record in New York, too. So those were exciting days

The Young Rascals were your first rock act?

Yes. Supposedly, I was the music man at Atlantic, doing orchestrations and things, but I really learned production working with the Young Rascals. I went to school with them. And it was a lot of fun. Their antics were like Marx Brothers films in the studio. And my first record [i.e., as a producer] was [the Young Rascals']

"Good Lovin'." It was Number One. I was bitten by the bug after that.

With so many great producers on staff at Atlantic — Jerry Wexler, Tom Dowd, yourself — how did each of you go about establishing his own niche?

That came in time. All in all, there weren't too many people working at Atlantic. It was a small company. We would run into one another's offices with acetates, saying, "Hey, this is what I did." People would listen and comment. It was an ongoing creative environment. I had a great rapport and friendship with Tom Dowd and Jerry Wexler. We did [Dusty Springfield's] *Dusty in Memphis* together, and some of the Aretha Franklin albums. However, I think

I established my identity on projects I did not do with Tom or Jerry. I was given the job of doing Brook Benton. I was all alone in Miami recording him live. Jerry Wexler said, "Why don't you do this Tony Joe White song called 'Rainy Night in Georgia?'" We did it, and I guess I had my imprint on it. I started to develop a certain style. Especially in the mix. I like to have a lot of layers — different horizons in the background. "Rainy Night in Georgia" was a very beautiful and successful record. I would say that was maybe the beginning of my breaking away from my other two partners.

What kind of role did you have in the Bee Gees's musical and career transforma-

tion? They started out as a Beatlesque vocal harmony group, then all of a sudden they were this disco hit machine.

I think maybe I planted the seeds. I made an album with them called *Mr. Natural*. It was a very nice album, but it was a disappointment commercially. So the next album we were doing I said to them, "Why don't you listen to some of these people like Stevie Wonder?" You know, the current R&B singers and songs. They did, and out comes "Jive Talkin'." We didn't know we were doing dance records, for example on "Nights on Broadway." We just thought we were making a record. But when Ahmet Ertegun and the Bee Gees's manager Robert Stigwood heard it, they came

down to Miami and said, "Whoa, this is great." Working in the studio with the Bee Gees, the atmosphere was really charged. We would bounce off one another. I had an ARP 2600 synthesizer. We had bass lines played on that — and chords. It was a monophonic synthesizer, but we built chords track by track. We did a lot of stuff with the ARP that I guess was cutting edge at that time. And then Barry Gibbs discovered that falsetto voice. He credits me with being the catalyst there. There was a vocal line in a song and I asked him, "Can you take that up an octave?" In order to sing it an octave higher, he had to go into a falsetto voice. So that's how it happened.

They changed labels shortly after that, so I wasn't able to work with them for a long time, like when they made that great, successful *Saturday Night Fever* album. But I guess the album before that, *Main Course*, had a lot of those elements in place. Then, of course, I worked with them again in the '70s and '80s. We're great friends.

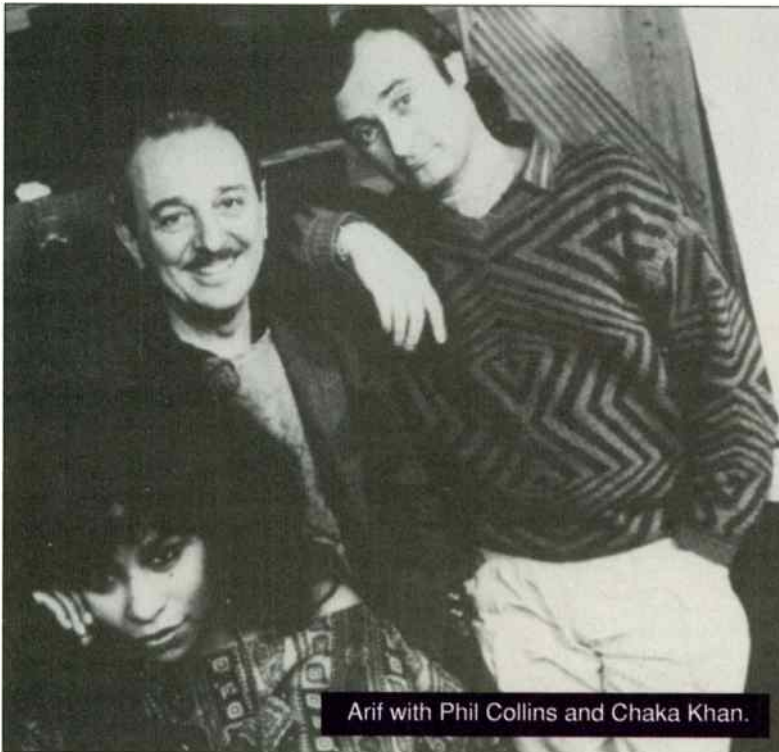
You've worked with so many of the great divas — Barbra Streisand, Aretha Franklin, Chaka Kahn, Patti LaBelle... Are any of them one-take vocalists?

With today's technology, you have more choices, of course. But with Barbara Streisand, for example, it's always

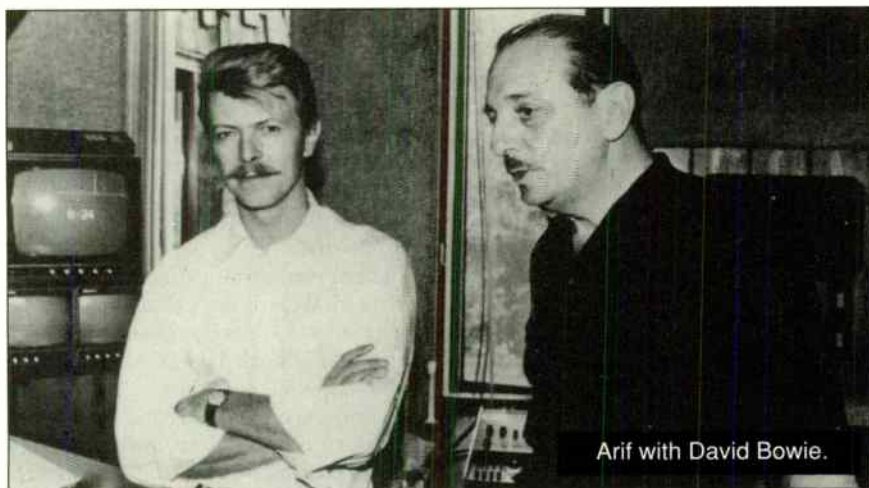
a live vocal. She will do a few takes live with the orchestra. And then we may pick and choose a few lines from different takes. With Bette Midler, it's the same thing. Sometimes you have a great live performance that you want to keep. Or, if you want, you can dress it up with a few choice lines from other takes.

There are stories that Streisand is difficult to work with.

Contrary to what everybody is saying, these divas are wonderful people. Just like any deserving artist, they have the right to be a little more picky than usual. I think my secret with them is I respect their genius. If Bette Midler says, "You know, I'd like to cut one bar out in this section," I don't say



Arif with Phil Collins and Chaka Khan.



Arif with David Bowie.

to myself, "What does she know?" I say, "Wait a minute, she may know something. Let me honor that request." And we work together. It's her record. That's why they respect me and I respect them. I have no problem when I work with these ladies at all.

**What is your approach like to selecting material for an artist? What do you look for in a song?**

The material really has to be married to the artist. Can the artist make this song his or her own? It could be a wonderful song like, "Wind Beneath my Wings" or "From a Distance" with Bette Midler. Or it could be more of a novelty/dance song like "I'm Beautiful." As long as it sounds natural, not contrived — and there's a story. That's what I look for. Or sometimes I'll commission a song. I'll call Dianne Warren and say, "I'm working with so and so. Would you send me a song?" And she will. We did a song with Roberta Flack a few years ago, with Maxi Priest as a guest vocalist. And [Dianne Warren] sent me a song. It was called "Set the Night to Music," and it was a Top 10 record.

**Do you see any trends in songwriting right now? What seems to be working?**

Well, the Backstreet Boys remind me of the Bee Gees: love songs with a beat. Hand-some young men. So maybe the trend is going a little bit toward romanticism. The Latin explosion has been a great shot in the arm for the industry, of course. And there are artists like Brandy, Maxwell, and Eric Benet — people who actually sing songs, which is great. I am from the old R&B school. I want a good melody to be sung. **What impact has the project studio had on the industry?**

I think it has had a big impact. For a few thousand dollars, you can record a digital master in your home studio. This gives a lot

of power to young, aspiring producer/engineers. But, of course, to have the equipment is not enough. You have to find the artist, whether it's you yourself or someone else. But once you have that, you can record at home digitally.

**Has all that played a role in the way you work on album projects?**

Yes. I have a sort of musical family here in New York and in Los Angeles: arrangers, producers, and musicians who all have their own project studios. If I'm doing a project, I work on arrangements with these people in their project studios. I'm very hands on. I come up with an idea, or they do, and we change the arrangement. Then we bring the artist to the project studio and do a guide vocal to make sure everything is alright — that the key is OK, and things like that. This way we don't waste time when we go in to cut the master. Pre-production is very, very important. How long it takes to get to the chorus and things like that. And those decisions are always made in consultation with the artist. For example, we did the preparation for Jewel's Christmas album almost entirely on the phone. She was on the road. She'd go to her music director on the road and try a few keys for songs. Then she'd get back to me and say, "Alright, I'll do 'Silent Night' in G." Then I would send mock-ups to her — arrangements done in these various project studios. If there was something she didn't like about the arrangement, we'd make changes. So, even though she was on the road, when she came in the studio to sing her vocals, she was familiar with what we had done. It was as if she had been there for the whole preproduction process. So all this project studio technology is really great.

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Working with Billy Corgan on the *Christmastime* project, was there a similar exchange of tapes and ideas back and forth?

The same kind of thing, yes. He sent me a DAT of his composition — a keyboard version of it and a guide vocal. And I asked, “Could I extend this section a few more bars here and there?” What we did was we kept his keyboard part. We put it on tape with SMPTE and I wrote my orchestral arrangement — strings and woodwinds — to that. And then he came in and sang. He was also there when we did the orchestral overdubs. He’s a very nice man and very erudite. He knows a lot of things — literature and things like that. A very well-educated young man.

Do you have a favorite console you always work on?

Right now, I’m working on an SSL 9000. And the Neve Capricorn is very helpful, especially in sessions like the one I did with Barbra Streisand. She was at home in Malibu and we’d play her the mixes from New York, over fiber-optic telephone lines using EdNet. She would call

and say, “Can I hear yesterday’s mix again?” And with the Capricorn we didn’t have to wait hours for a recall. Press a button, and it’s there. Especially if you stay in the digital domain, or just use a very few analog effects on the outside. So it’s a great time saver and, of course, an excellent-sounding console. We were able to mix five songs in seven days.

When you write orchestrations, do you do it in the traditional way, on paper?

Yes. I do it on paper. Some of the younger people I’m working with play their orchestrations into a sequencer and then print out a score. But the print out is a little too mechanical, so you have to send it to a copyist and humanize it. I just write on scorepad. I used to write all my arrangements on a piano. But now I do have kind of a sophisticated synthesizer setup at home. I’m not a big computer man. I play things by hand, but I have a Kurzweil, a Roland 2080 with all the expansion cards, and an old Alesis drum machine just to keep time sometimes. And I have a TASCAM DA-88 for recording these

instruments. So I do try passages with actual sounds. I’ll say, “This sounds good, but maybe I should add a clarinet here.” So I’ll go back to my scorepad and add these things. I used to be able to do it all on piano. Now I write on synths the actual sounds I’ll be using, so I don’t have to imagine how it’s going sound. I’m cheating.

What are you working on currently?

Right now we’re doing *Sessions from West 54th Street*. We re-recorded Jewel’s Christmas album based on that, and we’re working on the mixes. I’ve put my own projects on hold this past summer to concentrate on the Jewel project. But I am working on an album of my own. It will have some art songs and some jazz-influenced material. I have to put that together. I also wrote an opera, which has been a sort of ongoing, moonlighting project for me. In June of ’98 it was performed in a loft in New York for one week. Now I have to try to find a new home for it. I have a Synclavier kind of simulated orchestra version, with the cast singing. I don’t think people usually do a demo for an opera, but I’ve got one. **EQ**

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World Radio History

## Hot Wax

Mastering for vinyl makes a comeback — and Precision Mastering leads the way

BY JOHN TOWNLEY

Celebrating its 20th anniversary, Hollywood's Precision Mastering is ringing

in changes on both the technological and personnel fronts. Since opening its doors in 1979, Precision has mastered many great artists: Alice In Chains, Amy Grant, Beck, Barenaked Ladies, Cake, Counting Crows, Bob Dylan, Eurythmics, Fleetwood Mac, Pink Floyd, Don Henley, Janet Jackson, Kiss, Nirvana, Roy Orbison, Tom Petty, The Red Hot Chill Peppers, Prince, REM, The Rolling Stones, Seal, Rod Stewart, Stone Temple Pilots, Barbra Streisand, Tina Turner, Stevie Wonder, and Frank Zappa. Although still based inside the same building in which it

started life as Precision Lacquer, the Hollywood-based facility has moved on considerably from the days when it was comprised of just one suite with a custom-built console.

Now boasting a state-of-the-art four-room setup with Sonic Solutions, Manley, Sontec, dB Technologies, Harmonia-Mundi, Weiss, Prism, Genesis, and Tannoy equipment, Precision Mastering is starting to realize owner Larry Emerine's long-held ambition to expand its facilities and diversify its client base. But although he's mastering everything these days from Sarah



PHOTO BY HENRY DITZ

LACQUER STORE: Larry Emerine (left) and Tom Baker know that vinyl isn't dead, in part thanks to a burgeoning DJ market.

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CIRCLE 69 ON FREE INFO CARD  
World Radio History

McLachlan to Nine Inch Nails, plus a holistic hamper of hip-hop and dance club singles, he's mastering in a medium he never thought would see the new millennium: He's mastering in wax.

Well, lacquer, actually, but it's the very same medium the Beatles and Stones were carved into and most industry buffs thought was history. We're talking supreme analog retro here, and he's doing a land-office business.

Why not stick with industry-standard digital mastering and the CD? The answer is simple — because vinyl discs are suddenly popular, they're versatile and favored by DJs, they make extra money for the labels, and, some say, they sound better.

Anyone with open eyes will have noticed that discs are making a comeback — major big-city outlets coast to coast have whole vinyl sections these days, and you can find your choice of half-a-dozen good turntables at large gear dealers. Someone is feeding that market, and that someone is Larry and his lacquer-mastering master engineers such as Rick Essig, Tom Baker, and Don Tyler.

Why vinyl, why now? Larry explains: "Nine Inch Nails, for instance, put a two-record set out. The vinyl is different — different versions, endings — which means the collectors are going to buy them. And black vinyl is like an antique to kids today, and with all this artwork. We can always argue that vinyl sounds better, but we took Tom Petty to vinyl, and when we played it back I was surprised at how musical the vinyl sounded. You take something that you thought sounded good anyway, but a little edgy, and you cut it on vinyl and you play it back, and it comes back somehow warmer and sweeter. It's amazing. I'd heard the record for three months, yet I'm taking the same information off the computer system, cutting it, and it should sound worse, but it sounds more like music. I think it has something to do with the mechanics of the way vinyl works and the way you have to reformulate the sound, so it comes back more musical. I think that kids are tuning into that, too."

Not just the kids, but the folks who get them up and dancing, Larry explains: "Rick cuts vinyl because the DJs like vinyl. They can play CDs, but they really like vinyl because they know it's going to start, not going to tick, or have any digital skips going on. They can get their fingers on it

— they can put their headphones on and feel where the beat is. There's a thing you can do with vinyl that you just can't do with CD. If you watch them work, you can see why they want vinyl. I don't know whether they care about how it sounds, but I suspect the same issues work in a dance club. If you scrape some of that super-high end digital junk out of there and give it a little natural, warmer midrange — and the bottom is always better on vinyl — you get a sound that is just more pleasant to dance to."

Is this a totally retro history trip, or is mastering for vinyl a different ball game these days? Both, according to Emerine: "I think we're cutting 4–5 dBs hotter than we used to, and there's more equipment to control the high energy as well. Recording blanks are quieter now than they were. We got out of vinyl and got into DMM (copper mastering) because the blanks were noisy, but now you can get blanks that are good almost all the time. There was a time when nobody was making a blank that was any good, and it was a nightmare — we did so much recutting. But, at least since we've been doing it again, they've been shipping blanks that work, without the recutting issues we had ten years ago. DMM never sounded as good, but it was quieter, so we converted — plus you can cut longer sides with them — but it was slightly cold and metallic sounding. We lived with it, but now we're back. It may not last, but it seems like every act that comes through here cuts vinyl as well."

Cutting engineer Rick Essig agrees: "Big or small, the acts are all putting out vinyl. The big labels still like to release any singles they put out on vinyl, doing anything from four to six remixes. The assimilation of hip-hop into pop has crossed over so much that they're trying to get as many platforms out there as possible. You get the DJs playing records they might not have been playing five or ten years ago, but the club scene has changed so much these days that they're playing everything. They're remixing Tory Amos songs to be underground club tracks as well — you can't even tell it's the song that was on the album."

But even in the best of worlds, mixing analog and digital approaches can be a problem. Even with the best state-of-the-art equipment, bits and grooves, sometimes, are a hard marriage, explains Rick: "The cutters themselves are able to deal a lot better with program, with a lot

better filtering systems, so a lot of the time you're just cutting what was done for the CD. You're not getting into much special unless you're getting into time constraints, since CDs are longer and you can only get 42 minutes onto a vinyl side. It's a trade-off between time and volume. Types of content are more problematic, as with today's samplers, you're dealing with a lot of straight, digital content, which vinyl does not like. A lot of samples will have pure square waves, and a lathe cannot cut that. And you run into problems with phase and phase relations — like you can't have a kick drum floating around left to right — a lot of technical things that the older guys always knew, which younger guys have no clue about. But the machines themselves are cutting a lot better than they used to, so you win half the battles, but then you have other battles to fight in terms of these new kids."

But whatever Rick is faced with, he's got demanding DJs at the end of the food chain, regardless of what younger artists and producers churn out: "A lot of the electronica stuff is what's going into the clubs, so you have guys churning this out in their basements, which is a great trend, but some of it is a headache when it comes to putting it down on vinyl. For most of my clients, I'm doing pretty much EQ, so, when it comes out on vinyl, the DJs will know it's club-ready and playable — because if the record's not loud enough or it's dull, they just won't play it. They want a competitive record put out no matter what they give me, so it's my job to put the spit and polish on it."

Vinyl records aren't the only technology the old-timers may have got better. Laments Larry: "Tapes sounded better back then, too. I listened to some old tapes of the Doors and they sounded like they were recorded yesterday. I couldn't believe the difference from what we've got today. They took out some of the chemicals that were in tape back in the '70s because they were carcinogenic, and now the tapes don't sound as good as they did in the old days."

What a trade-off...

*Producer/engineer John Townley designed and built the first-ever 12-track studio back in 1967, where every mix eventually wound up on, well, a lathe. And, like that venerable instrument, he still finds it difficult to turn sharp corners...*



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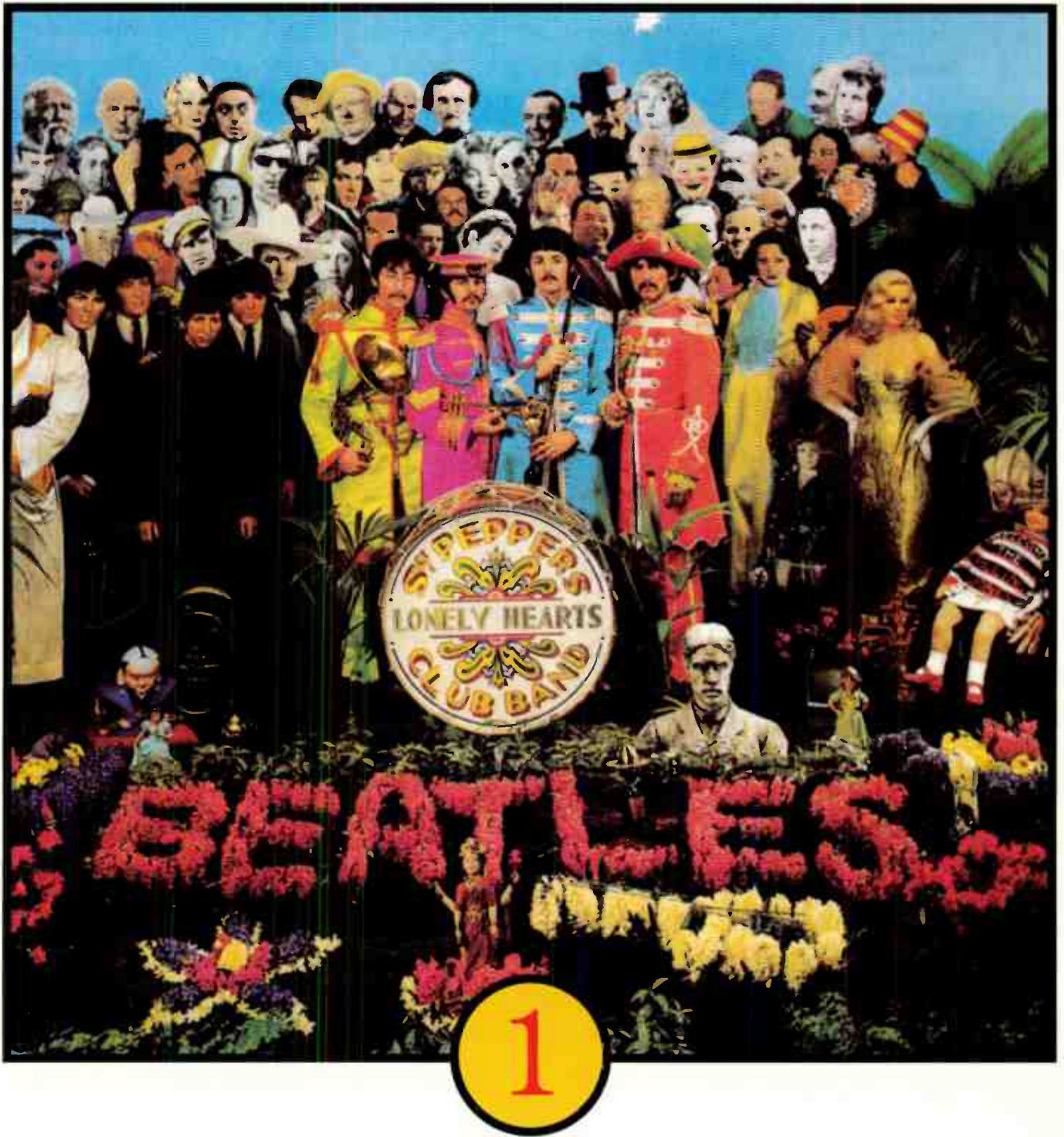
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# THE BEST RECORDINGS OF ALL TIME

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**W**ith the end of the millennium quickly approaching us, it seems everyone is looking back at the “millennium that was.” Who are we to buck a trend? The following pages hold your votes (gathered through [www.eqmag.com](http://www.eqmag.com)) for the best *sounding* recordings of all time. We’re not talking performance quality (but, of course, that plays into it) — just the quality of the recording. Most of the albums on this will come as no surprise — but perhaps that’s all the more reason to give them their due now. They pushed the envelope of recording in the 20th Century, and inspire us to take it even further in the 21st.



# Sgt. Pepper's Lonely Hearts Club Band (1967)

The Beatles

Nothing less than a milestone in the history of recorded music, *Sgt. Pepper's Lonely Hearts Club Band* solidified The Beatles's efforts to establish pop music as a "serious" art form and forever changed the way records are made. To think that *Sgt. Pepper's* was produced more than 30 years ago is almost frightening in light of the sounds that were invented and recorded for this masterpiece.

In late 1966, The Beatles — along with producer George Martin and engineer Geoff Emerick — went into Abbey Road's Studio Two to begin recording songs for their new album. Ironically, the first two songs recorded in the *Sgt. Pepper's* sessions didn't appear on the album. "Strawberry Fields Forever" was

# THE BEST RECORDINGS OF ALL TIME

first, going through many revisions both musically and sonically. On November 24, 1966, The Beatles recorded "Strawberry Fields..." on a 1-inch, 4-track Studer J37 tape machine. All of the rhythm instruments were recorded to one track; George Harrison's slide guitar was recorded on the same track as the lead vocal. This simple version was never released. The song debuted a new instrument called the Mellotron, an analog sample playback machine that produced sounds via tape loops triggered by a keyboard. You can hear the Mellotron's flute sounds on the finished version of the song.

As "Strawberry Fields..." evolved, it became quite a bit different from John Lennon's original intention. Ultimately, the song was re-made with an arrangement including brass and strings scored by George Martin. Lennon liked both versions of the song and asked the producer to join the beginning of the original version with the end of the heavier, orchestrated version. Unfortunately the two versions were recorded at different speeds, in different keys. Legend has it that Lennon told Martin, "You can fix that!" and so began Martin and Emerick's efforts to do the edit. As fate would have it, the faster version was also higher in pitch by a half-step. Slowing down the fast version and speeding up the slower version allowed Martin and Emerick to perform an (almost) undetectable edit between the two. Since the song was released as a single, it was not put on *Sgt. Pepper* — Beatles manager Brian Epstein had a policy of not including singles on their albums (the same may be said for "Penny Lane").

In any case, "Strawberry Fields" set the tone for the sessions to follow. In addition to the Mellotron, The Beatles were experimenting with other "new" instruments such as George's sitar on "Within Without You" and the clarinets on "When I'm Sixty-Four." In making *Sgt. Pepper*, The Beatles used the studio as an instrument and George Martin supervised the proceedings, serving as the band's advisor, chaperone, musical realizer of their concepts, and — ultimately — as the fifth Beatle. If the boys wanted something weird or extraordinary, Martin came up with it. On "Being For The Benefit Of Mr. Kite," John wanted to create a carnival atmosphere, so he and Martin gathered together

a variety of steam organ recordings. These were cut into pieces and randomly rejoined forming the bed of the track, which transformed it into a noisy circus.

The Beatles proceeded with their recording much as we do today, adding instruments to a song over a period of time. Paul McCartney might overdub his bass part after the other rhythm instruments had been recorded, allowing him to work out his melodic lines. Or Ringo might lay down a basic track and come back days or even weeks later to add a hi-hat or maraca, finding the song in quite a different form from what he previously heard. Mono tape machines were used for creating echo and artificial double tracking (ADT) on John's and Paul's voices.

The crown on *Sgt. Pepper* is "A Day In The Life" — which started as two completely separate songs. The beginning and ending of the song ("I read the news today...") were John's unfinished creation. Take one of the song had maracas, piano, and bongos premixed to track one and John's echoed voice on track four. The boys didn't have a bridge for the song, but knew *something* would go between John's verses, so they recorded a 24-measure count with an alarm clock sounding at the end. Meanwhile, McCartney had been working on a completely different song using the lyric "Woke up, got out of bed..." so the group decided to use this to complete John's song. The empty bars would somehow serve as a connection for the pieces.

Paul had the idea of recording a huge orchestral buildup over the 24 bars, with each instrument starting at its lowest note and ending at its highest. This recording of the orchestra marks what may arguably be the first synchronization of two multitrack audio recorders. Knowing he'd need to record a lot of tracks at the session, George Martin asked Abbey Road Studio's technical director Ken Townsend to come up with a method of running two 4-track machines together. Townsend's solution was to record a 50 Hz tone on a track of the first tape. This tone was fed from the first tape machine to an amplifier that increased the tone's signal level until it was strong enough to run the capstan motor of a second machine, thus ensuring any variations in tape speed on machine 1 would be matched by machine 2. Amazingly, it worked. Emerick recorded the first orchestra take onto track

## AL KOOPER'S 100 Greatest Recordings of All Time

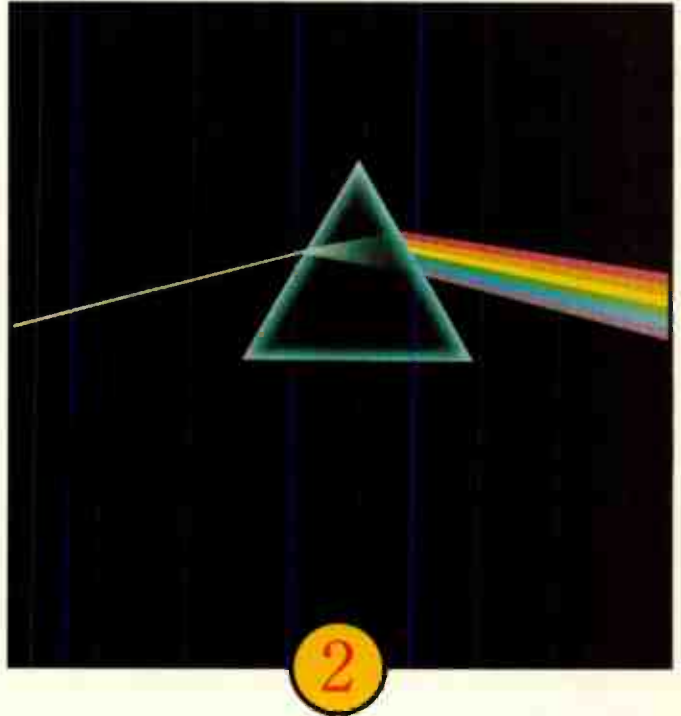
When resident Kurmudgeon **Al Kooper** heard that we were asking readers to vote for the top recordings of all time, he became inspired. What follows is Al's extensive list of personal picks.

one of machine 2 while monitoring machine 1; then they repeated the process three times, resulting in an ensemble of 160 pieces. Ultimately, this 4-track orchestra tape was bounced back to one track of the master.

The final musical statement on *Sgt. Pepper* is the grand E major chord, the sound of which was created by John, Paul, Ringo, and Mal Evans simultaneously playing on three pianos. Once they had recorded a first keeper take, they overdubbed it three more times until the tracks were full. To make sure that the chord would ring as long as possible, Emerick brought the faders way up as the notes faded into silence. If you listen carefully, you can hear a chair squeak at the very end of the chord! —*Steve La Cerra*

## Dark Side Of The Moon (1973)

Pink Floyd



It's tough to come up with something that hasn't already been said about Pink Floyd's masterpiece release *Dark Side Of The Moon*. There's the fact that the record spent more than ten consecutive years on *Billboard's* top 200 album chart — dropping off for only a two-week period. There's the fact that the record is seen by many music critics as the crowning achievement from a band that proved to be extremely influential to a diversity of musical styles. And *Dark Side Of The Moon* introduced the wonders of electronic music to the general music-listening public by combining elements of synthesis, music concrete, and pop song writing. Oh, by the way — did we mention that it sounds really good?

*Dark Side Of The Moon* was recorded by Alan Parsons at Abbey Road in London on a 16-track, 2-inch tape machine. In

an *EQ* interview several years ago, Alan recalled making every effort to work on *all* the sessions for *Dark Side Of The Moon* so that he'd be the only engineer on the project. Although certainly not the first, *Dark Side Of The Moon* was one of the earlier records on which the engineer was credited in the liner notes.

During the making of the record, tracking, overdubbing, and mixing sessions all took place in stereo — though Pink Floyd and Parsons did have quadraphonic in mind when producing the work, and eventually produced a quad mix. An example would be the clocks ticking and chiming at the introduction of the song "Time." A trip to an antique store nearby the studio yielded an assortment of clocks that were individually recorded "on loca-

What a daunting task! I don't think the order is correct and I won't be held to it. This is also my twisted opinion and not meant to reflect the opinions of others. My expertise and interest does *not* extend to rap, hip-hop, country, or classical music, so this will be a short list for those categories. I selected for engineering and production values first, and performance second. With impeccably good taste, I have omitted anything I was an artist or producer on; it doesn't look right to me when other people do that. So The Tubes, Child Is Father To The Man, Lynyrd Skynyrd, and Mike Bloomfield are left off for possible inclusion on other people's lists. I guess the purpose of all this is to vent and also to perhaps guide a few curious souls toward something they might not have come across on their own.

Cheers and Happy New Century!!!

KEY: \* = Single Track, Not An Entire Album  
+ = Not Available On CD  
# = Import CD

1. **PET SOUNDS (BOX SET) — BEACH BOYS.** In the garden where naiveté and genius meet, there are bass harmonicas, stratocasters, violas, oboes, barking dogs, and trains. Put this on and go away for awhile.
2. **SONGS FOR SWINGING LOVERS — FRANK SINATRA.** Great recordings, great vocals, great arrangements, great look — smooth perfection.
3. **WALL OF SOUND — PHIL SPECTOR BOX SET.** Where my generation learned how to overdub and overdub and overdub, etc.

# THE BEST RECORDINGS OF ALL TIME

tion” in stereo. Back in the studio, these stereo recordings were flown onto the 16-track master tape in a manner so that the various clocks’ chiming sounds would occur at the same instant, forming the rather startling introduction.

This collage of ticks and clangs was then premixed (or “reduced,” as they used to say) to four tracks of the original 16-track master — the concept being that each of the four tracks would be routed to a discrete speaker in the eventuality of a quadraphonic mix.

Another interesting sonic tidbit that made *Dark Side Of The Moon* quad-friendly was the tape loop that forms the basis for the song “Money.” A total of seven different money-related sounds — including a cash register’s “cha-ching,” paper money being torn, and coins being dropped — comprise the tape loop, with each sound lasting a 1/4-note in length. These sounds were edited together to form a measure of 7/4, which is the time signature of the song. The sounds were then recorded onto a 4-track machine, with the sonic vision that a quad remix would feature the sounds panning around the four corners as the tape loop progressed.

Finally, there’s the now-famous 1/4-note echo heard on the lead vocal in “Us and Them.” Generated via tape delay, each repeat of the voice was returned to a different channel of the quadraphonic field. To achieve the radically long delay time, Floyd and Parsons used an 8-track tape machine running at slower-than-normal speed. Each repeat actually used two tracks in an effort to extend the delay time. The original signal was sent to the first track, where it was recorded and played back from the repro head. Simultaneously, the play signal from the first track was routed back to the second track (on the same machine) where it was recorded. When the sound was played back from the second track’s repro head, the result was the longer-than-normal delay time.

Even with the advent of the then-new 16-track tape machine, Pink Floyd was still aching for extra tracks. As a result, certain tracks were home to more than one instrument — making the mix process quite complex. Analog tape machines were used for ADT (artificial double tracking), predelay to reverberation

plates, and tape delay. One can only imagine the roundup of tape recorders from Abbey Road’s various studios lined up like pinball machines into the control room where the remixing of “Us and Them” would take place!

It’s amazing how *Dark Side Of The Moon* — now almost 30 years old — pioneered many of the effects we currently employ. We can easily call up echoes, delays, choruses, and predelayed reverb from a single digital box with the push of a few buttons, whereas these guys had to *invent* them. Even the aforementioned loop for “Money” was a harbinger of things to come: after all, it’s really a sampled *analog* loop. —*Steve La Cerra*

## Pet Sounds (1966)

### Beach Boys

In December of 1966, Brian Wilson heard The Beatles’ *Rubber Soul* and interpreted it as a direct challenge to make an album as artistically interesting and stimulating as the Fab Four’s. He and collaborator Tony Asher spent the next two months fleshing out the lyrics to what would become Brian Wilson and the Beach Boys’ statement of a lifetime — *Pet Sounds*.

When Wilson went to work at Western Studios (now Allen Sides’s Oceanway Studios) in Southern California, he was in a good position; his Beach Boys albums were on top of the charts and his record company entrusted him to do whatever he wanted in the studio. Wilson would use this freedom to create a recording atmosphere in which he could explain to the world, musically, exactly how he felt on the inside. “I was in a loving mood for a few months and it found its way to recorded tape,” Wilson wrote in the liner notes for a 1990 Capitol Records reissue of *Pet Sounds*.

Wilson proceeded to book some of the hottest musicians in and around the L.A. area, including Hal Blaine on drums; Glen

4. SGT. PEPPER — THE BEATLES. Sir George Martin is God. Could not have been made without him.

5. THE NIGHTFLY — DONALD FAGEN. A clean machine with sinewy guitar and the best vocal adenoids around.

6. GRACELAND — PAUL SIMON. A wandering Jew walks in the back door outside Johannesburg and walks out with a new genre — world music. If he had stopped in Brazil on his way home, he could have given David Byrne a lift.

7. WHAT’S GOIN’ ON — MARVIN GAYE. Independence Day in Detroit, Marvin throws off the Motown shackles and raises the hackles on the back of your neck.

8. KIND OF BLUE — MILES DAVIS. A stellar cast with great material is captured like a snapshot in bluesiana ecstasy by producer Teo Macero. Miles, ‘Trane,

Cannonball, Bill Evans, Paul Chambers — even better on disc than on paper, if that’s possible.

9. REVOLVER — THE BEATLES. Up a few notches from its predecessor *Rubber Soul*, serious envelope pushin’ is goin’ on. Sadly, they don’t make music like this anymore. In pop music at the Millennium, necessity is no longer the mother of invention.

10. GOOD VIBRATIONS — BEACH BOYS\* (single). One of the greatest singles ever released. Butt-cut editing, Theremins, amazing organ sounds, bass and guitar doubled, and the trademark BB harmonies. Never sounds dated, always a rush.

11. THE SUN SESSIONS — ELVIS PRESLEY. Inside the room during the invention of rockabilly and rock ‘n’ roll. Chemistry like you wouldn’t believe. Producer Sam

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# THE BEST RECORDINGS OF ALL TIME



Campbell, Tommy Tedesco, Jerry Cole, Barney Kessel, and Billy Strange on guitars; Ray Pohlman, Carol Laye, Lyle Ritz, Julius Wechter, and Bill Pitman on bass; Leon Russell, Al DeLory, and Don Randi on piano; and countless others. The Beach Boys were used exclusively on vocals, with an occasional guitar track from Brian's brother, Carl Wilson. Wilson produced the majority of *Pet Sounds* with chief engineer Chuck Britz in Western's Studio 3.

Being very small in size, Studio 3 contributed greatly to the sound Wilson was trying to achieve. The various instruments leaking together — a practice usually avoided like the plague in today's studio environment — created a blend that provided that certain tonal quality that would become *Pet Sounds*. Wilson set

up the musicians like an orchestra. He strategically placed sound-absorbing baffles and created cubicles for the musicians who sat with their backs to the side walls.

"Brian knew basically every instrument he wanted to hear and how he wanted to hear it," says engineer Chuck Britz. "When Brian would come in, there were usually no charts, no written music. Everything was going on inside his head. A lot of times, he didn't even have a title for the song. He would play it for Ray Pohlman; Ray would take what Brian was telling him and write it out. There'd be a guy in the horn section who would take Brian's idea and transpose it for the other horn players. That's how it worked — step by step. All this time, I was in the booth by myself, except if there were musicians in the booth going direct. Very seldom was he [Wilson] in the booth."

At the time of *Pet Sounds*, the board in Studio 3 was a custom-made Bill Putnam tube console with 12 inputs. It employed Putnam's Universal Audio 610 input modules, and included, in basic form, most of the features used in today's consoles, including a mic preamp, a line switch, gain control, echo send, an equalizer, and a three-bus selector. Monitors were Altec 604B's in Putnam's cabinets powered by UA amplifiers. The tape decks were Scully 4-track 288's. Many different microphones were used during the recording of *Pet Sounds*, including Electro-Voice EV666's, AKG C60's, Shure 545's, Neumann U 47's, and RCA 77DX's. The EV666 was the predominant mic, with the Shure 545 coming in a close second.

"It varied a lot as to what got used where," explains Mark Linnet, who produced the *Pet Sounds* reissue in 1996. "The AKG C60 got used as a drum overhead as often as the Shure 545. Drums would typically get three to six mics. The bass would often be miked with one of the 77's. Horns would be 77's or C60's."

One of the notable aspects of *Pet Sounds* is that it was mixed in mono. Recording the tracks in stereo was never Wilson's intention.

Linnet explains: "Brian felt that making records in mono allowed the producer to present the record exactly as he wanted it to be heard without any interference from the listener's stereo, which could be set up in many different ways."

- Phillips fulfills his fantasy of a white boy who can sing black. Millions are made, but only \$40k by Sam himself.
12. **LIVE AT THE APOLLO — JAMES BROWN.** Soul music and screaming served up in just the right amounts. The greatest live album ever made.
13. **THE BIRTH OF SOUL (BOX SET) — RAY CHARLES.** At the intersection of Gospel & Blues, Ray made his stand. It's still standing.
14. **THE LOOK OF LOVE/BURT BACHRACH BOX SET — VARIOUS ARTISTS.** The Gershwin of pop — his best and tastiest moments are collected here in multi-CD format. Many other CDs can now be traded in — all the good parts are on this box set.
15. **RUBBER SOUL — BEATLES.** The first concept album. Moon in June and three chords be damned!

16. **BLONDE ON BLONDE — BOB DYLAN.** No better capturing of the sound of 4 AM than "Just Like A Woman," "Sad-eyed Lady of the Lowlands," and "Visions Of Johanna." The rest ain't too bad, either.
17. **MY GENERATION — THE WHO\* (single).** You can hear the guitars and drums being smashed towards the end. Feedback, switch-flicking, and stuttering vocals herald the new order of 1966.
18. **HEARTBREAK HOTEL — ELVIS PRESLEY\* (single).** When I first heard this in 1956, I thought it was a little black man with a pork-pie hat hunched over a piano with a cigarette dangling from his mouth as he sang and tickled the ivories. My jaw dropped when I saw the real thing.
19. **BOOKENDS — SIMON & GARFUNKEL.** While not



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# THE BEST RECORDINGS OF ALL TIME

*Pet Sounds* is regarded by many as the perfect album. In a time when The Beatles were releasing seminal rock 'n' roll albums, Dylan was going electric, and revolution was in the air, Brian Wilson and the Beach Boys' heartfelt statement not only held its own, but would prove to stand the test of time. Wilson says it best in his liner notes: "During the production of *Pet Sounds*, I dreamt I had a halo over my head. This might have meant that the angels were watching over *Pet Sounds*." —Michael Sanchez

## Abbey Road (1969)

The Beatles

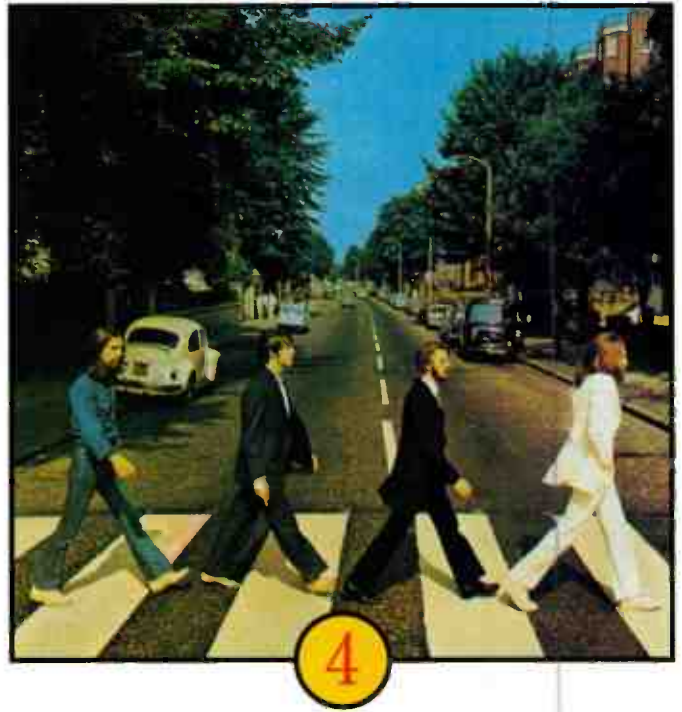
Although *Let It Be* was The Beatles' last album release, it was, in fact, the *Abbey Road* album that marked the final recordings of their career as an entity. *Let It Be* — or *Get Back*, as it was to be originally titled — was remixed/reworked by Phil Spector, so its release was deferred until after that of *Abbey Road*. In addition to George Martin and Geoff Emerick, a variety of now well-known producers and/or engineers floated in and out of the *Abbey Road* sessions, including Chris Thomas, Glyn Johns, Alan Parsons, Phil McDonald, and John Kurlander. Naturally, the album was recorded at its namesake studio.

Prior to the *Abbey Road* sessions, The Beatles were already using a 3M 8-track tape machine, but the new technology still didn't offer enough tracks for their productions. As an example, take the song(s) "Golden Slumbers/Carry That Weight." Basic rhythm tracks for the song consisted of Paul McCartney's piano/rough vocal, drums by Ringo Starr, and a bass played by George Harrison. Subsequent overdubs to the basics were a rhythm guitar, lead guitar, two vocals by Paul, and a backing vocal track featuring Paul, George, and Ringo for the "Carry That Weight" chorus section. Since the 8-track

tape was now filled, these tracks were premixed to stereo onto another tape, where six open tracks allowed further orchestral and vocal overdubs.

While the overdubbing technique was old hat — and the personal relationships between band members was strained (to say the least) — The Beatles still managed to find a bit of fun in the studio. "Octopus's Garden" contains a gurgling sound that was created by close-miking a glass into which Ringo was blowing bubbles, while a blacksmith's anvil was recorded for the clanging sound in "Maxwell's Silver Hammer."

"Maxwell's Silver Hammer" and "Because" were some of the earliest recordings showcasing an instrument that would



their most popular album, certainly their most ambitious. Shout-out to producer John Simon.

**20: MUSIC FROM BIG PINK — THE BAND.** Where masterful material meets minimalism in a world of good taste. One of the most influential debut albums of all time. Also produced by the rarely heralded John Simon.

**21: AJA — STEELY DAN.** Okay, Roger Nichols — I give! Slinky as a muthaf—ka...

**22: THE LEGEND & THE LEGACY (BOX SET) — LES PAUL.** The man who invented modern recording in the comparative dark ages, struts his stuff on four CDs. An enjoyable history lesson with tricks that still work!

**23: GIANT STEPS — JOHN COLTRANE.** 'Trane serves notice — things ain't what they used to be. Staggering (especially if you played tenor sax).

**24: THRILLER — MICHAEL JACKSON.** Michael sticks it out and Quincy shows him where to put it — in the history books.

**25: TUMBLEWEED CONNECTION — ELTON JOHN.** With the amazing bass artistry of Herbie Flowers leading the way, Reg shows The Band and The Eagles a thing or two. Wonderful production and engineering.

**26: MOANIN' — ART BLAKEY & JAZZ MESSENGERS.** Perhaps engineer/producer Rudy Van Gelder's finest quintet moments. One can proudly note: recorded in Englewood Cliffs, New Jersey!

**27: MERCY — ANDRE CROUCH.** One of the finest collections from the man who modernized gospel music in the early '70s. A '90s release, impeccably crafted, sung, recorded, and mastered.



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*Joe Ryan*

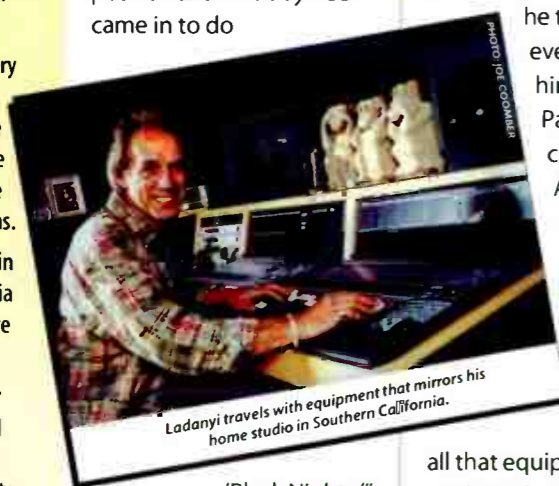
President • EMTEC Pro Media, Inc.

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I didn't recognize a lot of them. But every time they started playing a song, I had to say, 'I know that! I know that!' The melodies are just so catchy that they're unforgettable.

"One of the funny things in revisiting these songs is to realize they're all pretty much around two-and-a-half minutes long," Ladanyi continued. "I said to the guys, 'Hey, we've recorded 11 great songs and we've only got 27 minutes!' The thing is Holly and The Crickets found a way to say everything in two verses and a chorus."

The performances are sticking close to the original arrangements. "We were trying to stay pretty true to what the song was," noted Ladanyi. But every recording session presents unique possibilities. "Bobby Vee came in to do



Ladanyi travels with equipment that mirrors his home studio in Southern California.

"Black Nights," said Ladanyi, "and we started with the band just playing the song on acoustic guitars to rehearse. For some reason, I suggested we go play on the porch overlooking the lake. So we went to the porch with two acoustic guitars, Joe B. on standup bass, and J.I. playing the snare beat on a

cardboard box. It sounded great and that's the way we recorded it, with acoustic guitars and live vocals right on the porch. That's the kind of thing where people are going to hear The Crickets as the great band they are."

Ladanyi is no stranger to working with top recording stars. Among his producing and engineering credits, he counts work for Don Henley, Fleetwood Mac, REO Speedwagon, Toto, Jackson Browne, The Church, Warren Zevon, Phoebe Snow and Jeff Healey, as well as new projects by Lisa Hayes & The Violets and Jody Davidson. During the hiatus in The Crickets project, he worked on an album by the hit Mexican rock band, Jaguares.

Ladanyi arrived in Tennessee with the studio package

he takes everywhere with him – a Panasonic DA7 console, five Alesis M-20 tape machines, and all-TC Electronic outboard gear. "I normally travel with

all that equipment," he explained, "so that when I come back to my own studio, which has the same gear, the music is going to sound the same."

The Crickets sessions were all recorded to EMTEC/BASF 20-bit formatted ADAT tape. "I've been using ADAT tape since the machines came out," Ladanyi related,

"because of the flexibility it gives me. I do a lot of mobile recording and transferring of takes, and it's just not feasible for me to carry big rolls of analog tape. The ADAT world has made it very easy for me to get people's performances down."

Ladanyi's preferred tape these days is the EMTEC/BASF 20-bit Formatted ADAT Master. "I had been using many different brands of ADAT tape, but now I'm using BASF exclusively," said Ladanyi. "The sound is incredible. What I hear in a room comes back through my speakers. Whatever the BASF folks are doing, they're doing right."

One of the things Ladanyi thinks EMTEC/BASF is doing right is pre-formatting its 16- and 20-bit ADAT tapes. "Formatting tape is a drag," he said. "And when you have a big recording project like the one with The Crickets, it's very important for me to be able to pop in a tape and go instantly. Having ADAT tapes already formatted is incredibly convenient."

Gold Mountain hopes to have the album in stores by Christmas. "It's been an incredible experience to work with a legendary group from rock's earliest decade," Ladanyi said. "Knowing we had great songs, a great band, and great singers allowed me to enjoy myself and just concentrate on getting the performances down on tape. People are going to hear how unique The Crickets are, and also, I think, how much fun we all had making this album." ■



**D**anny Leake is not an engineer who is easily pinned down. In the last 25 years, the Chicago-based engineer has recorded artists of every musical genre and considers himself blessed never to have been pigeonholed into a particular style of music. He has worked with Stevie Wonder, The Police, Ramsey Lewis, Tom Waits, Hank Williams, Jr., Willie Nelson, The Beach Boys, and Desdinova, and has even recorded an orchestral arrangement for NASA. His most recent projects include the Ramsey Lewis Jazz Trio album *Apassionata* and a *Candlebox* track for The Waterboy soundtrack. Another element of his diversity lies in the way he approaches recording – he's an agile engineer, whether recording in the studio under unusual conditions or live on tour. His technical ability is tempered by his willingness to use unorthodox methods to get the job done. Studio Observer caught up with Leake before he left to record a Stevie Wonder tour in Japan.

**How would you describe your recording style? Your company is called Urban Guerrilla Engineers, which means...**

Which means "by any means necessary." I try to make sure that the technology doesn't get in the way of the music. If an artist has a statement that he's trying to make, I do whatever I have to do to make that happen. When I worked with Tom [Waits], he didn't want a regular studio setup. He just wanted to be able to record any place in the room at any time. We were at a studio in Universal that holds a hundred musicians at a time. So I told him to rehearse his guys and, when he was ready to cut, to look up and we'd have the microphones up and be ready to go. My assistants and I set things up around him wherever he decided to go in the room.

**How would your recording approach vary if you were doing a Ramsey Lewis album vs. a Tom Waits album?**

My approach varies for each type of music. I talk with the artist to find out what he or she is looking for, the type of sound they want. For instance, Ramsey Lewis doesn't like a really bright piano sound. He wants the piano to sound the way it does when he's playing it, which precludes sticking microphones right over the hammers. So on the last album we did, I had him play and I stuck my head in the piano until I determined where I could hear the sound Ramsey described. Then I put a Soundfield microphone there. The placement ended up halfway between the harp and the sound holes, which resulted in a slightly softer, more classical sound. But that's what he was looking for.

## In Session With... Danny Leake

With Tom, as I said before, my assistants and I worked around him and his band. He had a drummer who didn't have a drum set. He just hit whatever was around, including some old saws. Artists need to feel comfortable in order to give their best performance.

**What kind of live recording do you do?**

I've worked with Diana Ross, TLC and Johnny Gill, but mostly I work with Stevie [Wonder]. I've been doing the "Natural Wonder" tour with him for the last eight years. I got the gig because he decided he wanted to get back to a natural sound – he wanted to carry an orchestra with him – and I had a lot of experience with orchestras. His concern was, "How can I have an orchestra on the stage, as loud as my band plays?"

To do this, I had two VCA-linked PM 4000 consoles at front-of-house, one for Stevie and the band and one for the orchestra. I clipped a microphone, usually a Countryman Isomax or a Shure SM-98, to every string instrument in the orchestra. I mixed the orchestra feeds down to four stereo pairs, which went out to my main console and to the band and RF monitors on-stage. I sometimes set up a Soundfield microphone over the conductor's head to fill out the sound if needed.

**Whether working in the studio or on the road, do you record to analog or digital?**

Lately, I've been using a mix of analog and digital. I've been cutting digital since 1979, when I cut the first multitrack digital session in Chicago. Still, I have a great love for analog. Even this Ramsey Lewis album, which was a straight-ahead jazz thing, I recorded to analog two-inch on a Studer A-80.

**Is there an analog tape that you prefer?**

I'm in love with BASF SM 900, quite frankly. I got into that tape at an EARS shootout that I engineered. We did a live recording and A/B comparison between BASF and another brand. Almost everyone there agreed that on the BASF, the highs were higher, the lows were lower, and the center was clearer. Since then, I've been cutting all my analog projects on it.

**Do you often find yourself switching between analog and digital?**

If I have my druthers, I usually start the date on analog. Once we get into overdubs and things like that, if I have to go to a digital format, then I will. I just finished recording [jazz artist] Kurt Elling live at the Green Mill. In that situation, there wasn't a budget for analog two-inch tape, so we ended up rolling on DA-88s. But I used three Apogee AD-8000 digital converters as a front end for them, trying to get closer to that analog sound.

I have some clients who do their pre-production work on DA-88s, and I end up lots of times transferring that material over to 24-bit RADAR at a studio – Hinge Recording in Chicago – that I work out of. I still believe there is something about analog that digital just doesn't have. Digital is perfect, but sometimes you want things to be a little imperfect. I like the sound of drums and guitars off of analog. There's nothing greater than taking a guitar and slamming on the tape at +9 levels and hearing what comes back. ■

# Studio OBSERVER

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## Tape Talk

JEAN TARDIBUONO

Vice President of Sales and Marketing  
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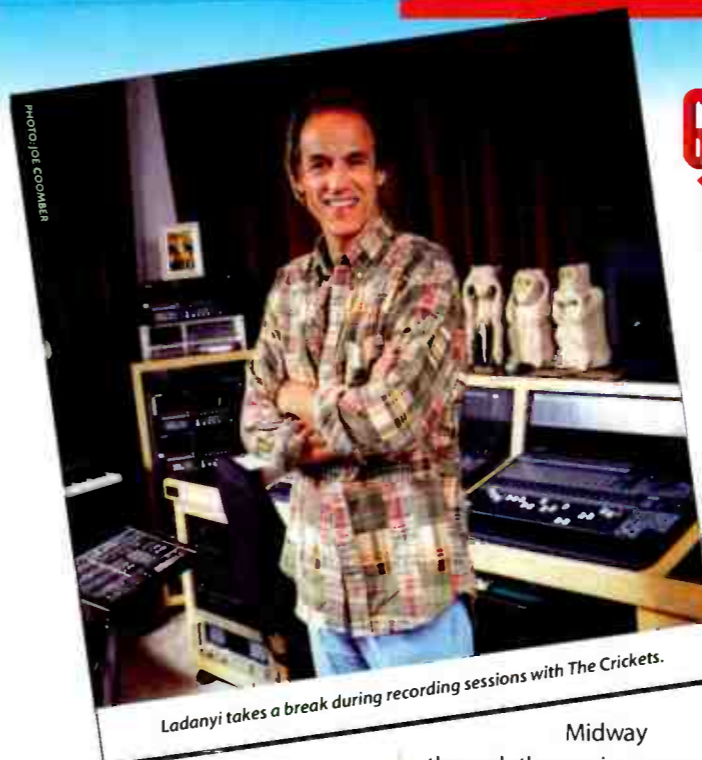


PHOTO: JOE COOMER

Ladanyi takes a break during recording sessions with The Crickets.

## Greg Ladanyi Produces New All-star Crickets Album

by Greg Ladanyi at Allison's studio on the farm.

"The big stars and the Holly legacy make this, of course, a very exciting project," said Ladanyi from his home in Southern California during a break in the recording sessions. "But something else people are going to get are the great performances of The Crickets. They're just phenomenal. After 40 years, they're playing as well as ever. The band has a magic, and it's my job to capture that and let people hear it again."

The all-original Crickets include drummer Allison, who formed the band with Holly in Lubbock, Texas in 1957, bassist Joe B. Mauldin, lead guitarist and vocalist Sonny Curtis, and pianist Glen D. Hardin. Curtis and Hardin joined The Crickets soon after Holly moved to New York in late 1958 to get more involved in the

business side of music. Holly died in a plane crash in 1959.

The Crickets had several post-Holly hits, including "I Fought the Law" (written by Sonny Curtis) and "More Than I Can Say" (written by J.I. Allison). Each of the Crickets also pursued successful solo careers as session and tour musicians and songwriters. Part of the Cricket magic — and one reason for their widely acknowledged influence on rock — was that they were one of the first self-contained rock 'n' roll bands, writing, playing and recording their own material.

Ladanyi was brought into the project by Burt Stein of Gold Mountain. "The stars are picking the songs they'll do," said Ladanyi, "and since every song is a hit, it's hard to have a problem with their choices. I know that when I looked at a list of song titles,

The stars were turning up at J.I. Allison's farm in central Tennessee this past summer to recapture the early rock 'n' roll magic that was Buddy Holly and The Crickets. Waylon Jennings, Nanci Griffith, Graham Nash, John Prine, Bobby Vee, and Paul McCartney were some of the musical artists filling in on vocals for the long-deceased Holly while being backed by the original Crickets, including Allison, who have never stopped performing as band.

Midway through the sessions, even more musical wattage was in the offing with the buzz that Bob Dylan, Don Henley, Keith Richards, Jackson Browne, The Pointer Sisters, Tom Petty, and Leon Russell might take Buddy Holly—turns at the mic.

The occasion for the superstar turnout was a new Crickets album — with the working title *The Crickets Under the Influence* — being put together by Gold Mountain Management, the management company for The Crickets. The album was produced and engineered

Continued on next page...

Ultimately change the face of rock music: the Moog synthesizer. George had purchased one of these electronic behemoths early in 1969, and, after a bit of at-home experimentation with the Moog (he recorded *Electronic Sounds* at his home using it), he brought the synthesizer to Abbey Road Studios where it could be used for the *Abbey Road* sessions. Much to The Beatles's credit, they didn't stop Moog sounds all over *Abbey Road* (say, like the Syndrum was featured on some disco records), but used it tastefully for the solo section in "Maxwell's Silver Hammer" where Paul played the part from the Moog's ribbon controller. Later on in the project, George used the Moog for an arpeggiated figure in the bridge of "Here Comes The Sun." And John Lennon used the Moog to produce a noisy wind effect that ran throughout the last few minutes of "I Want You (She's So Heavy)." John's intentional addition of noise to the recording must have caused quite a bit of upset to the conservative technical folks at Abbey Road!

Multitrack layering of sounds became "business as usual" for The Beatles, and, during the *Abbey Road* sessions, Paul took advantage of the technology to demo a song for a new group who had been signed to The Beatles's record label, Apple Corp. ("apple core" — the name was not accidental). The group was a badfinger, and the song was "Come And Get It," written by Paul. He recorded a working version of the song prior to a Beatles session in July 1969. Paul first recorded vocal and piano tracks and then proceeded to finish the demo by overdubbing drums, bass guitar, and another vocal.

One of the nicest uses of overdubbing can be heard in the song "Because," which features an excellent vocal arrangement by George Martin. John, Paul, and George sang three-part harmony over a sparse rhythm track, and then tripled that first track to produce a beautiful nine-voice ensemble that ranks among The Beatles's best recordings (check out the *a cappella* version on *Beatles Anthology 3*).

Though we now take it for granted, The Beatles's *Abbey Road* also pioneered a very important aspect of recording: stereo separation. Of course, there were other stereo recordings from The Beatles, but — regardless of instrumentation — the drums had always been on *one* track. Whether they were on their own track or premixed with other rhythm instruments such as bass and guitar, the drums were previously *mono*. But in "The End," Ringo was finally presented in *stereo*, with his drums recorded onto *two* tracks, one each for the left and right stereo image of the kit. If you listened carefully, you could actually hear Ringo's toms move between your two loudspeakers. That is, assuming you owned a stereo hi-fi. Absolutely revolutionary! What could be next? Putting the kick drum and snare drum on separate tracks? Indeed! —*Steve La Cerra*

28. **SILK DEGREES** — **BOZ SCAGGS**. Slick and soulful, it was great background music for satin-sheet-sliding. Many conceptions blamed on this album; none of them, however, immaculate.
29. **STICKY FINGERS** — **ROLLING STONES**. For "Bitch" and "Can't You Hear Me Knockin'" we give thanks.
30. **ODDESY & ORACLE** — **ZOMBIES**. The Zombies chase The Beatles (and catch them) at Abbey Road Studios.
31. **ROCK AROUND THE CLOCK\*** — **BILL HALEY (single)**. Talk about music standing up — Milt Gabler (Billy Crystal's uncle!) produced this at NYC's Pythian Temple in the early '50s. It was the clarion call to rock 'n' roll back then and stands up to '90s scrutiny. Great drum part and guitar solo!
32. **DUSTY IN MEMPHIS** — **DUSTY SPRINGFIELD**. The Queen records in Camelot. King Jerry Wexler presides.
33. **AFTER THE GOLD RUSH** — **NEIL YOUNG**. Simplicity of the soul. Stark, influential, anti-slick, and timeless.

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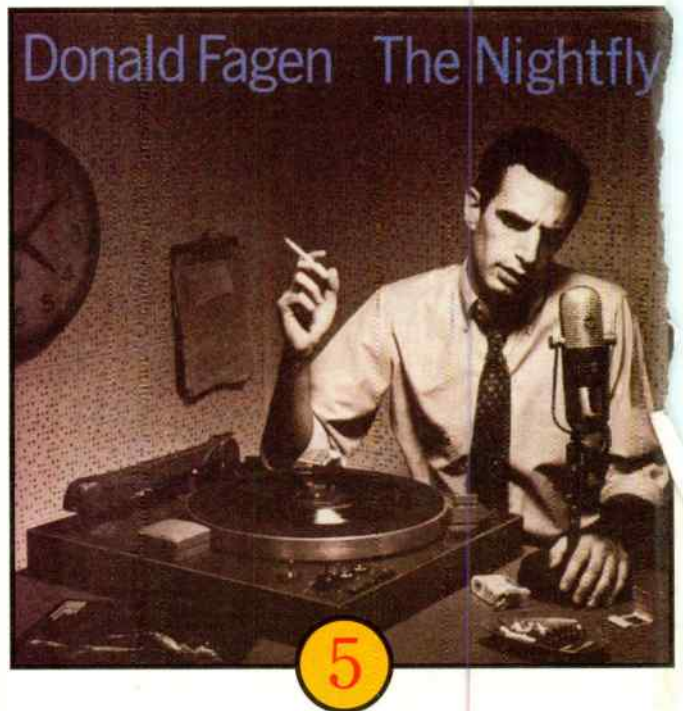
## Nightfly (1982)

Donald Fagen

Recorded when digital multitrack recording was still in its infancy, Donald Fagen's *Nightfly* is considered by many engineers and producers to be among the best-sounding recordings of all time. In fact, *Nightfly* is a favorite of engineers for evaluating the quality of a PA system when they walk into an unfamiliar venue, as well as for evaluation of audio gear in general. Recorded on the 3M 32-track digital tape machine and mixed onto the 3M 4-track digital machine, *Nightfly* was produced by Gary Katz; Roger Nichols was the supervising engineer (handling overdubs and mixing) while Elliot Scheiner handled engineering duties for tracking and mixing.

As we know well, use of digital recording media allowed for tremendous dynamic range, making tape hiss a problem of the past. But, alas, all was not well in paradise. Scheiner notes that *Nightfly* was the first time he went digital for a studio project: "At the time we started to record *Nightfly* (around 1981), there weren't too many believers in digital recording. Everybody loved analog tape, but digital tape had a consistency that analog tape lacked. I remember working on 'Time Out Of Mind' for Steely Dan's *Gaucho*. A month after we cut the tracks, we put the multitrack master tape on the machine, and when we played that tape, we could see oxide quickly building up on the heads [*the tape was shedding*—Ed.]. I was worried that the tape was falling apart, so we mixed the song as quickly as possible. That kind of problem was not a concern with digital tape."

"In the early days of digital," Elliot continues, "no one was really quite sure about how to work with a digital multitrack. I was always recording instruments with a lot of dynamic range, and one of the problems I ran into was that, when the signal level got really low, you could hear dither, which sounded like crackling. So I had to alter my recording technique, manually riding



the faders during the tracking sessions to increase the signal level to tape as the dynamics of the instruments came down. But I didn't change my way of EQ'ing, and the good thing about using the 3M machine was that, on playback, it generally maintained the sound of the console on the way in."

Even today, many engineers who had the chance to work on the 3M machines consider them some of the best-sounding digital machines built, though they were temperamental. Scheiner admits, "The 3M machine could be cranky and produce random errors. You might play a tape hundreds of times, and it'd be fine. Then you could play it again and hear a dropout error. I think this happened because the D/A converters needed cal-

34. ARE YOU EXPERIENCED — JIMI HENDRIX. For performance more than for sound reasons. Meat-and-potatoes production preferable to later albums where he got swamped with fx and tricks. Just straight up great playing from a place no one could have imagined but the man himself.

35. REACH OUT — FOUR TOPS. An amazing collection of material for a non-greatest hits collection. A body of work that began with "Reach Out," continued with "Bernadette" and "Standing In The Shadows of Love," and finished nicely with "Seven Rooms of Gloom." Holland-Dozier-Holland met Bob Dylan on the streets of Detroit, and it worked.

36. SAVIOR PASS ME NOT — SWAN SILVERTONES\* (single track). One of the finest vocal stereo performances ever

put on tape. The great version is on the CD soundtrack of *The Big Easy*. Breathtaking and still never equaled.

37. HIGHWAY — FREE. A personal favorite. Four white-boys play the funk out of fast and slow groin music.

38. BOOGIE CHILLUN — JOHN LEE HOOKER\* (single).

What's great about JLH all wrapped up in one song. The amazing constancy of that guitar lick, the vocal phrasing, and the coooool just oozes out of your speakers. Amazing usage in the film *Funny Bones*. Sounded majestic in the movie theater.

39. DOCK OF THE BAY — OTIS REDDING. A lovely collection of performances by Sam Cooke's illegitimate son.

40. FAITH HOPE & LOVE — KINGS X. What if The Beatles and Led Zeppelin had a party and left the tape recorder on?

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ibration. I recall we had a tech who would be with us wherever we were working.”

During the mixdown process, Elliot muted tracks whenever there was no audio playing on them so that random clicks or pops from the 3M machine wouldn't make their way into the mix. To help prevent read errors, the transport of the machine had a gauze-like wiper that gently cleaned the tape on its way through the tape path.

*Nightfly* was mixed and assembled on two 3M 4-track machines. At the time, the only way to edit digitally was by transferring from one machine over to the other. Scheiner remembers there “wasn't much editing. We used the two machines more to assemble the songs into sequence for the album. Any counts or noises at the beginning of a song were muted using the automation.”

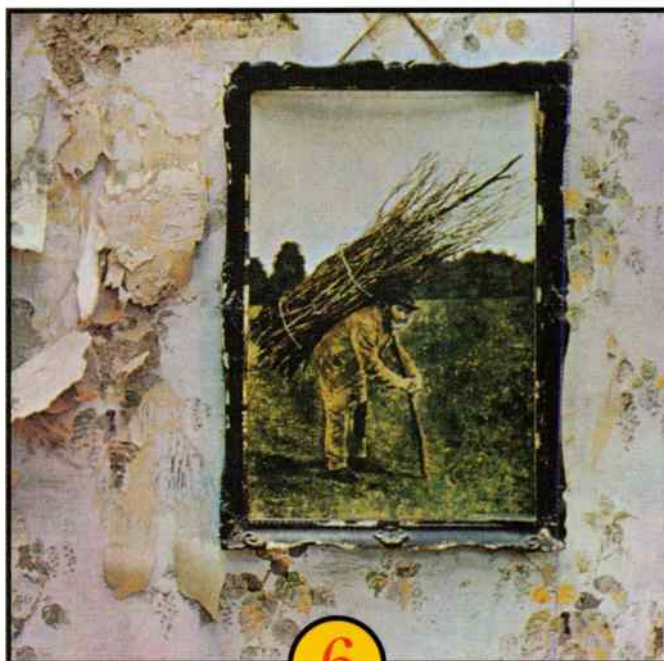
Aside from the digital tape machines, there was one other particularly odd piece of machinery used on the *Nightfly* sessions: Roger Nichols's Wendel II. As Roger explains, “Wendel II was a 16-bit digital drum machine. It was used to play drums and — when triggered by drums on tape — replace drum sounds. It was interfaced digitally in and out of the 3M digital machine by cards that I built. The original Wendel was a 12-bit drum machine that we used on *Gaucho*. Wendel was the first digital drum machine (before the Linn machine) and the first hard-disk recorder. Though Wendel II may sound like no big deal compared with today's standards, you have to keep in mind that MIDI did not exist at the time.”

In this particular era of recording, the Cooper Time Cube and Eventide Digital Delay were flavors of the month, but Elliot reveals they “weren't much into delays at the time, so we mostly used EMT 140 plates for reverb sounds when we mixed. *Nightfly* was completely mixed in about ten days, as compared to *Gaucho*, which took around three months to mix. I used Visonik 802 monitors for mixing; Gary and Donald would listen to the mixes through Visonik David 9000's. I think it was a very good record and, the last time I listened to it, I was happy with the results. I'm amazed that live engineers use it as a reference — so it must still sound good!” —*Steve La Cerra*

## Led Zeppelin IV (1971)

Led Zeppelin

In 1971, Led Zeppelin was the biggest and baddest rock 'n roll band on the planet. So when they began recording *Led Zeppelin IV* at Headly Grange in Hampshire, England, the creative juices were flowing. Produced by Zep guitarist Jimmy Page and engineered and mixed by Andy Johns, *Led Zeppelin IV* not only rep-



6

41. **ATOM HEART MOTHER — PINK FLOYD.** The concept side with the title piece sounds like modern classical music. A breakthrough that set up *Dark Side Of The Moon*.

42. **STRAWBERRY FIELDS FOREVER — THE BEATLES\*** (single). Chemicals and music — blended together — and served fresh.

43. **A CAPPELLA — TODD RUNDGREN.** Throw out the instruments — electronically multiply Todd by 20 — and stand back!

44. **MUSIC OF BULGARIA — PHILLIPE KOUTEV & CHOIR.** Arguably, the most beautiful music on earth. Luckily, I've been listening to this since 1965. Why hasn't this album been a film score yet?

45. **SIX PACK (BOX SET) — ZZ TOP.** The first six Top albums collected under one roof. Turn the stereo to eleven

for best results. If it's too loud...err...it *can't* be too loud!

46. **THE COMPLETE 1959 COLUMBIA RECORDINGS (BOX SET) — CHARLES MINGUS.** Charles at the peak of powers, produced by Teo Macero. Makes yer brain sweat!

47. **THE COMPLETE MUDDY WATERS (BOX SET) #.** The Mississippi Delta Blues swaggers up to the city of Chicago, grabs it by the hair, and drags it away into the nearest hotel room. And yet, still dignified, in its own way. The complete Chess Recordings — nine CDs! Available from the Charly label in the UK.

48. **MR. TAMBOURINE MAN — THE BYRDS.** Imagine a world with no electric Bob Dylan, no Tom Petty, no Wallflowers, no Flying Burrito Brothers, or no REM — this is where they all began.



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resented the band's most creative effort to date, but changed the way the world perceived rock music.

The Headly Grange location helped to provide some of the signature sounds of *Led Zeppelin IV*. For example, the giant drum sound that's so important to the album's last track, "When the Levee Breaks," came as result of the facility's long hallway and an experiment in distance miking.

"When the Levee Breaks' was like the first tune to really use the big room mics on drums," remembers Johns. "There was this hallway outside the room where we had been recording, and it had been on my mind for some time to start using some kind of distance miking on the drums. But it was always impossible because the drums would be in the same room as the guitar amps and everything else, so you'd get all this leakage. So I had the idea to put the drums out in this hallway. I put two very directional mics on a landing connected to the hallway and compressed it. It was the first time I heard the drums sound like Bonzo (drummer John Bonham) really sounded. That was a big thrill for me. After that, Pagey (Page) picked up on this idea for the recording of "Kashmir"; then everybody started doing it."

As for guitars, Page played his through Hiwatt and Marshall amps, while John Paul Jones used an Acoustic bass amp.

"The Acoustic bass amp was a little difficult to record because of the folding horn thing," says Johns. "But in those days, you didn't complain that much. People would show up with what they had and you would record it. And we were definitely getting a good bass sound."

While there were minimal effects and "tricks" used during the recording of *Led Zeppelin IV*, Johns felt comfortable trying new things in order to find just the right sound. For example, to get the layered guitar sound on the classic anthem "Black Dog," Johns recorded Page's guitar direct, distorted it with a UREI compressor, and proceeded to triple track the result. And on "Stairway to Heaven," the world's most popular rock 'n' roll song, Johns simply put Page's 12-string guitar directly into the board.

"That was a nice sound," says Johns. "Pagey used to run his

12-string through an amp, but we decided to go direct. I've been doing it ever since."

Johns stresses that his sessions with Led Zeppelin were very straightforward. The typical recording process would consist of drums, bass, and rhythm guitar, with an extra guitar track "doing little bits." Then, Johns would record Page's solos and an occasional keyboard track.

"Those sessions went relatively quickly because Pagey usually had a pretty good idea of what he wanted to do," he says. "We'd sometimes get two or three tracks a day. He'd play a song to the band, and John Paul would have some good ideas about it — he was a brilliant, trained musician. John Paul would add his ideas, and then they'd nail it. It wouldn't take long."

Johns continues, "The thing with that band was that they were so bloody good. When they played together — drums, bass, guitar — it was nearly all there. They were so tight. There's room for the music to breathe and there's air around it. So you can hear the decay time around the drums and you can hear the sustain on the guitar. If you listen to the arrangements, things are not competing with each other. For example, John Paul Jones has a way of playing on either side of the bass drum hits; it just punctuates the music in a unique way."

And vocalist Robert Plant's demeanor fit right in with this straightforward process. The band would do tracks and then some guitar overdubs; then it was time for the vocals. According to Johns, Plant would listen to the songs one or two times, write a few lyrics, and then get it down in two or three takes. All the vocals for *Led Zeppelin IV* were recorded on a Neumann '67, with a little compression and echo plate. And to record Plant's harmonica work on "When the Levee Breaks," Johns used a Shure SM57 through an old Princeton guitar amp with tremolo and phase.

Spawning some of the most played songs on international radio, *Led Zeppelin IV* is certainly something of a phenomenon. The creativity of Jimmy Page, John Paul Jones, John Bonham, and Robert Plant, along with the technical astuteness of Andy Johns, proved to be studio magic; and the world is a far better place for it. —*Michael Sanchez*

49. **THE SCREAMIN' END** — GENE VINCENT. A nice compilation of what made Gene and The Blue Caps great, with excellent mastering. Features my favorite Gene track, "Cat Man."

50. **SPINNERS ANTHOLOGY (BOX SET)**. And when Thom Bell was very good, he was a genius. He's awfully good here, producing and arranging his ass off. Why no Thom Bell Box?

51. **EAGLES GREATEST HITS**. You must give 'em credit — even if it hurts.

52. **FOCUS** — STAN GETZ. Although mastered a little harshly, the program material overcomes. Tenorist Getz ad-libs over Eddie Sauter's brilliant compositional sketches. A classic.

53. **WHO'S NEXT** — THE WHO. Before Goldberg, there

was Townshend, Moon, Entwistle, and Daltrey — at their best!

54. **MY JUG & I** — PERCY MAYFIELD +. A rarity, but a dream recording. Ray Charles's band backs up the great Percy singing his best material with Brother Ray taking a rare turn on Hammond B-3 organ and production throughout the proceedings.

55. **AL GREEN BOX SET**. The heir to Otis Redding's throne shows just how the crown is worn. Shout-outs to Willie Mitchell and Al Jackson, Jr. Personally, can't get enough of "Simply Beautiful."

56. **DREAM ON** — AEROSMITH\* [single]. There's "Stairway to Heaven," there's "Free Bird," and there's "Dream On." Any questions?

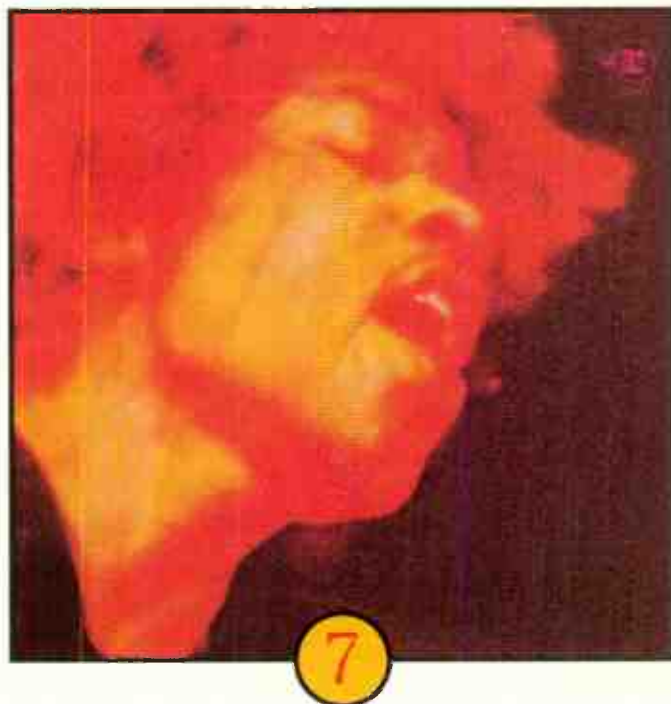
57. **LAYLA & ASSORTED LOVE SONGS** — DEREK & THE

# Electric Ladyland (1968)

Jimi Hendrix

Because of a grueling U.S. tour supporting the Jimi Hendrix Experience's most recent effort, *Axis: Bold as Love*, and the mounting pressures and distractions of superstardom, the recording of *Electric Ladyland* was a slow go, to say the least. Recording began in 1968 at Olympic Studios in London and was soon moved to the newly built Record Plant in New York. The sessions, several of which were produced by Hendrix manager and producer Chas Chandler and engineered by Eddie Kramer, were often crammed with guest players and multitudes of on-lookers, or, as Chandler would call them in the 1995 publication *Jimi Hendrix Sessions: The Complete Studio Recording Sessions, 1963-1970* (John McDermott with Billy Cox and Eddie Kramer), "hangers-on."

Perhaps one of the best illustrations of the madness (and magic) surrounding the recording of *Electric Ladyland* is the session that resulted in one of the album's centerpieces, "Voodoo Chile." After a long evening at the Scene Club, right around the corner from the studio on 48th Street, Hendrix and a small army of friends headed to the Record Plant for an early-morning jam session. Among the guests were Steve Winwood, Jefferson Airplane bassist Jack Casady (which was fortunate, as Hendrix and Experience bassist Noel Redding feuded earlier that day), Experience drummer Mitch Mitchell, and engineer Kramer. Kramer recorded three takes of the friends jamming on a loose, 7:30 AM blues excursion. The third would end up on the album. According to Kramer, Hendrix's wide open sound was the result of his playing the guitar while his vocal microphone — a beyer M160 — was open. Hendrix's intention for the recorded jam was



to make it sound like a live gig; so he and Kramer overdubbed crowd sounds that same morning.

Another interesting *Electric Ladyland* moment was the mixing session for what Hendrix called his "90-second painting of the heavens" — what we call "And the Gods Made Love." Through effects and spontaneous experimentation, Hendrix was specifically trying to create the sound of a spacecraft landing. Kramer explains, in *Jimi Hendrix Sessions...*: "'And the Gods Made Love' had loads of tape delay. Jimi's voice was slowed way down below 3-3/4 ips using a VFO (variable frequency oscillator), then sped up again. We had tons of loops running and echo tape feeding back on itself... In the beginning, you can hear the

**DOMINOS.** Drug-addled Clapton's greatest post-Cream work. Good songs, good Dominos, Duane Allman, and Miami help the mix. Timeless in many ways...

**58. AVENGING ANNIE — ANDY PLATT.** A wacky, delirious, uninhibited sophomore album from the early '70s that has become a cult classic.

**59. BIRDS OF FIRE — MAHAVISHNU ORCHESTRA.** The fathers of fusion incinerate with some fashionable flying.

**60. TIME SIGNATURES (BOX SET) — DAVE BRUBECK QUARTET.** Music for beatniks and intellectuals — amazingly overlooked in the kitsch revivals.

**61. NIGHTBEAT — SAM COOKE.** One of the greatest albums by the greatest soul singer ever — just play the first track and take it off. Work up to the rest slowly after that...

**62. BAND ON THE RUN — WINGS.** In which Macca

finally figured out what to do for an encore. Sadly, it only lasted one album.

**63. TEMPTATIONS BOX SET.** A little more information and tunes than you really need, but a masterful body of work, nonetheless.

**64. THE CAR'S GREATEST HITS.** A CD that lionizes producer Roy Thomas Baker. There never was a live Cars album, was there?

**65. JOSHUA JUDGES RUTH — LYLE LOVETT.** The quirky Texan approaches Dylandom with great production and sympathetic, sensitive, studio musicians. Kudos to keyboardist Matt Rollings.

**66. THE LAST RECORD ALBUM — LITTLE FEAT.** Why the loss of Lowell George was so devastating — a band with one foot on Mars.

# THE BEST RECORDINGS OF ALL TIME

tape bias whistle changing in the background because it's down so low. Jimi's voice comes in backwards, and Mitch's tom-toms were slowed down ridiculously...The end result was the flying saucer effect, which Jimi wanted."

As to how the very famous Hendrix sound was created, Kramer attributes much of it to phasing (or, as the English would say, flanging) techniques. He recalls, in an October 1992 *EQ* magazine article, "[A] technique I used with Jimi was phasing. He had come to me wanting to produce an underwater sound he had heard in his dreams...I had been experimenting with phasing and its possible uses for Hendrix, and when I played the results for him, he yelled, 'That's it! That's the sound I've been hearing in my dreams.'"

Technically, Kramer achieved this underwater sound — most notable on "Gypsy Eyes" — by applying and releasing slight pressure to the reel flange with his thumb. This, of course, was before the flange pedals of today.

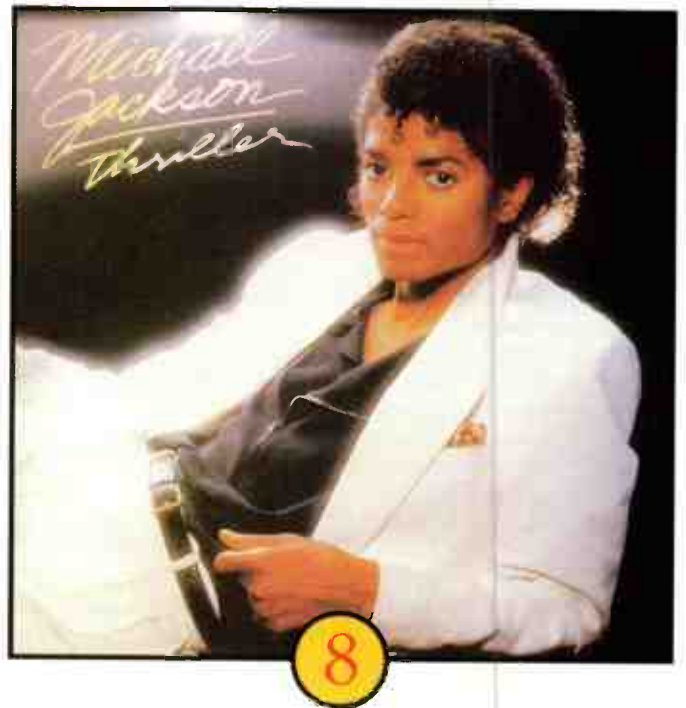
Meanwhile, a few months into production saw the split of Hendrix and Chandler. Chandler was exhausted and fed up with the scene that surrounded the young guitar hero. He felt that Hendrix was too intent on playing for his number of studio guests rather than trying to create quality tracks, so he left. And when *Electric Ladyland* was released in October of 1968 — although Chandler produced such classic tracks as "Crosstown Traffic," "Burning of the Midnight Lamp," and "All Along the Watchtower" — his name was absent from the list of contributors on the album's final inside jacket.

And there was another problem. Hendrix was certain that the album's final mix was altered during the mastering and disc-cutting process performed by Warner Bros. Hendrix felt that some of the mix came out muddy, and that Warner Bros., to put it bluntly, "screwed up." The reason for this was that, in 1968, the mastering and cutting responsibilities were left to technicians who hadn't yet dealt with out-of-phase material; and the majority of Hendrix's non-conformist album was out-of-phase. Simply put, the music business of that time wasn't quite equal to Hendrix's vision. In the end, the exhausted band and all parties involved took a much-needed vacation. —*Michael Sanchez*

## Thriller (1982)

Michael Jackson

Certainly one of the most successful recordings of all time, Michael Jackson's *Thriller* has current sales somewhere in the neighborhood of 65,000,000 copies worldwide. Produced by Quincy Jones and masterfully engineered by Bruce Swedien, *Thriller* is a sonic experience unto itself. Bruce explained to us that, in 1977, when he and his wife



67. **MUSIC OF MY MIND — STEVIE WONDER.** Stevie's first backturn on the hitmaking Motown machinery. It worked for Marvin and it worked for him, too.

68. **THE COMPLETE JIMMY REED (BOX SET) #.** For some reason, the music of Jimmy Reed sounds magnificent on CD. The man couldn't have been more sub-analog, and yet, somehow, his stuff is velvet and grease reproduced digitally. The entire VeeJay Records output was released on seven CDs by Charly Records in the UK.

69. **CONTROVERSY — PRINCE.** What other artist deserves to be 69th?

70. **CHICAGO — CTA.** Their first album, on which they blow the doors off Bobby Colomby and Steve Katz's Blood Sweat & Tears. Both BS&T and Chicago's first big hits were produced by James William Guercio.

71. **LED ZEPPELIN — LED ZEPPELIN.** Gotta do it — can't be helped. Heavy metal is born and not yet abused here.

72. **ANY ALBUM — XTC.** Reader's choice — they're all great for one reason or another. I lean towards *Black Sea* and *Oranges & Lemons*. Or is that *Skylarking* or *Drums & Wires*? Ahhhh nevermind...

73. **NEVER TOO MUCH — LUTHER VANDROSS.** Luther's debut album and the origin of his partnership with Marcus Miller. Happy stuff and...never too much.

74. **RELAX — FRANKIE GOES TO HOLLYWOOD.** Audiophile disco music for gender-bending. Ya had to be there...

75. **THE BEST OF JAMES CARR — JAMES CARR.** The man who nearly set soul music on fire, but then was

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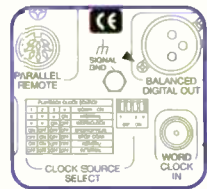
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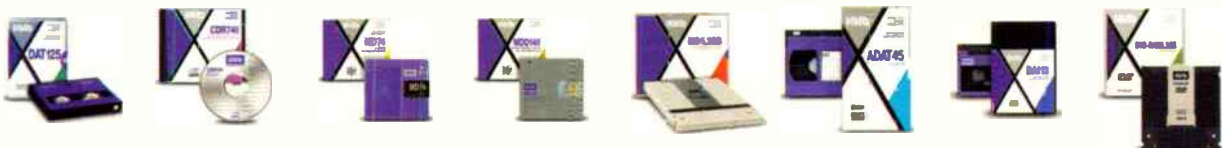
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# THE BEST RECORDINGS OF ALL TIME

Bea were living in the Chicago area, Quincy Jones called and asked if Bruce would like to go to New York to do a musical movie. Bruce's reply was an emphatic "absolutely," knowing that any musical project with his old friend "Q" was guaranteed fun. "Off we went to the Big Apple to do *The Wiz* [the movie]," recalls Bruce. "While working on the project, we met an 18-year-old kid by the name of Michael Jackson (Michael played the part of the Scarecrow). I'd like to take this opportunity to say that Michael Jackson is the most professional and accomplished artist I have ever worked with — and I have worked with the best the music industry has to offer. MJ's standards are incredibly high, and we never settle for a production which is 'just good enough.' Since the *Dangerous* album project, Michael and I have had a saying that goes: 'The quality goes in before the name goes on!' We have to be totally satisfied with the musical and technical quality of our productions before we will put our names on them.

"On a personal level, don't believe everything you've read or heard about Michael Jackson. In fact, don't believe *anything* you've read or heard about Michael. MJ is not exactly the kid next door, but, in my opinion, none of the stuff that he's been accused of could have actually happened.

"I've never worked with anyone more dedicated to his art than Michael. When we record vocals on any project, Michael vocalizes with Seth Riggs (his vocal coach) for at least an hour before he steps up to the microphone. He does this *every* time we record a vocal. Michael is very easy to record and is always willing to experiment with new mics or equipment. For 'Thriller' [the song], I was looking for a sonic character different from the typical condenser mic — so we tried the Shure SM7. It turned out to be great for several of the songs on *Thriller*. We used the SM7 into a Massenburg mic pre, then to a (UREI) 1176 limiter for just a bit of compression. I generally don't like compression because it takes away the transients and dynamics of the music — and that removes the excitement. We used a Harrison Series 32 on the project, which has since become my favorite console to work on. I feel very comfortable on this desk, and I can go with my musical instincts instead of worrying about where a knob or switch is located.

"On one particular morning, Quincy called me up really early in the morning before I was on my way to the session. He told

me he had a surprise: Vincent Price was coming to the studio to perform the voiceover for 'Thriller.' But the verses that Vincent was supposed to read were not written yet. While he was in a cab on the way to the session, Rod Temperton wrote the verses for Vincent. Talk about working under pressure! When Vincent came into the studio, he had never used headphones for his work before. The 'phones and the SM7 were set up from Michael's vocal, so we just went with that setup. Vincent reluctantly put the headphones on and when the music started, he jumped up from his stool with a very startled look. I knew he had never heard anything like that before! He asked Rod to come out into the studio and cue him where to speak his verses. Rod actually wrote three verses in 'Thriller' for Vincent to do. We recorded all three but only used two, and I have that unused verse in my tapes somewhere.

"Vincent experienced a huge resurgence in his career commensurate with the incredible success of 'Thriller.' About six months after the release, he appeared on *The Tonight Show* with Johnny Carson where he told a story about being in Paris. Vincent was walking down the street when a group of young people recognized him, then chased him down the street to get his autograph!" —*Steve La Cerra*

## Stereotomy (1985) The Alan Parsons Project

You may have noticed that Alan Parsons was involved in the technical aspect of several of *EQ*'s top recordings, including Pink Floyd's *Dark Side of The Moon* and The Beatles's *Abbey Road*. In addition — as leader of The Alan Parsons Project — he's also produced a string of great-sounding records that includes *Tales of Mystery and Imagination*, *I Robot*, *Turn of a Friendly Card*, *Eye In the Sky*, (which yielded a hit single of the same name) and *Stereotomy* — all records that combine excellent production val-

institutionalized for over 20 years in a mental ward.

You won't believe how good this is. Shout-outs to Dan Penn and Spooner Oldham.

76. **BLIND FAITH — BLIND FAITH.** Coulda been contenders. Winwood and Clapton exist together for a few gigs, but leave this legacy in their wake. Now that we're all grown up, shall we try again, lads?

77. **YOU KEEP ME HANGIN' ON — SUPREMES \*** Black people pandering for white attention and sales and gettin' it back tenfold. One of the best rhythm guitars ever.

78. **SHOWDOWN — ISLEY BROS +.** Groove, groove, groove, groove, groove, groove. Chord changes, Chord changes, chord changes. And the magnificent voice of Ron Isley. Ecstasy on the dance floor and mellifluous in the back seat.

79. **CLEAR SPOT — CAPTAIN BEEFHEART.** In which the white grooves are celebrated and unique from track to track and the nonsense is exuberant and skilled.

80. **GOOD THING — PAUL REVERE & THE RAIDERS \*** (single). A guilty pleasure — but hey — this Stones/Beach Boy hybrid R-O-C-K-S!

81. **TRUE LOVE WAYS — BUDDY HOLLY \***. A look to one of the many directions this master may have gone had he lived. Beautiful King Curtis tenor riffing in the background.

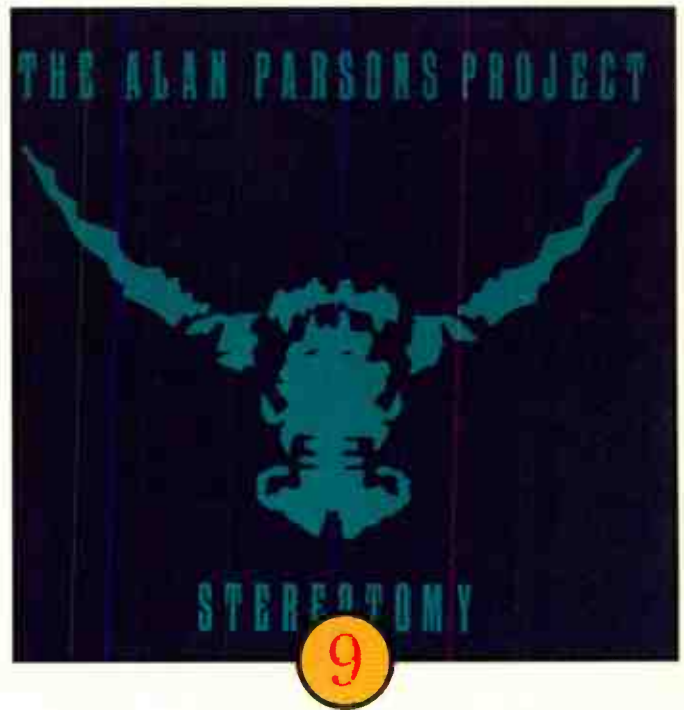
82. **DEAR MR FANTASY — TRAFFIC.** Steve Winwood and close friends (for a short time) go to Berkshire and make heady music.

83. **SOUL DRESSING — BOOKER T & THE MGS.** Wipe your face and hands after playing this one. Extremely greasy!

ues and crystal-clear sonics with hook-laden songwriting and strong musical performances.

Parsons recorded *Stereotomy* on a pair of Sony PCM3324 DASH (Digital Audio Stationary Head) multitrack machines, two of which he eventually purchased and subsequently used for many years. It's interesting to note that at that time — circa 1984 — these machines were priced in the vicinity of \$200,000! Parsons recalls that the general opinion of the personnel working on *Stereotomy* was that the "3324 sounded great. After we had been using the machines for a while, we met up with a gentleman by the name of Bruce Jackson who had started a new company called Apogee. They were in the business of designing A-to-D and D-to-A filters. Bruce came in to demonstrate some of the limitations of the stock Sony filters. It was striking how — when we cascaded a sound through seven or eight tracks of the 3324's A/D/A — you could clearly hear the brittle sound of those filters. When we tried the machine with the Apogee filters, the difference in sound quality was clear, so I outfitted the 3324's with Apogee filters."

It's interesting to note that Parsons mixed the project through an SSL console right back onto two tracks of the Sony 3324. Printing the stereo mix back to the DASH tape made it possible for Alan to punch in on mixes; since the "2-track" (the stereo mix) was on the same tape as the separate tracks, they obviously were in sync — allowing Parsons to change a section of the mix simply by punching in on the stereo pair of tracks. It allowed him to easily tweak the mix at a later time, making an instrument louder for a certain part simply by raising the track's fader and punching in for a few bars or even just a few notes. Additionally, he could make an instrument *lower* in the mix by reversing the phase of a track and mixing that back in with the stereo mix. For example, let's suppose the bass was too loud for a certain section. By reversing the phase of the bass track and adding that sound back to the stereo mix, the bass would become lower because the phase-reversed track would cancel the "normal" bass track that was already in the mix. This mixing to multitrack technique became favored by Parsons, and he continued to use it on subsequent recording projects.



After the mixes were printed to the Sony digital multitrack, Parsons recalls "digitally transferring the mixes to Sony 1610 format. I don't believe that the 1630 format had been introduced just yet... around that time, the Eventide Ultra-Harmonizer® was emerging, and it quickly became quite a popular device in the studio. An Eventide SP2016 reverb was also used on *Stereotomy* for its 'stereo room' program, which I thought was one of the best-sounding reverbs at the time. I was also using the Publison audio computer for delay and pitch shifting."

One of the more unusual aspects of *Stereotomy* is that the record was mixed using a process known as Ambisonics, a directional perspective encoding system. Similar in concept to binaural or use of a "dummy head," the Ambisonics process was

84. GREATEST HITS — FAITH WIND & FIRE Maurice

White did a lot of firsts in R&B. They are all contained herein.

85. THE COMPLETE HOWLIN' WOLF (BOX SET) # No

Lowell George, Dr. John, or Captain Beefheart without this 6'5" blues presence. Another Charly UK release. Everything he recorded for Chess. *Everything!*

86. SOULFUL ROAD — NEW YORK CITY # Probably

Thom Bell's (Stylistics, Delfonics, Spinners) greatest masterpiece. A triumph of performance, songwriting, arranging, and production. Miraculously overlooked in its time and now as well.

87. HUMANIII — HOWARD JONES What Elton John

wrought, many people bought. Lovely sound.

88. DANNY GATTONI & COMPANY — FRANCESCO —

RELENTLESS Anytime Jimmy Vivino and I play a great gig and come home thinking we're the coolest, I slip this on and quickly defrost. An instant ego-deflater for organists and guitarists alike. Other-worldly on a consistent basis...

89. ALL THIS LOVE/IN A SPECIAL WAY — DEBARGE

(TWOFEW) This was a serious fraternal grouping featuring the amazing vocals of El Debarge. Another brother was married to Janet Jackson for about ten minutes. Great '80s soul music. They don't make 'em like this no mo'.

90. LOOK TO THE RAINBOW — AL JARREAU Most peo-

ple's first intro to Al. Recorded impeccably live. Very smooth sailing.

91. DISCIPLINE — KING CRIMSON Adrian Belew and

Robert Fripp surround themselves with prog heroes Bill

# THE BEST RECORDINGS OF ALL TIME

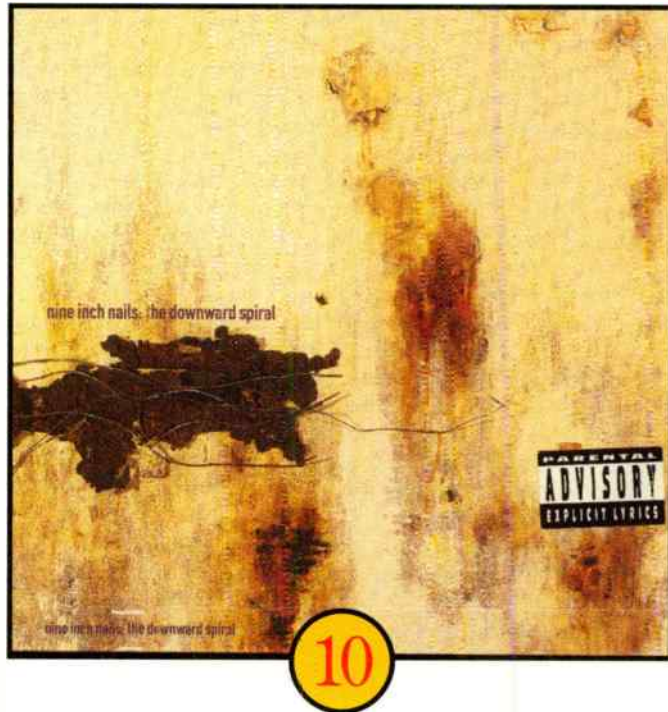
used to extend the stereo spatial effect to beyond the physical soundfield of a stereo pair of loudspeakers. For optimum soundfield representation, the listener could use an Ambisonic decoder plus rear speakers during playback. But the nice thing about the system was that the decoder wasn't needed to hear some of the systems' benefits and — perhaps more importantly — it had very good compatibility with stereo. You can hear the Ambisonic process on the current stereo CD release of *Stereotomy*. —*Steve La Cerra*

## The Downward Spiral (1994)

Nine Inch Nails

In his Los Angeles project studio — the very living room where actress Sharon Tate was murdered by members of Charles Manson's twisted family in the late 1960s — Trent Reznor recorded his second full-length Nine Inch Nails album, *The Downward Spiral*. Fueled by controversial lyrics, computer-enhanced guitar and drum sounds, and a load of aggressive pop hooks, Reznor's effort was 1994's most intriguing release, and one of the best albums of the '90s. With *The Downward Spiral*, Reznor took his distorted and unpredictable art form to a new level.

Some of the key components used on Reznor's industrial marvel included a 56-input Amek Mozart console with Supertrue Automation; a Roland TR808 drum machine; two Akai S1100's, Akai S1100 EX, EMU Emax, and Ensoniq Mirage samplers; a Macintosh Quadra 900 computer running Opcode's StudioVision and Digidesign's Pro Tools and TurboSynth; a Studer A800 MKIII 24-track recorder; AKG 414, Shure Beta 58 and 57, Electro-Voice RE20, Fostex Stereo, Crown PZM, and Neumann U 87 microphones; Prophet VS, Oberheim Obermoog, Xpander, OB-8, Waldorf MicroWave, MiniMoog, Sequential Circuits Pro-One, ARP 2600, Odyssey, and



Kurzweil K2000 keyboards; and a bevy of outboard gear.

One of the things that *The Downward Spiral* amounts to is a delicate collection of inspired noise. Reznor has always shown a penchant towards layering his music with various unconventional sounds, clips, and clutter. "I think there's something strangely musical about noise," Reznor told *Keyboard* magazine in a 1994 interview. "If you take a high frequency and pitch it way down to where it's aliasing, you've got a pretty cool thing. You layer that in the mix, and suddenly it becomes thicker, even though sometimes you can't necessarily hear it. In a song like 'Mr. Self Destruct,' obviously you're going to hear it; it sounds like a vacuum cleaner running through the whole thing. But a lot of times it just thickens things up..."

Bruford and Tony Levin and let 'er rip. The Mahavishnu Orchestra of the '90s — and vocals, too!

92. **FUNDAMENTAL THINGS** — **BONNIE RAITT**. The record she was born to make. All that platinum and press paved the way for just extremely relaxed blues and soul au naturel after all the fuss. A breath of fresh air.

93. **WHITE LINES** — **GRANDMASTER FLASH\*** (single track). I'm 55 and I don't do the rap/hip hop thing, but I do get *this*, and so should you!

94. **DEBUSSY-MUSIC FOR OBOE & HARP** — **BERT LUCARELI & SUSAN JOLLES**. Great picks of composer's catalog and tasteful duet arrangements — one of the most soothing CDs ever issued. These two instruments make great bedfellows...

95. **WHO'S AFRAID OF VIRGINIA WOOLF** — **JIMMY**

**SMITH**. A treat for the ears. Smith fronts a big-band, masterfully recorded by Val Valentin. Special treat: Oliver Nelson's arrangement of "Slaughter On Tenth Avenue."

96. **AFTERGLOW (BOX SET)** — **ELECTRIC LIGHT ORCHESTRA**. Jeff Lynne's crowning glory. All the great tracks (and then some) in one place.

97. **3+3** — **ISLEY BROS.** Hendrix used to play with them. Young guitarist Ernie Isley appropriated everything Hendrixian when the Master passed on, and plays all of it on this album. Check out "Summer Breeze" and "Who's That Lady."

98. **BORN TO LAUGH AT TORNADOES** — **WAS NOT WAS**. The debut album by these Motor City Madmen before they were seduced by Hollywood. Mel Tormé (?!?) guests.



And the technology-savvy Reznor's concept of the ideal drum sound is also a bit unconventional. "My idea of a drum is a button on a drum machine," Reznor said in the same *Keyboard* interview. "When I hear a real drum kit...when someone hits a kick drum, it doesn't sound to me like what I think a kick drum is. Any time I've been faced with, 'Let's try miking up the drums,' well, you put a mic up close, you put another one here, 300 mics, gates, bulls—t, overheads, bring 'em up and listen to it and it doesn't sound at all like it did in the room...It doesn't sound like being in a room with live, ringy drums."

Reznor did use live drums on a few tracks, but he's quick to point out that they were immediately altered. He took a drum kit into about 25 different environments — bathroom, living room, garage, outdoors, etc. — and recorded it on a DAT machine. He then sampled them all in stereo with velocity splitting on an Akai S1100.

And this philosophy of instrumental enhancement doesn't stop with the drums. Reznor confesses that almost every instrument and vocal on the album was recorded to the computer first, before being flipped, reversed, and/or turned upside down.

After all the smoke cleared and the computers were turned off, the result was an album like no one had ever heard before. *The Downward Spiral* proved that technical wizardry, along with a modicum of intelligence and heart, could bring listeners into a new dimension of popular music. —*Michael Sanchez*

**99. MORE SOUL — HANK**

**CRAWFORD** One of the greatest alto sax albums in all jazzdom. Seven horns, bass, and drums play clever arrangements and Crawford cries and wails over the top. In 1960, this was actually Ray Charles's band minus Ray.

**100. TRICYCLE — FLIM & THE BBS**

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(l-r) Rich Costey, Fiona Apple, and Jon Brion



# Fiona APPLE'S TRACKS

Producer Jon Brion and artist Fiona Apple talk about their working relationship during production of her new album

Meet the music man of the new millennium...

Friday nights here in L.A., producer Jon Brion hosts a (humorous) musical variety show at a nightclub dubbed Cafe Largo. Improvisation, new tunes, oldies done with a devilish twist, surprise guests, retro instruments, colorful rock, and tasteful roll. You might hear Brion playing "Sympathy For The Devil" on an accordion. Spirits of The Beatles and The Doors appear from out of nowhere and get bent out of shape.

Someone shouts out, "This guitar string is wrapped around my heart," and Brion weaves a believable song around it. A recent show featured the mighty Finn brothers, Neil and Tim, formerly of Split Enz, and Crowded House. Brion has the remarkable ability to be both a leader extraordinaire or an accompanist with fitting flare. His stage antics have led to the taping of a pilot for VH-1.

Born in the rough woodlands of New Jersey, Brion has been living in L.A. for the past decade, gathering accolades for his ability as a multi-instrumentalist with an eclectic collection of string and keyboard instruments. His first solo album is in the works and, as a producer of note, his recent albums include exemplary work with Rufus Wainwright, Aimee Mann, and the new offering from Fiona Apple. We met at Extasy Recording Studios South during the final stages of mixing Apple's album. I was invited to listen in as the year-long project neared completion, and then enjoyed two chats in the studio canteen. First, Jon and I talked. Then he returned to the control room and Fiona stepped out to speak about her work.

## A CONVERSATION WITH JON BRION

**Mr. Bonzai:** Fiona strikes me as someone with good taste...

**Jon Brion:** Exceptional taste, and that's one of the reasons why it is so good to work with her — that, and the fact that she's articulate. Artists make comments, but you sometimes just hear ego talking. She's not like that.

**Do people have the wrong impression of her?**

That is definitely the case. It's just an impression based on what they saw on TV, when she was on an award show making a speech about the world being bullshit. She looks like a mess of trouble, and the songs on her first album are about terrible things that happened to her. People assume that she is a dark and negative person — but, as you can see, that is not the reality at all.

She's extremely bright. If something upsets her, she feels it acutely, but she also describes it acutely. She is not what most people would think of as the "difficult artist." She is not a diva, and she is open to ideas, and it is not a dark soap opera. She treats everyone well, and there is no feeling of a ladder of command common to many recording situations. With many projects, there is almost a class system in the recording studio, but not this one. After all, making records is supposed to be a creative working environment — most of us do this because we didn't want typical jobs that mirrored the way society works.

**How did you meet Fiona?**

I was a session musician on her first album. I got a call from Andy Slater, the producer, who I knew from jam sessions at Cantor's delicatessen here in LA. He was producing her demos and asked me to play guitar. I brought some more instruments and he learned that I could play a variety of things. When the album got started, I came in as a multi-instrumentalist, and sometimes arranger.

**You play the Vibraphone. How does that instrument work?**

The Vibraphone is like a Xylophone, except that it has metal bars. It is hit with softer sticks and it has a pipe of equal length to the resonance of the bar. If it's an A440 on the bar, the pipe itself — if you were to blow into it — would create an A440. Then it has a little disk which spins, opening and closing the aperture to the pipe, thus creating a Doppler effect. When the aperture is open, the pipe resonates at the same pitch and is twice as loud. As soon as the disk closes the pipe, the pitch changes and you get natural chorusing between the two. It's completely ingenious and absolutely acoustic. It only needs a little electric motor to turn the disk.

**What about the Dulcitone?**

It's a Scottish instrument, turn of the century, which essentially plays pieces of metal shaped like tuning forks. It sounds like a muted Celeste. The lowest notes sound like a thumb piano. My mom found it in an antique shop

in Connecticut and thought, "Oh, weird keyboard — Jon will love it."

**Reminds me of the eclectic collection of Mitchell Froom...** I love Mitchell's work. Ten years ago, when I started collecting archaic keyboards, the only other people I knew who were collecting as well were Mitchell Froom and Tom Waits. Every time I found a keyboard that I thought nobody had, a record would come out and Mitchell had used it first.

**Van Dyke Parks also contributed to Fiona's first album. What is the essential value of Mr. Parks?**

I came to Van Dyke the way many have, through his Beach Boys work. I bought a book about making the *Smile* album and found an ad for Van Dyke's first record, which stated: "How we lost \$100,000 on the album of the year." At the time, his was one of the most expensive records ever made. I went out and got the record and was floored by the scope and span of the work. So rewarding. It's a complete world you enter with Van Dyke.

Then, when I moved to Hollywood, I hoped to meet him. Eventually, I was asked by T-Bone Burnett to play banjo on a Sam Phillips track. I suggested that I might also play treated piano. He asked to hear my idea, so I walked out into the studio and there was Van Dyke sitting with his accordion. I lost it in a complete fan way, I was so happy to meet him. Much to my delight, when we were assembled for the session, at Sunset Sound, Studio 3, we were put in an isolation booth together. We did a couple of takes, and he was full of compliments for my playing. I was beside myself.

The next time I saw him, he was doing string arrangements for Fiona's first record, working at Capitol's Studio B. I said hello, and thought he might remember me. Van Dyke said, "Oh, I remember you — you're a bitch, baby. Your hands still do what you tell them to do!" Luckily, I have had the opportunity to work with him more. I hired him for the string arrangements on Rufus Wainwright's record, and they are classic. He is utterly unique, and there is a community of people who appreciate what an asset he is to our world of music.

**Let's touch on the technical side of this Fiona album. Was there much preproduction?**

Nope. The way it worked was Fiona asked if I would like to do the record. I said that she should play me songs because it may be the case that I would recommend somebody else. She's a friend, and I left that option open. She said OK, and I didn't hear from her for months.



I assumed that she was off recording with someone else. Her boyfriend is a film director, and we've worked together in the past. I ran into him and asked how she was doing and he told me that she was waiting to finish writing the entire album so that she could play it for me. She decided that she wouldn't play me anything until she had writ-

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ten the whole album, and had written all the lyrics out by hand, and had made a booklet for me. I went over to her house and sat next to an upright piano. She said she wanted to play the entire album and then we could talk afterwards.

I tell you — good songwriting is the best reproduction in the world. Good songs are pretty much indestructible. A good song badly produced is still a good song. She didn't want a record where she was in the studio seven days a week for 12 hours over three months. She trusted me, and I asked her to play piano and vocal, to a click when applicable, for all the songs. We had the drummer from her first album come in, Matt Chamberlain, who is fantastic. He played to those tracks and *voilà* — basic tracks. Where did you record piano and percussion?

Mostly at Ocean Way and NRG.

**What equipment do you have in your project studio?**

I have an Ampex 1200, and I just bought an old Stephens 24-track recorder. I have an Oram console and a nice selection of mic pres. David Bach, who works for Sound Deluxe, has made a lot of equipment for me: compressors, mic-pres, EQs — all tube. I have a pair of Telefunken and Neve 1073's, all sorts of odd stuff. Altec mic pres and mixers. And I have a pair of Church mics — made by Stanley Church, of course. I understand that he made a lot of microphones for MGM during the classic '50s period. He heard the U 47 and ordered 200 capsules from Neumann and then built his own microphone around them. They use a great deal more power and tend to have more detail than a '47. Incredible mics, and then Neumann got wind of it and shut him down. For the most part, we tracked Fiona with a 251, Neve pre-amp into a Fairchild with the occasional Pultec EQ.

**Could you comment on your engineer Rich Costey?**

He's been invaluable. Well-rounded guy, good engineer, good programmer, ran most of the Pro Tools stuff we've done. He's got a good ear and is a nice person, which is key to a project. Nobody wants to put up with a jerk for any long period of time. And here we are mixing on a very nice Neve console. We've had great luck since we've been working here.

**As a musician, are you afraid of the Internet?**

No, I've been looking forward to this. Twelve years ago, I programmed *Fairlights* at a studio in Connecticut and realized — because of the way information was stored — that there was a big change coming. Right now, everyone is trying to figure out ways to protect material and how to procure money from the Internet. I think it's much more socialistic than that. For most artists, the question is general subsidy. We sign record deals because it's the only subsidy that is offered. We no longer live in the Age of Kings, where the artist might live for free at the castle and write some minuets.

I have always been interested in the notion that if you wanted to release what you have done — to the entire world — just to do it, and now we have the technology to do so. The artist can say, "I am going to offer this for free. I don't care." I am interested in seeing people move away from the plan to put a grid on the Internet, to do massive accounting.

Here is my concept, which is an unlikely scenario because it requires human cooperation. It would run like shareware. You assume that most people are going to pirate the material, but if you look at the truth of the music, you see that it has the potential to genuinely touch people and perhaps change the course of their lives, or at least that given day. There are enough of us in the population who are happy to support those who affect us. The amount of money I have paid out over my lifetime to "give" to the artist is considerable. The music has enriched my life and I give back, but they don't see any of it.

By releasing records independently over the Internet, there is a fair chance that the artist might see some return. I think it should go one step further. F—k it. Obliterate the new smaller, kinder companies because they will just become evil in nanoseconds anyway. Anybody who doesn't think so is an idiot. Let's do shareware, and in this Internet honor system, maybe 10 percent will honor it. If you fall in love with a record, it is something you live with for months. Why wouldn't you send back five or ten dollars directly to the artist?

**What music would you like played at your funeral?**

That's easy. The next to last movement of the *Cabrielle Suites* by Peter Warlock.

**Do you have any advice for people entering this wonderful music industry?**

[Laughs.] Stay in your car. Wear your protective clothing. Hmm. Actually, Jim Phelen gave me some good advice, "You will get lots of offers that are very attractive, for one reason or another: money, power, etc. My only advice to you is to don't do anything unless you actually love it."

And here's something else: On his box set, Tony Bennett thanked Frank Sinatra for giving him the best advice of his

career. "Only sing the finest songs." I believe you should put yourself in situations where good things are going on, and work with people you enjoy and respect. If you have songs that you feel are great, play them proudly.

## A CONVERSATION WITH FIONA APPLE:

**Mr. Bonzai: What do you think of John Brion?**

Fiona Apple: I absolutely love him — as a person and as a musician. He's very understanding, and he has the best taste. He's heaven to work with.



Rear (l-r): Brion's assistant Tom Biller, Extasy Recording Studios South assistant engineer Tom Banghart. Front (l-r): Rich Costey, Fiona Apple, and Jon Brion

## TECH NOTES

BY RICH COSTEY, ENGINEER, WHEN THE PAWN...

Even before beginning the recording process that yielded *When the Pawn...*, Jon and I had many conversations on record-making, and, through them, developed a fairly clear vision of which techniques and concepts might be employed to ensure the best combination of sonics and performance to enhance the material. Throughout those conversations, certain themes and issues presented themselves that could be solidified before beginning the project, but, of course, many more developed once the process had begun.

The primary issue was not "analog or digital," as we agree that analog is superior both for sound quality and long-term storage, yet digital offers speed and flexibility. The issue was how, why, and when to use digital, while staying analog as much as possible. I am a frequent user of random access hard-disk recording, and, as such, it was agreed that such a system should be used as an extension of the overall recording process, not as the centerpiece of it nor as a performance enhancement device. The result being that the vast majority of the album was recorded directly to analog tape. Even when a part was recorded digitally, care was taken to retain the integrity of the original performance, particularly where vocals were concerned (auto-tuning was not employed, nor was it ever needed).

Beyond that, many of our tenets concerned abstention from commonly used recording techniques: mic the drums with as few microphones as possible; mic the guitars with as many microphones as humanly able (taking careful note of phase); only use combinations of microphones that look good together; use only military-grade power supplies (specifically from the Canadian Royal Airforce); never allow an SM57 to even be brought into the room, let alone have a cable connected to it; when using drum kits bought at yard sales for under \$5, close-mic them with only Elam 251 microphones; if an excellent-sounding live room is available, then put the drummer into the control room next to the tape machines; choose outboard gear primarily on look, not sound; begin the day not with coffee, but with dinner...

Fiona's vocal was recorded using only an Elam 251, except "Get Gone," where an excellent BLUE version of the "Hitler Mic" was employed. Mic pres throughout the project were primarily Neve 1073 and 1066, with strong appearances by some of David Bach's custom-built tube pres as well as other preamplifiers that can only be discussed on a need-to-know basis. Portions of audio passed through a beige G3 Macintosh running at 266 MHz. Hard drives spun at a rate not less than 10,000 rpm.

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How easy it is to take for granted the talents that he has. I look back at the time I played the songs on the piano at my house for Jon, and then when I began working with him in the studio — it doesn't even seem that he has to think about it. He just follows the music. He has an ear that allows him to suddenly play things. But he will exhaust himself working on something to get it just right, until you think he will pass out. And then he comes up with something that is absolutely key to the song. And he's a great friend. He's such an important part of my life as a musician.

What is different about your second album?

Because of changes in me personally, and also because of working with Jon, every element has been taken to the highest degree. It is more confident and less self-conscious. Jon has his genius and his visions, and will go and go and never stop and play everything that comes into his mind. He can do so much. It's easy to discuss, and take apart the song and its structure. But it's not only that he wants to make a good record — he wants to make a record that the songwriter intended. He knows that I will be going out to play this.

Are you looking forward to going out on the road?

Yes, I am. I will have my regular band and techs, and I love them.

Name for the album?

It's a very long title, from a poem I wrote during the last tours. Short title: *When the Pawn...*

Were you encouraged as a child to express yourself?

Yes, but I didn't want anybody to know. My parents encouraged me to play piano, but I didn't tell any of my friends. If you are 12 years old and play the piano, I knew what they would think. I couldn't stand the idea that people would think I was writing stupid things, because I wasn't. It was too important to me to have anyone thinking about it. I just didn't want anybody to know.

Did you think this would become your life?

No, not at all. I never thought about it. I never gave thought to what I would do when I grew up. And when it came along, I didn't have to weigh it against anything else. **EQ**



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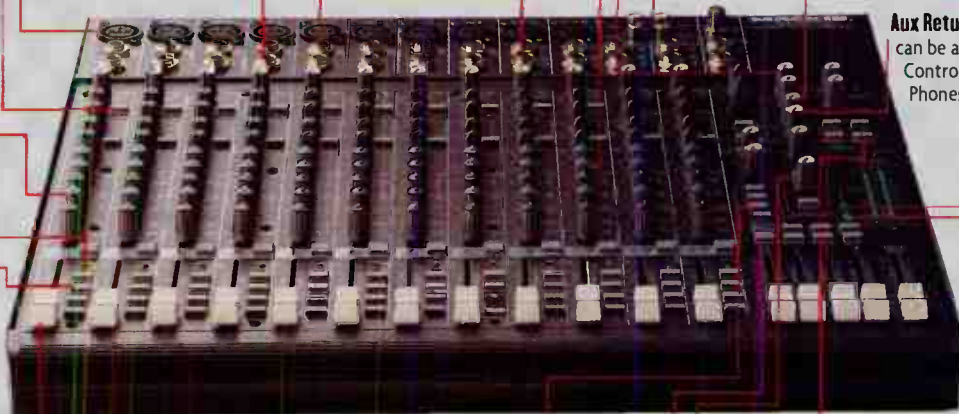
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# Tangled



Engineer  
Adam Kasper  
and the **Foo Fighters**  
go back to Dave  
Grohl's Virginia home for  
their latest back-to-basics effort

# Up In Foo



Story by Steve La Cerra  
Photos by Danny Clinch

# Tangled Up In Foo

*No computerized editing. No technological trickery. No drum machines or MIDI gear. These were the priorities in the making of There is Nothing Left To Lose, the recent release from Dave Grohl and Foo Fighters. Foo Fighters and co-producer/engineer Adam Kasper recorded the project in the basement of Grohl's house over a period of about five months, leaving behind the technological whiz-bang used of late for making slick records, concentrating instead on solid guitar and drum sounds and quality songwriting. Of course, before the actual recording process began, there was a studio to build...*

The genesis of Dave Grohl's studio came when he and Adam Kasper were working on a project last summer: "Dave and I were doing a recording in L.A. with a band called Verbena," begins Adam "and he was talking about building a studio. I told him I'd help him put it together, so we built it from the ground up. For about two or three months, we looked at mixing consoles, trying to find an old API or Neve. Finally, we located an API at Ocean Way, Nashville, so Dave bought it. I hired some techs to connect the console and get it up and running. We also got a Neve broadcast board to use for outboard modules, kind of like a sidecar. I found a relatively new Studer A827 (2-inch, 24-track) which is something we really wanted — since there's not a whole lot of tech support in Virginia (the locale of Grohl's studio), we needed a reliable machine. There wasn't going to be any Pro Tool-ing, so we'd need to do tight punch-ins and backwards recording. That's why we chose the Studer. Most of the album was recorded at Dave's house, and then we mixed it in L.A."

## ROUGHING IT UP

Over a period of about a month prior to the "serious" recording, Grohl and the band worked on songwriting and rehearsed their material while tracking the rough ideas. Initially, Foo Fighters guitarist Franz Stahl was involved in the project, but Stahl was apparently pulling in a different musical direction, so he left the group. According to Kasper, "Dave had more than 12 song ideas,

so he, [drummer] Taylor Hawkins, and [bassist] Nate Mendel would rehearse. But often it turned out to be Dave, Taylor, and I hammering it out in the studio. We'd track the songs and realize that maybe a part of the arrangement was wrong or a drum part needed to be changed. Then we'd redo it. There was about a month of preproduction recording, all multitrack. On two or three of the songs, we worked through several arrangements. Usually you don't have that luxury."

After recording the original song sketches, the guys took a break while Dave did some more writing. Then Adam and the band came back to record keeper material. "In the first month, we probably only tracked six or seven things to get a feel for the songs and the studio," recalls Adam. "There was a little bit of acoustic weirdness in the studio. The ceilings are relatively low, but very live, and ended up being a bit out-of-control, so we bought a bunch of cheap sleeping bags and hung them

up on the walls... just sort of made it look terrible, but it helped sonically! Also, we hung some carpet to deaden the sound a little more.

"Technically speaking, we got really lucky with the whole studio. The API board was in perfect condition, and all of the gear worked great. I was counting my lucky stars every day. It was only a matter of messing with the acoustics a bit. The control room was also a little too lively, so we put a couch in there and bought some foam-type acoustic treatment to put behind the console."



## TUBULAR DRUMS

While Taylor was in the live room playing drums, Dave, Nate, and Adam would be in the control room. To avoid leakage, the guitar amp was placed in a closet. This initial scratch guitar was not intended as a keeper; after a usable drum take was laid down, they'd move the amp(s) into the live room for recording guitar sounds. Kasper says he's "into the old Neumann tube mics, so we rented some classics like U 67's and U 47's for overheads and kick drum (I like tube mics for kick drums). We also had beyer ribbon mics for the room.

"I didn't use a lot of *distant* room mics on the drums because I find that, once you get your guitars mixed in — unless you have a very sparse, open song

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# Tangled Up In Foo

— you're just wasting tracks. I usually track about two to four different room sounds to use in the mix, then accent them with kick and snare mics. By basing the drum sound more around the room mics than the close mics, you get a good mix of the kit. If you compress them the right way — especially with guys like Dave or Taylor, who practically mix themselves — the balance of the kit is great.

"Some drummers play the hihat very loudly, which makes the toms fill sound small. If you can get a drummer to not kill the cymbals as much, then you get a nice balance. Dave's a huge John Bonham fan, and Bonham was really good at that. If you listen to or read about some of the Zeppelin recordings, they'd use the rooms mics. Also, in the past Dave did a lot of 8-tracking, where he'd have only one mic — so he started learning to mix his instrument through the playing. We started talking about this concept last year, listening to Bonham, and realizing it was key to a great drum mix. If you listen to a fill, by the time he gets back to the one with the kick drum, it's usually the most accentuated thing. So you'll hear a nice tom fill and then *boom*, back in on the one.

"I try to get a lot of toms in the overhead mics, both through compression and the position of the mics. I don't use a lot of compression, but I get a much better tom sound from my overheads than I do from the close mic on the tom. Generally, I'll place the mics over the drummer's head and not directly over the cymbals, somewhere in between the toms and the cymbals, and move them several times until I get the right balance. They're kind of pointed down at an angle, looking at the toms. The snare sounds good that way as well. A lot of people take all the low end out of the overheads or do a close-cymbal-miking. I never do that, and I don't even mic the hihat most of the time. If I have 48 tracks, I'll mic it, but I generally never use it because I get so much hat in the overhead mics already.

"For the kick drum, I got into using two tracks. There's a mic inside, close to the beater for attack, usually a (Neumann) '47FET. Then the majority of my

sound will be the outside tube mic — at least 6 inches from the front head, very low to the floor with a little bit of space for the room sound to come in. If you get too close, it obviously blows. Sometimes a little of that little distortion can be nice. When I use the two mics like that, I move them around to make sure the phasing isn't screwed up. If they're not set right, then you'll lose the low end. When they're in the right spot, you get this super fat low end."

Though the band used a click as a timing reference, Adam stresses it was "only a guide — not something we tried to match. We might spend a day or a half-day on the drum track for one song, so we'd stripe the tape with click and scratch guitar. Then Dave and I could sit in the control room and make Taylor work his ass off! We actually did a lot of drum punches, though it's something people generally don't like to do. I treated it just like a vocal track and I'd punch across all the drum tracks — in and out of a chorus or maybe in for a riff and then out. It's tricky to do, but that was one of the reasons we wanted the Studer. You can rehearse the punch on that machine. Sometimes the track is 80 percent perfect, and if you just punch one chorus, it'll be killer. It worked out great for us. We took a similar approach for the bass and guitars as well."

## READY-MIX

One of the more unusual aspects of Adam's recording style is that he often records effects with a sound, stating he's "definitely one for getting sounds onto tape. I don't like an 'I'll do it later' attitude, and that includes vocals. I'll mix compression and effects right in on the vocal track. If I'm not sure about it, I'll put the effect on another track. But I've done this before, like when I worked on *Down On The Upside* from Soundgarden. "Blow Up The Outside World" had a vocal effect that was like an Echoplex/bullet mic thing. That was an instance where we liked it already, and that's the way we tracked it."

Also a bit unusual is that fact that Adam likes to set up vocal sessions "in the control room, with everybody wearing headphones. I might fake-sing the song to





mess with sounds, until I get something I think works in the track, with effects, compression, and EQ. So that it's got a vibe. I've found singers give you a much better response. If it's all dry and out of context, it's hard to sing. It's much quicker to communicate with Dave singing in the control room. We'll sit there with lyric sheets, do a verse at a time or the whole song or whatever sentence. Then we'll stop and listen together, get ideas, and do it again. You don't necessarily get a great room sound, but for ease of communication it's a good way to go.

"Most of Dave's vocals were done with either a Telefunken tube '47 or a '67 tube. Generally, he'd sing a verse, we'd listen and say, 'OK line 1 and 3, let's do that.' Then we'd punch 'till we got it right and then double that. Dave sounds very good doubled, and he feels really comfortable with it. There were a few songs where I convinced him not to do it, but, as a singer, he felt more comfortable with the double. There'd also be times where a particular song would be easier with one headphone off and a nominal speaker level going. It can give you some problems in mixing, but if it's not too loud, then it's cool.

"When you use a lot of compression — which I tend to do on vocals — then you might all of a sudden get this ambient track kicking up in the background. For the most part, I mute that out, but it could be a cool effect for a flanging sound that we might leave in. The main

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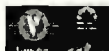
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# Tangled Up In Foo

issue for both of us was that he didn't want to see a computer in the room. I have the same philosophy. Every time I've used it as a main tool, there's time wasted going into sub frames and autotuning and all this sh-t. These guys are so talented that there's no reason for it."

## THIS ONE DOESN'T GO TO 11

Nate's bass was recorded primarily through an Ampeg B15 amplifier. Kasper tried several different ones "until we found the one that sounded best. One had a JBL in it and another had the original speaker. It was distinctly different. On the majority of the tracks, Nate played a P-Bass [i.e., Fender Precision —Ed.], but we used a Jazz bass on a couple of the tracks. Sometimes we'd add a bit of distortion, right on the main bass track.

"To mic the B15, I used either the tube '47 or '67. I'd place the mic a few inches off the speaker, and generally towards the outside edge of the cone by about 6 inches. We kept the volume pretty low, as opposed to an (Ampeg) SVT where you need to crank it up to get it going. The tone of the B15 was much better like that — not breaking up at all. The volume knob was set around 9 or 10 o'clock. We definitely messed with that quite a bit because, if we had the volume up too high,

the amp would fart out. But then if we came down too low, the tone wasn't quite there. There was definitely a sweet spot.

"I always took a direct path as well because, in mixing — depending on the song — I might add a bit more direct if the bass needed more attack. But, generally, the direct is mostly a backup. Oftentimes I'll run the direct back into an amp during the mix stage so that the phase of the direct sound lines back up with the original amp sound. There's always a bit of a phase problem between the amp and the direct, so during the mix I'll run the direct track through a head or even a head and speaker for a nice clean tone. On occasion I have used a delay to put the direct back in phase with the amp. It's usually a very small delay, like 3 to 6 milliseconds." [When a bass is recorded by miking an amp and using a DI simultaneously, there is usually an inherent phase difference in the two signals. This is due to the fact that the signal path of the direct sound is shorter than the signal path of the bass to the head/cabinet/microphone. This time delay of a few milliseconds results in a subtle phase difference between the two signals and can cause cancellation of low frequencies. By running the direct tape track back through a path similar to the original bass amp/mic path, the direct sound is slight-

*continued on page 136*

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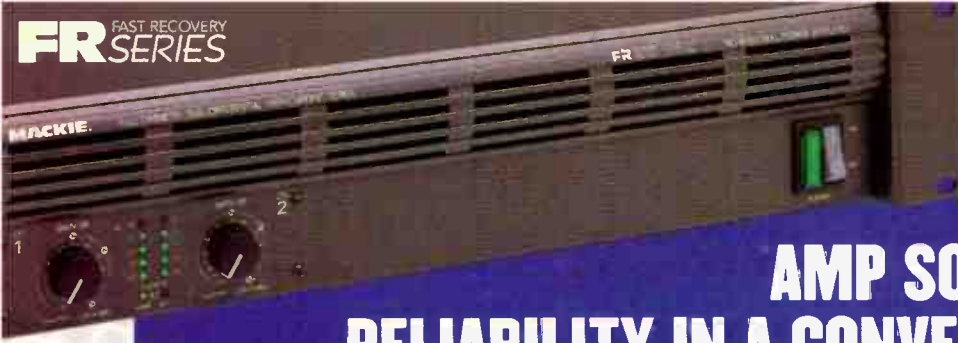


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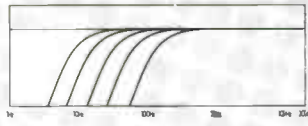
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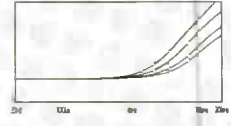
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# EQ Live

EQ LIVE



Backstage at  
Sting's NBC Today  
show concert in  
New York

PHOTO BY DAVID ATLAS

## FRIDAY MORNING LIVE

BY MIKE  
SOKOL

What do Sting, Ricky Martin, Blondie, Santana, and Barry White all have in common? Give up? Well, they've all been musical guests on NBC's Friday morning concerts at Rockefeller Plaza in New York. And as luck would have it, Sting was appearing while I was in New

York at the recent AES convention.

Because I've done a few remote broadcasts for Don Imus (of the Imus in

the Morning Radio Show) and had contacts at MSNBC, getting back-stage media passes wasn't too difficult. After a few calls to track down the media reps for the *Today* show, I was "in." I was able to see the entire production both from front-of-stage and from inside the television studio where they mix and broadcast the show live every week during the summer months. If you don't get

to New York to see one of these free concerts live on the streets, then at least tune in the NBC *Today* show at 8:30 AM on Friday mornings during the summer. You'll be surprised at what a good job these "Warriors of the Airwaves" do with a live rock mix.

### SCREAMS FROM THE BOOTH

What on the surface looks to be a simple live performance setup is a rather complicated affair to pull off. First, if you've never had the pressure of a live uplink broadcast, then you've missed one of the most adrenaline-charged gigs you'll ever get. When you're working live



Control Room

This stage position does contribute to extra slap-back echo since it's now surrounded by a concrete wall, but the crew seemed to understand this very well and didn't overpower the FOH and delay speakers. Placing everything this way did allow enough room on the sidewalk area for the 3000 or more in the audience — a veritable wall of bodies.

Front of House and Monitor World consist of typical A-Rig gear that you might see at any major concert. Yamaha PM4000 consoles are used for both Front of House and Monitor World. Lots of Crown Macro-Tech amplifiers power the whole system. A mixture of EAW KS750's

sound for a rock or country show, starting 10 minutes late is no big deal. However, on a show that's being broadcast, even 10 seconds is death. This is especially true for live radio programming where there are no visuals to hold the audience's attention while you cue the band. Ten seconds of dead air is all it takes before you hear the sound of a hundred thousand listeners changing to the next radio station. (Oh, yes... the screams of the program director are not to be ignored, either.) Here's how the folks at NBC pull the live concerts off on a weekly basis.

What sets the *Today* show concerts apart from the other talk shows that offer music is that it's done live to stereo. Rather than having a multitrack mix they can fix in postproduction, this is live, seat-of-the-pants-type engineering. They build the stage every week, starting around midnight before the morning of the show. Everything for the live mix on the street is brought in for the particular show and supplied by Bob Rendon of ProMix. For this show, Jens McVoy was at

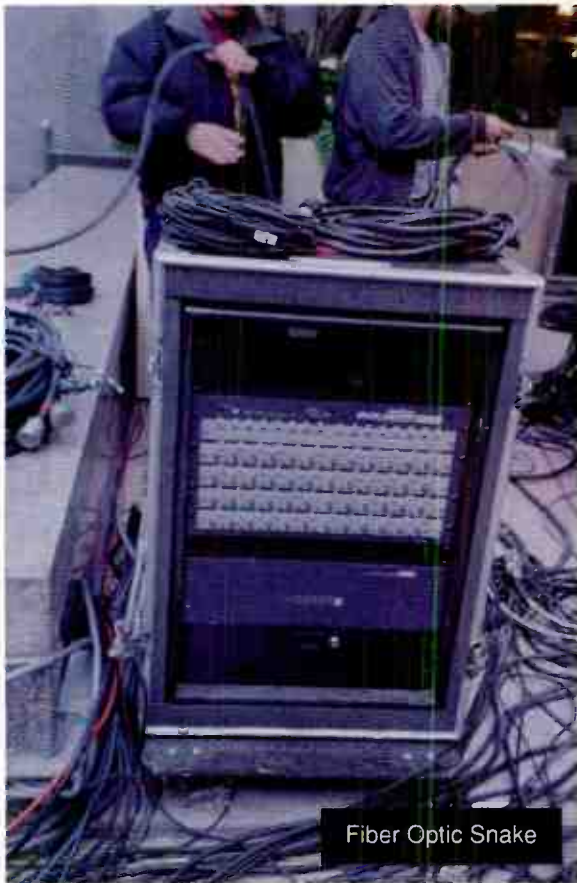
the FOH console doing the mix for the thousands of onlookers that show up for every concert.

Most of these concerts have the stage positioned up on the sidewalk. However, because of the expected crowds for this show, they chose to put it down in the Rockefeller Center ice rink (no ice at that time of year, of course). The statue of Prometheus behind the stage made a great backdrop.

and Apogee 85 speakers were used up on the streets for the main crowd, while Meyer 650P's and CQ1's were used down in the pit. An Otari Lightwinder fiberoptic snake generates the mic split and feeds the individual channels to the television studio across the street. (A basement walkway leads from the stage area to the studio on the corner, thus enabling the artists and technicians to get back and forth without running the



Outside Stage



Fiber Optic Snake

crowd gauntlet.) While this show used around 35 inputs, the system is capable of a full 48-channel split, so that monitors, the street mix, and broadcast mix are all independent from each other. The necessity of this becomes obvious when you realize that the broadcast mix also needs audio from things like crowd mics and reporter interviews that are not required (or wanted) in the FOH audience mix.

Mic selection is dictated primarily by the television crew, and can be modified by a particular artist if needed. In this case, Sting's backline consisted of keys, guitar, full drum set, trumpet, and backup vocalists. The audio engineers for the *Today* show like to use standard mics as much as possible. The drums used a normal complement of top and bottom SM57's for snare, AKG 414's for overhead, and a Beta 52 for kick. Sennheiser 409's were used for guitar, and Sting's P-Bass used both a Countryman DI and a Sennheiser with the option of an Electro-Voice RE-20. Sting's vocals went to an AKG 535 with a BSS 901 compressor patched into that chan-

nel. Backing vocals used Beta 87's, but normally would use Beta 58's, depending on the loudness of the stage. Keyboards used Countryman DI boxes.

Monitor wedges were Firehouse FA12's powered by Crown MacroTech amps. Jens likes to patch in a dbx 160 compressor on each subgroup of the FOH console. This method gives him a nice safety net in case something gets out of control. (Remember that this is live mixing to millions of viewers.) A pair of Yamaha 990 reverbs and a Roland 330 delay handled overall delay and reverb effects.

Down in the Studio A, there's a whole lotta mixin' goin' on. If you thought your mixing position was crowded, then check out what their audio control room looks like. There's Alex Cimaglia at the helm of the SSL 6000 console doing the mix to air. No, this is not automated! In the next room, there are even more producers with banks of video monitors and switching gear. They typically have a line-check and rehearsal for camera

blocking around 6:00 in the morning, but, at airtime, it's all mixed manually without any recall. Talk about having to keep your cool.

There's a patchbay that must be set up for each show (and hot-patched while on the air). I heard them finishing patches literally seconds before airtime with all the coolness of a surgical team. (Well, to be honest, there were just a few expletives used over the intercom that I can't print, but it really was a very professional atmosphere. Sometimes there's only one word that will get everyone's attention, and we all know what that is.) An extra 24-channel Soundcraft console is used to fly in effects and such, but the brunt of the mixing chores are done on the same SSL they use for broadcast.

As a future possibility, there is a basic 5.1 surround monitoring system in place. There are five pairs of ME-80 shotgun mics in stereo pairs for the crowds. In addition, there are five camera mics, so there's all kinds of mixing possibilities for crowd response and such. Therefore, there's the opportunity for future, surround broadcast mixes of these concerts. While the SSL 6000 isn't set up for surround, they could replace the console and go 5.1 easily. In the meantime, the concert season is over for this year. However, check out one of the concert broadcasts next spring. These concerts are extraordinary technical feats, and the music ain't bad, either.

EO



Stage View from FOH

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### PORT-O-MIX

Akai's AMX6 and AMX10 powered mixers feature Class D amplifier technology, combining high power handling in a lightweight,



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### CASE CLOSED

Odyssey Innovative Designs has introduced the KC-61, KC-76W, and KC-88W semi-hard keyboard cases with wheels. The key to these cases is its 1-inch-thick, high-density, closed-cell foam, which has thermal protective properties and what Odyssey likes to call "Memory." The Memory in the foam means it remembers to spring back into shape after it has been compressed, pinched, bumped, or dropped. This means your case will not turn into a "bean bag" after a couple months of rugged use. The outer shell of the cases is made of 800 Denier Ballistic Nylon, which can withstand the rigors of



today's working musician. Topping of the cases is the puncture-resistant, hard plastic shell. The 61-note case weighs just 11 lbs., the 76-note case weighs 14 lbs., and the 88-note model weighs 17 lbs. For more information, call Odyssey Innovative Designs at 626-813-0878, fax them at 626-813-9038, or visit [www.odyssey-cases.com](http://www.odyssey-cases.com). Circle EQ free lit. #127.

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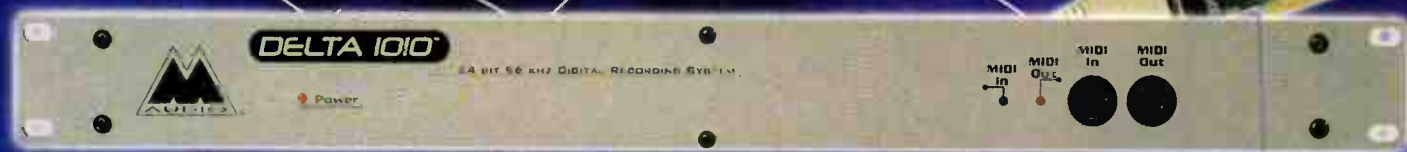
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# EQ Drive!

## EQDRIVE!



## SEASOUND SOLO RECORDING INTERFACE

BY CRAIG ANDERTON

As the world gets more virtual and multitrack-oriented, Solo — a PCI board/interface designed specifically for solo artists/duets who mostly record one or two tracks at a time — is either a throwback or a vision of the future (or maybe both!). Far from being a stripped-down interface, Solo includes knobs, switches, preamps, LEDs, and other physical controls that complement the virtual world of computer-based recording by providing routing, amplification, patching, and metering. While Solo targets a niche, it addresses that niche in a unique and comprehensive way.

### SOLO BASICS

The Solo package includes:

- Cross-platform (Windows/Mac) PCI card with rear-panel 25-pin D connector and coax S/PDIF in/out. (I tested Solo on both Mac and Windows

platforms; installation was uneventful on both machines.)

- 2U rack unit with stereo preamps, assignment and monitor controls, audio I/O, etc.
- 6-foot, 25-pin cable to connect the card and rack interface
- CD-ROM with Mac and Windows 95/98 drivers (no NT), Cubasis AV for Mac and Windows, ACID Rock (PC only)
- Freebie demo CD-ROM from iSong (interactive sheet music)
- Instructional/setup VHS video
- Manual

### INS AND OUTS

The rear-panel inputs include stereo line in and aux in (the latter can only be monitored, not sent to the computer), but there are also front-panel mic and instrument inputs (see below). All audio except the mic ins uses unbalanced, 1/4-inch phone jacks. Rear-panel stereo outs include direct outs for the two preamps, along with control room out and master out; two post-preamp effects loop jacks use TRS 1/4-inch phone connectors, and an ex-

ternal controller jack accepts a SeaSound Transport or Foot Controller.

### THE INTERFACE BOX

Analog synth vet Tom Oberheim headed up the Solo project, so perhaps it's not surprising that the interface emphasizes real-time control and includes several "modules," namely:

- **Mic preamps.** Each of the two mic pres has a front-panel XLR mic jack and 1/4-inch phone, high-impedance line in suitable for guitar, bass, etc. A single switch enables 48V phantom power for both mic ins. Trim controls set the pre-amp gain, with associated LEDs indicating activity or "you're -6-dB-from-clipping"; channel level controls set the output feeding your recording system and monitors. Activating a Record switch sends the channel 1 preamp out to your software's odd-numbered channels and the channel 2 signal to the even-numbered channels. Finally, a monitor pan control affects the monitor mix and control room outs, but not the signal going to your computer.

- **Line in mixer.** The line ins are ideal if you want to play over a drum machine,

Get solid hardware control with this PC and Mac interface

DAT tape, etc. Each channel's Record switch, monitor pan, and level control operate similarly to the preamp equivalents; using both the line and preamp ins allow recording four inputs simultaneously.

- **Metering.** Two 10-step LED meters have two associated switches: input or output monitor, and peak/peak hold (selects between a standard peak meter response and one with a peak hold function). Two other LEDs indicate incoming and outgoing MIDI data.

- **Monitor mix.**

Two knobs set the preamp and line in signal levels feeding the control room outs (or headphone outs). Two other knobs set the playback level of signals coming from your computer (e.g., the master output of the hard-disk recording program).

- **Output level controls.** Each headphone jack has a level control. Additional controls adjust the control room and master output levels (the latter typically feeds a DAT or other stereo mastering deck).

The extensive analog I/O offers some interesting possibilities. For example, if you want to monitor reverb-drenched vocals without recording the reverb, use the direct outs to feed the reverb, then return the reverb into the aux ins (which you can monitor, but do not get recorded). Or, if you have a drum machine with 4 outputs, send the stereo mix to the line ins and the individual kick and snare outs to the instrument ins (you could also process the kick and snare using the preamp inserts).

Perhaps most importantly, Solo's approach to monitoring essentially takes latency out of the equation, because you're monitoring the source, not the delayed version coming back through the sound card.

### GOT MIDI? GOT MULTICHANNEL?

The MIDI in/out/thru jacks let you input MIDI into the software you're run-

## TEST Drive

**MANUFACTURER:** SeaSound, 2955 Kerner Blvd., San Rafael, CA 94901. Tel: 415-485-3900. Web: [www.seasound.com](http://www.seasound.com).

**APPLICATION:** Provides analog and some digital I/O, along with patching and routing, for Windows or Mac hard-disk recording programs.

**SUMMARY:** The outstanding physical interface, optimized for solo musicians, puts Solo into its own product category.

**MINIMUM SYSTEM REQUIREMENTS:** Windows: 32 MB RAM, 133 MHz Pentium, W95/98, Mac: 32 MB RAM, G3, G4, or PowerPC-based computer (but not iMac), 2nd level cache, OS 7.5 or higher.

**STRENGTHS:** Cross-platform operation; 24/96 operation; inherently latency-free design; lots of physical controls; substantial, well-built feel; good mic/instrument preamps, with phantom power; MIDI in/out/thru; excellent value.

**WEAKNESSES:** Recording more than two channels simultaneously is awkward; no NT support; sketchy manual (no specs, typical setups, or info on using with other programs).

**PRICE:** \$699

**EQ FREE LIT. #:** 104

ning, give it a time reference (e.g., MTC or MIDI clock), and play MIDI data out to tone generators and such — this is not a big-deal multiport interface, so if that's what you need, factor a suitable model into your budget.

For the Mac, Solo shows up as a MIDI device under OMS. Audio-wise, Solo supports ASIO on both Mac and PC for multichannel operation, although it can also function as a standard WAV multimedia device for Windows or with Sound Manager on the Mac.

### SOFTWARE

You get drivers, some bundled software (Cubasis and ACID Rock, although the latter doesn't do Mac heads much good), and the Solo-o-Meter utility (currently PC only, but supposedly shipping soon for the Mac). This provides options for signal routing (parallel S/PDIF with analog I/O, keep S/PDIF and analog I/O separate, or send the S/PDIF out to the analog in and the analog out to the S/PDIF in) and some other functions, like displaying the software's sample rate. The internal clock can slave to the incoming S/PDIF sample rate if needed. When converting analog through S/PDIF, you can choose any supported rate (11.025, 12, 16, 22.05, 24, 32, 44.1, 48, 88.2, and 96 kHz).

Two 35-step, high-resolution meters offer peak or peak hold response, and a clip detection option lets you set how many "overs" it takes to trip the meter clip indicators. You can also choose the word resolution (16 or 24 bits).

### JUST ANOTHER SOUND CARD?

The market is not lacking for sound card/interface combinations. However, many of these use bizarre breakout connectors or expect you to set all levels with external hardware (like a mixer) or virtually, inside the computer. Solo gets around these lim-

itations by providing the hardware needed to patch, amplify, route, and monitor signals; its only interaction with the computer is to get digitized signals in and out of the machine.

The biggest limitation is that Solo is optimized for recording only two channels at a time. (It can record all six analog ins and S/PDIF for eight simultaneous ins. However, the mic and instrument ins share a common level control, few multiple-output devices generate both S/PDIF and analog outs, and the analog signals all get mixed down to two tracks anyway.) This isn't a problem for the intended audience, but if you're into putting eight mics on a drum kit, look elsewhere.

Interestingly, Solo reminds me of the philosophy behind the original TASCAM PortaStudio™, which was designed for "personal" recording. It, too, recorded only in stereo, and, like Solo, included enough preamps and controls so you didn't need an outboard mixer. Unlike the PortaStudio, though, Solo has unusually good sound quality, especially given the cost.

The bottom line is simple: although Solo targets a very specific market, if you're part of that target market, nothing else provides the same degree of control, convenience, and functionality. **EQ**

Your computer

Your mixer

Your card

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CIRCLE 05 ON FREE INFO CARD

# GADGET LABS WAVE 8/24 DIGITAL RECORDING INTERFACE

BY DAVID  
MILES HUBER

an ADAT, or (using the ADAT as an A/D converter) gives you access to 16 analog channels. Note that the Lightpipe ports are physically located on a separate bracket, so you'll need to have an available slot.

In addition to these expansion options, up to three 8/24's can be installed into a single computer (yielding 24 analog channels). When an optional sync cable is used, the word clock timing of these sound cards can be locked together, such that all the tracks will begin playing back and/or recording at the same time, without any drifts in time.

**CONFIGURATION, DEMOS, AND THE LIKE**

Once the 8/24 has been installed, access to the board's basic functions appear at its Control Panel. This panel, which provides controls for up to three cards, includes gain sensitivities for setting the levels of each channel to either -10 dBV or +4 dBu. In addition, individual monitor thru boxes can be checked that allow any input channel to be routed through to its output. This is an extremely important feature in that it lets you monitor levels during setup, as well as input signals while recording. Final-

Gadget Labs presents another way to get audio into your PC or Macintosh

Due to recent advances in CPU speed and processing power, sound card designs have finally begun to abandon their reliance upon expensive DSP chips and support hardware. Instead, they're beginning to simplify in a way that lets the computer do all the number-crunching that's required to play-back, mix, and process an ever-increasing number of tracks in real-time.

One example of such a sound card is the Wave 8/24 from Gadget Labs. In its most basic form, the 8/24 consists of a 3/4-length PCI card that connects via a 6-foot (or optional 23-foot) cable to a metallic, lime-green, rack-mount patchbay. The front of this cool-looking, single-space bay houses a bank of 8 in/out connections that can accept either 1/4-inch balanced (TRS) or unbalanced phone plugs. The first two I/O channels (which probably will be used as the interface's stereo in/out) offer both 1/4-inch phone and balanced XLR jacks. This feature is very useful, since you can use the XLRs to insert a mixer, DAT, or other pro device into the main stereo path without constantly having to repatch the I/O

cables. The patchbay's back panel is equally simple, offering a 25-pin jack for connection to the PCI card, a jack for the supplied 12V wall wart, and a MIDI in/out port that can be used as an instrument port or for syncing to other devices via MIDI timecode.

Beyond its basic simplicity, one of the best parts about this 24-bit audio card is that it can expand in several ways. To start, an optional daughter-board can be added to the PCI sound card. This expands the 8/24's I/O capabilities in either of two ways. First, an S/PDIF board lets you transfer digital data to/from your computer using the two RCA connectors that are located on the hardware card's metal bracket. Next, an ADAT Lightpipe board lets you transfer audio to/from



# FX MEISTER



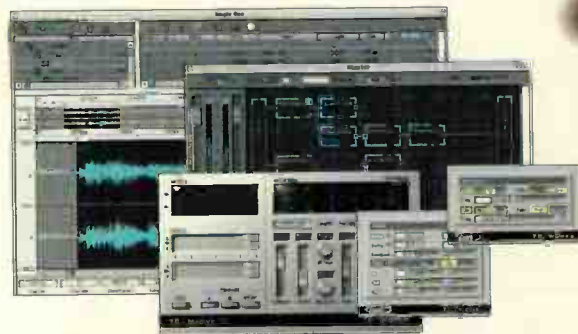
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EQ Drive!  
EQ DRIVE!

## TEST Drive

**MANUFACTURER:** Gadget Labs, Inc., 333 SW 5th Avenue, Suite 202, Portland, Oregon 97204. Tel: 503-827-7371. Web: [www.gadgetlabs.com](http://www.gadgetlabs.com).

**APPLICATION:** Professional 8-channel audio interface for the PC- or Mac-based project studio.

**SUMMARY:** Straightforward 8-in/8-out patchbay and sound card combination with expansion options for S/PDIF and ADAT Lightpipe.

**STRENGTHS:** Rack mountable patchbay lets you easily access the interface in/out connections; easy install and setup; optional daughterboard expansions let you add-on a digital S/PDIF I/O port or eight I/O ADAT Lightpipe to each interface.

**WEAKNESSES:** None that I could find.

**MANUAL:** Clear, concise, and simple; includes a valuable section on optimizing the 8/24 with various editing software packages.

**SYSTEM REQUIREMENTS:** Pentium PC w/Windows 95/98/NT 4.0 (or higher) or Mac (at least a 200 MHz 604e or G3 processor) w/available PCI slot.

**PRICE:** Wave 8/24, \$599; S/PDIF daughter card, \$129; ADAT optical daughter card with word clock, \$249

EQ FREE LIT. #: 105

ly, a "Sync Start" option can be checked to eliminate any timing delays that might be introduced by the Windows OS when recording four or more channels.

The 8/24 ships with drivers for both the Windows PC and Mac (with ASIO being supported in both versions). In addition, OMS/MIDI is supported for the Mac, meaning that the 8/24 works with versions of Steinberg's Cubase VST, Opcode's Vision, Emagic's Logic, and MOTU's Digital Performer. In addition, a CD is included that comes with a fully functional version of Cool Edit Pro SE (a slightly scaled-down version of Syntrillium Software's powerful and easy-to-use multitrack editing software for the PC), as well as program demos from Cakewalk, Gadget Labs, and Sonic Timeworks.

### MY 2 CENTS

Installing the card was extremely simple and hassle-free. (Hey, it seems like this plug-n-pray stuff is really beginning to work!) Sonically, the card sounded great, and my editing programs passed audio to

the outputs without a hitch. In short, it did its job really well. In fact, everything about this sound card definitely fits with Gadget Labs' basic philosophy of making the tools fit with the needs of the project studio without adding mixer apps, cute meters, or other "stuff" that tends to get in the way. From the moment you open the box, it's obvious that they try very hard to stick to the simple basics.

My only comment about the patchbay is a personal one. When it comes to my studio, I'm a real "neatnik." I might throw my socks all over the place, but I like my cables to look nice 'n' tidy. Consequently, I'd probably place the patchbay at the rear of a rack or on the floor in an out-of-the-way place to avoid having cables dangle from my rack fronts. But hey, that's just me. I'd bet a cool Bud that most folks would definitely prefer a bay that allows for quick-n-easy access to their I/O connections. For this reason, in addition to its good expansion options, I'd definitely give the 8/24 a high rating on the bang-for-the-buck scale.

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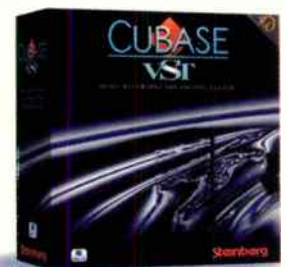
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\*The Model E plug-in shown is sold separately.

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### DRIVE! GEAR

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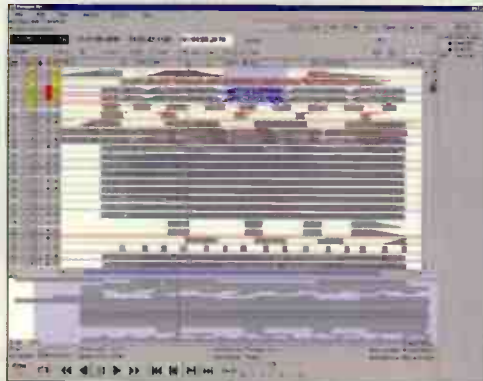
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call Microtech Systems at 800-223-3693, fax them at 650-596-1915, or visit [www.microtech.com](http://www.microtech.com). Circle EQ free lit. #129.

#### NICE VIEW

TimeLine Vista has introduced its ViewNet Audio graphical interface network for the TASCAM MM Series. The ViewNet package includes a 100 Mbps Ethernet network interface card with the Java-based ViewNet Audio software application. ViewNet features a graphical project view screen and allows networked control of all setup parameters and operations for TASCAM's MMR-8 and MMP-16 modular multitrack units. The application can be run on Windows-, Macintosh-, or UNIX (Linux)-based computers. Multiple instances of the ViewNet Audio application can be used on the same network to provide control of



more than 100 MM Series machines. ViewNet Administrator and Server packages are also included to provide the levels of security and control required for large multi-format facilities. ViewNet Audio is available from authorized TASCAM MM Series dealers and distributors for \$599. For more information, call TimeLine Vista at 760-761-4440, fax them at 760-761-4449, or visit [www.time-linevista.com](http://www.time-linevista.com). Circle EQ free lit. #130.

#### THINGS THAT GO THUMP

Studio Audio & Video Ltd., developers of the SADiE Digital Audio Workstations, has announced the launch of its CEDAR DeThump. This new member of the CEDAR family complements the SADiE CEDAR DeNoise and DeClick plug-ins, and utilizes the full accuracy of floating-point processing offered by the new SADiE system. Cedar DeThump is designed to remove low-frequency energy bursts (thumps) from an acoustical signal. These thumps are typically encountered in optical soundtracks and on vinyl sources, and their spectral content is often overlapped by the musical content. A simple high-pass filter cannot remove them without significantly degrading the underlying signal. DeThump uses the data surrounding the thump to build a picture of what the low-frequency signal data should have been prior to the thump. For more details, call SADiE, Inc. at 615-327-1140, fax them at 615-327-1699, or visit [www.sadieus.com](http://www.sadieus.com). Circle EQ free lit. #131.



#### MP3'S A CROWD

Alcorn McBride, maker of the theatrical audio reproducers used throughout the world's theme parks, introduces a stand-alone audio source for background, triggered, or interactive audio applications. The MP3 Audio Machine uses a real-time clock to play tracks at predetermined times, or even to select

different random playlists depending on the time of day. It can receive new audio material across the Internet via its on-board modem or Ethernet interface, so material will always be current. The MP3 Audio Machine stores its audio on a removable memory card (included). It can accommodate hundreds of hours of audio using an optional internal hard disk. Playback is virtually instantaneous. Users can create and edit audio using their desktop PC. The book-sized unit even works in high-vibration environments. For more information, call Alcorn McBride at 407-296-5800 or visit [www.alcorn.com](http://www.alcorn.com). Circle EQ free lit. #132.

#### IS THERE AN ECHO IN HERE?

Echo Corporation, manufacturers of the popular Layla and Gina multichannel recording interfaces, has announced a new addition to its digital audio product line. Mona features four universal inputs for connecting instruments and microphones directly to users' computers, bypassing external equipment that can add noise and distortion. The XLR inputs and laser-trimmed mic preamps offer low noise, high common mode rejection, and excellent RF protection for users' microphones. Or they can plug into the 1/4-inch inputs that can be switched between balanced +4 dBu line level inputs or high-impedance guitar inputs. Mona's software drivers support the Windows, Macintosh, and BeOS operating systems. For more information, call Echo Corporation at 805-684-4593 or visit [www.echoaudio.com](http://www.echoaudio.com). Circle EQ free lit. #133.

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board noise source and oscillator is convenient for instant "cool voice" effects (also try modulating noise with a drum box — nice!), and the "non-standard" controls (gender, Q, and order) are welcome additions. On the minus side, there's a tad over 20 ms of latency through the system (it's a good idea to advance any tracks you've recorded to hard disk), and you can't adjust the levels of individual bands, as with most analog vocoders. **BOTTOM LINE:** The Warp Factory is rather different from standard analog vocoders: the sound quality is a bit harder-edged and more defined, the noise floor is lower, and there are controls you won't find on analog equivalents. But if I had to choose between Warp Factory or an analog model, Warp Factory would win for its rich I/O, MIDI, and extreme tweakability that turns it into a performance instrument, not just a signal processor.

**PRICE:** \$499.99

**CONTACT:** Electrix, 6710 Bertram Place, Victoria, BC, Canada V8M 1Z6. Tel: 250-544-4091. Web: www.electrix-pro.com. Circle EQ free lit. #107.

### COLOGNE CYCLEZ 1 + 2

**SUMMARY:** Sample CD with hardcore beats in WAV and audio format.

**BASICS:** This CD combines Cologne Cyclez I and II, originally released on vinyl as a series of "locked groove," single-measure, breakbeat-style loops running at 133 BPM. In addition to these 387 loops, there are an extra 697 bonus loops. The CD isn't really techno, house, or ambient, but leans toward electronic music/hip hop, with strong beats, dabs of distortion, prominent kick, lots of swing percentage, and grooves that are complex without losing the ability to get your body shaking. There are also some "psychedelic noizez" and sound effects that are generally dirty (sound-wise, that is, not as in "parental advisory") and lots of fun.

**BOTTOM LINE:** For hardcore, tuff beats, the loops here are about as good as it gets. If you're a fan of sampling CDs like Distorted Reality, Cologne Cyclez is the perfect complement.

**PRICE:** \$49.95

**CONTACT:** Wizoo, distributed by MTC, 495 Lorimer St., Brooklyn, NY 11211. Tel: 800-579-4832. Web: www.wizoo.com. Circle EQ free lit. #108.



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# EQ Groove

EQ GROOVE

BY CRAIG ANDERTON

Filter Factory (FF for short) is a filter-based signal processor designed for real-time playing, and is equally at home in the hands of musicians, engineers, or DJs. And I do mean hands: there are big, easy-to-turn knobs and large, lit buttons that beg to be hit. The clever case design allows rack-mounting for the studio, or tabletop operation for when you want to *play* it, not just set it.

## INS AND OUTS

There are 1/4-inch phone, line-level (+4) ins and outs, as well as RCA phono jacks switchable between line (also +4) and phono level — yes, a turntable can plug right in, and there's even a grounding post for it. Other I/O includes MIDI in, out, and thru (with a 16-position, rotary channel-selector switch), a footswitch jack for bypass on/off, and control voltage (1V/octave) ins for the right and left channel filter frequencies. Even if you don't have an old synth around, this makes pedal control simple — stick a 9V battery into a

standard volume pedal input, and send the output to the CV in.

Although there are input and output level LEDs (green for activity and red for distortion), there's no input level trim. In theory, this is because the device has unity gain, and FF assumes level controls upstream of the box anyway. However, changing these could alter levels elsewhere in the system you *don't* want to change. For recording, you can always stick the FF in an aux bus and use the bus master for level adjustments.

The FF handles

bandpass, or notch) and mode (four-pole, 24/dB octave mono, or two-pole, 12

dB/octave stereo). The filter self-oscillates at max resonance.

- LFO/modulation section (more on this later)
- Output stage with effect

balance control, level indicator LEDs, bypass switch, power button, and MIDI data reception indicator

The Buzz sections has a momentary button that reverses the current Buzz status (active or bypassed). Hit the button to either add a burst of buzz or, when buzz is active, add a shot of straight signal. The filter also has a momentary button, which ties in with the modulation section.

Electrix's filter bank integrates retro sound, contemporary technology, and playability in a satisfying way

110/120/234/240 volts; just pop the fuse post, set the voltage indicator, and use an IEC-compatible power cord with the appropriate plug.

## MODULE-SPEAK

The FF includes several modules:

- Buzz, a distortion effect with buzz and trim (output level) controls
- Stereo

Filter, with controls for frequency (20–20k), resonance, type (high-pass, low-pass,

## MODULATION

This gives the FF its personality. There are six modulation types: random (a sample and hold-type effect), envelope follower, and four-waveform LFO (positive sawtooth, negative sawtooth, square, or triangle). The LFO has speed and depth controls, but also a

ELECTRIX  
FILTER FACTORY



tap tempo button and “division” control. The latter changes the LFO rhythm, for example, it makes it easy to go from 1/4-note to 1/8-note rhythms. Possible divisions range from 1:1 (the tempo is what you tapped or set using the speed control) to 1:2 or 1:4 for a slower rhythm, or 2:1, 3:1, 4:1, or 6:1 for faster rhythms.

Tap tempo is smarter than average. Hit it once to reset the LFO to the start of its envelope, hit twice to compute tempo based on the time interval, or tap multiple times (my favorite) to get an average tempo.

Another cool button, Singleshot, triggers one (or more) LFO waveform cycles; the number of cycles depends on the division control values. However, the envelope follower lacks two very useful features: envelope inverse, so you can set a high filter frequency and modulate down instead of up, and a decay time control (the envelope follower tracks incoming envelope changes very faithfully, but sometimes a more averaged response sounds better). I’d also like to see a tie-in between the random and envelope functions, so the random changes occur according to envelope level rather than always responding to LFO speed.

### MIDI-LAND

The MIDI implementation is great: every control and switch corresponds to a MIDI controller number (except for the filter frequency, which responds to MIDI note number), so you can “record” your performances into a sequencer for later playback. This also circumvents the lack of program storage, as pressing and holding the bypass button sends a “dump” of all current controller values. Playing this back resets the control values (but, as expect-

ed, doesn’t change the knobs, which are not motorized).

The LFO speed responds to MIDI clock (the division control still works in this mode), and restarts the LFO in sync with MIDI clock. It tracks MIDI clock changes, too. Fortunately, because the LFO can go up to 100 Hz and is useful for pseudo-ring modulation effects, changing LFO speed manually “unlocks” the sync from MIDI.

Although the filter can self-oscillate and be played from a keyboard, the modulation envelope doesn’t re-trigger when you change notes. It’s not a huge deal, but limits the FF’s usefulness as a tone generator.

### THE VERDICT

For years, all we had for this type of application was old synth modules or the Peavey Spectrum Filter (very cool, but ahead of its time). Other filter banks have appeared recently, but the Filter Factory integrates retro sound, contemporary technology, and playability in a satisfying way.

One of my favorite applications is running a complete mix through it, adding some

buzz and high-pass filtering, and mixing the results in the background for texture. This can really dress up a sparse track by adding sonic motion, but not clutter. The FF is also killer on drum loops, and, for DJs, it’s great for those situations where you want to slowly tweak the high-pass filter ever higher until the sound almost disappears, then let it come crashing back in (and try a bit of buzz to make it crash even harder). For technique-oriented turntablists, playing the FF’s controls is a great complement to scratching.

Although this is a signal processor, it’s one you play like an instrument. The Filter Factory is clever, useful, and inspiring, but best of all, it’s fun. **EQ**

## IN THE Groove

**MANUFACTURER:** Electrix, 6710 Bertram Place, Victoria, BC, Canada V8M 1Z6. Tel: 250-544-4091. Web: [www.electrixpro.com](http://www.electrixpro.com).

**APPLICATION:** Performance-oriented, multimode filter for processing recorded tracks, live instruments, loops, or turntables.

**SUMMARY:** The combination of strong audio design with a live-performance, playable attitude carves out a distinctive niche.

**STRENGTHS:** Multimode filter, extensive modulation capabilities; outstanding MIDI implementation; big knobs and lit switches for player-hostile stage environments (strobes, low lighting, etc.); rack or tabletop operation; substantial feel; clear documentation.

**WEAKNESSES:** No input level adjustments; envelope follower lacks some useful features; can’t trigger envelopes when using the filter as an oscillator; 24-dB/octave response is mono-only.

**PRICE:** \$549 **EQ FREE LIT. # 109**

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## GROOVE! GEAR

### DJ LINEMASTER

The Stanton Linemaster works as an integrated (plug-in) cartridge to be inserted into the turntable's tonearm. The DJ gains an independent line input without having to change the connections of the mixer. Stanton's Linemaster features a socket that accepts a 3.5 mm stereo mini jack, located where the removable stylus of the cartridge is normally positioned. An RIAA pre-processor lives inside the body of the Linemaster and makes the signal received by the socket acceptable to the Phono Input of the mixer to which the turntable is connected. A DJ using Linemaster can feed the signal provided by a MiniDisc player, portable DAT, CD player, etc. via the turntable without having to modify the connections to the mixer. Users can then replace the Linemaster with a cartridge such as Groovemaster or Trackmaster to return to traditional DJ operation. For more information, contact Stanton at 954-929-8999 or visit [www.stantonmagnetics.com](http://www.stantonmagnetics.com). Circle EQ free lit. #134.

### 3D MIX PRO

Peavey's 3D Mix Pro is a full-featured mixer with a new graphic look, the latest in SRS technology, and a dedicated collapse button. Features of the 3D Mix Pro include two stereo channels, each with phono/CD and line inputs; 100-mm faders on the stereo channels; three bands equalization with 22 dB of cut on each channel; two microphone inputs with equalization and built-in high-pass filter; signal present LED on each input (including mic); replaceable crossfader; loop inserts with enable and cue switches; full control of signal routed to the headphones, including pan, split, and cue level; booth, tape, and headphone outputs; and internal

power supply. For more information, call Peavey at 601-483-5376, fax them at 601-486-1678, or visit [www.peavey.com](http://www.peavey.com). Circle EQ free lit. #135.

### MIC THE MAN

Gemini's VH Series of VHF high performance wireless mic systems is designed for DJs and musicians. The VH Series features a range of three receivers — the single channel VH-101, the true diversity VH-110, and VH-120 dual channel. All three models feature Auto Frequency (AF) level control, 1/4-inch output jack (two on the VH-120), and adjustable squelch control. The series is available in 8 different factory preset frequencies, and each unit is supplied with a power adapter. Gemini's VH Series is also offered with a choice of two belt pack transmitters — the BP-03L with lavalier mic and the BP-03H with lightweight headset mic. Both transmitters feature quartz lock control to lock in the signal for more stable transmission, adjustable sensitivity control, and LED battery indicator. For more information, call Gemini at 800-476-8633, fax them at 732-969-

9090, or visit [www.geminiidj.com](http://www.geminiidj.com). Circle EQ free lit. #136.

### CLUB-HOPPER

After nearly 30 years in Pro Audio, Allen & Heath has launched itself into the club mixer market with the Xone:464 club mixer and the Xone:62 pro DJ mixer. Xone 464 is a professional club mixer with 16 inputs, VCS crossfade, and two stereo mix outputs. The unit is perfect for the new generation of DJs who combine live and recorded sources. To meet these needs, Xone:464 provides four high-specification mic/line inputs featuring inserts, 100 Hz filters, 4-band/2-sweep EQ, six pre/post aux sends, and more. The smaller Xone:62 is designed for clubs and professional DJs, offering six dual inputs (four with RIAA/line inputs, two with mic/line inputs). The unit inherits a number of performance features from the Xone:464, including 4-band EQ, VCA crossfade, and VCF filters. For more information, call Allen & Heath at 801-568-7660, fax them at 801-568-7662, or visit [www.allen-heath.com](http://www.allen-heath.com). Circle EQ free lit. #137





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CIRCLE 11 ON FREE INFO CARD  
World Radio History

# Alesis/BASF-EMTEC ADAT Video

## A look at the instructional videotape *Care And Feeding of Your ADAT*

BY EDDIE CILETTI

By producing the videotape *Care and Feeding of Your ADAT*, Alesis and BASF-EMTEC have teamed up for the common good to help users get a fundamental grasp of tape machine mechanics. The tape hits on many basic care and maintenance points. For example, what is normal [use]? Watch the mechanism thread. Notice that the tape can be fast-wound on or off the heads. There are user-serviceable parts inside. They have a life span. Pay attention!

That said, let's zoom out for a moment and comment on the production quality of the tape. While professionally lit, organized, and edited, it tends to make (former) Alesis service manager John Sarapo look a bit awkward as he attempts to use an ADAT from behind while watching an off-camera monitor. John should have been able to use the ADAT like a normal human and, if this required two cameras plus an edit, or a video "overdub," so be it.

If we, as audio practitioners, quickly embraced all technological advances, then this "video" would have made a great DVD. CD-ROM does not have the image resolution, but both CD-ROM and DVD have the random access features to make it easier than a VCR to quickly locate anything. The production of this video does succeed in making information accessible by providing an insert card with the "chapter" headings and time location. Users can identify each new chapter by its light blue background, with text and time, so you can fast-cue without overshoot.

Table 1 defines the usage category, the first step in determining a routine maintenance and cleaning schedule. If you are not handy with a screwdriver, you can use a cleaning tape. The video doesn't really detail the hidden features, many of which are in the manual. Press Set Locate

and Stop to query head hours.

The ADAT head life window ranges from 1500 hours to 5000 hours. This is one area where I wish Alesis had been more specific. The ADAT head can easily surpass 3000 hours of physical abuse. Regular cleaning and error rate checks (Set Locate and Record Enable 3) will keep you informed of the quality of the signal to and from tape. However, there are electronics inside the head that many service centers do not attempt to service. When failure occurs, head replacement is necessary. This was mentioned casually, whereas I feel a more pronounced differentiation should have been made.

In addition to showing users how to clean the heads, pinch roller, and other parts in the tape path (as well as the cleaning supplies required), idler replacement is also covered (but no part

numbers are mentioned). Alesis provides a helpful overview of the basics — from error codes (not to be confused with error rate) to making a "golden" (reference) tape to cloning. BASF reminds users of the importance of tape storage condition. (Keep tapes dust free by storing in library-style boxes, at 60-75 degrees, 40-50 percent humidity.)

To sum it up, be familiar, learn the basics, and know when it's time for service.

**MANUFACTURER:** Alesis, 1633 26th St., Santa Monica, CA 90404. Tel: 310-255-3400/800 5-ALESIS. Web: [www.Alesis.com](http://www.Alesis.com). BASF-EMTEC, 25050 Avenue Kearny, #203, Valencia, CA 91355. Tel: 661-295-5551/888-295-5551. Web: [www.emtec-usa.com](http://www.emtec-usa.com). Circle EQ free lit. #110.

**PRICE:** \$12.99. Available from Alesis.

TABLE 1

Users	Power	Project	Bedroom
Usage	8-12 hours/day	20~40 hours/week	1-2 hours/day
Cleaning	Every 3~5 days	Every 2~3 weeks	Every 4~6 weeks
Actual Head Time	250~500 hours	250~500 hours	250~500 hours

Who are you? Alesis defines it user-base in three categories according to usage.

[Alesis/BASF's use of the term "project" doesn't reflect the definition of project professional as it is now generally understood by the industry and EQ readers.]



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# Hafler Surround System

Hafler combines its nearfield monitors with smaller rears and a sub to create a full surround experience

BY BOBBY OWSINSKI

Surround sound is not only becoming the buzzword of the new millennium, but also a soon-to-be necessity in the project studio world. That's why many manufacturers are now filling out their product lines with complete systems intended for this growing market area. One of these is Hafler, the company renowned for its high-quality power amps and recently released, fine sounding, TRM8 nearfields (previously re-

viewed in *EQ*'s July '98 issue). Now Hafler adds to its product line with baby brother TRM6's and the TRM12 powered subwoofer. If you put them all together, you have the makings of a total Hafler surround system.

## THE SPECS

Let's look at the TRM8 first, the big brother of the bunch and Hafler's initial entry into the speaker market. The TRM8 is a biamplified, two-way system featuring an 8-inch polypropylene cone woofer and a 1-inch soft-domed tweeter crossed over at 2.5 kHz — but there's a lot more here than meets the eye. Although not an entirely new technology, the TRM8 incorporates a waveguide tweeter with a built-in phase lens. This is said to give better on- and off-axis response and improve imaging. The tweeter is also injected with Ferrofluid to improve internal cooling and, consequently, is less likely to fail when it's stressed under extreme levels. The enclosure, which measures 10-1/4" W x

15-7/8" H x 13" D and weighs a heavy 35 lbs., utilizes 3/4-inch MDF squared pressboard that's much more dense than either standard MDF or plywood. The result is a cabinet with extremely low resonance. The cabinet is also stepped to provide driver time alignment and features an Exoport, which is a rear-firing ported system.

The amplifier section of the TRM8's employs a 150-watt amplifier for the low frequencies and a separate 75-watt amp for the tweeter. These amplifiers employ the patented Hafler Trans•nova MOSFET circuitry, which simplifies the basic amplifier circuit resulting in decreased crosstalk, wider bandwidth, and faster slew rate, according to the manufacturer. The amps also contain another unique circuit innovation that Hafler calls DIAMOND (Dynamically Invariant Amplification Optimized Nodal Drive), which combines the linearity and pleasing sound of class A operation with the headroom of class B. The front panel near the



Hafler TRM6



Hafler TRM8

tweeter features a power rocker switch and two multicolored LEDs that indicate power on, clipping, and thermal overload for the tweeter and woofer amplifiers.

Some of the unique features found on the rear of the TRM8's are multiple input jacks (RCA, 1/4-inch, and XLR), and a DIP switch that features six input sensitivity presets to exactly match the monitors to +4 or -10 (or any level in between) operation, and four positions of bass shelving (-4 dB, -2 dB, +2 dB, +4 dB) and treble shelving (-4 dB, -2 dB, +2 dB, +4 dB). Another unique feature is a Mute switch for each amplifier, which is nice to have when doing room voicing. A small but welcome feature is the rubber pad for the bottom of the cabinet to decouple it from either a stand or console. Each monitor is already tapped for mounting via an Omnimount mounting bracket. The TRM8's have a peak acoustic output of 123 dB

(per pair w/music @1m) and a frequency response of 45 Hz-21 kHz ( $\pm 2$  dB), according to the manufacturer.

Take the TRM8, scale it down a bit, and you have the TRM6. The TRM6's are identical in design to the TRM8's, except, of course, for their size (8 3/4" x 13 1/4" x 11 1/5") and weight (23 lbs.), and the fact that they have a 6.5-inch woofer.



The amplification, too, is a bit less, with a 35-watt RMS tweeter amp, a 50-watt woofer amp, and a slightly higher crossover point of 3.2 kHz. Still, these little guys put out an amazingly big sound for a small box, with specs that almost rival that of the larger TRM8. According to Hafler, peak acoustic output is 118 dB (per pair w/music @ 1m) and frequency response is 55 Hz-21 kHz ( $\pm 2$  dB).

The TRM12 subwoofer system features a downward-firing 12-inch, low-frequency driver with a 2.5-inch, four-layer voice coil fed by a 200-watt class G amplifier. The unit features an adjustable 40 to 110 Hz, 24-dB/octave crossover as well as a 12-dB/octave (-3 dB @ 18 Hz) subsonic filter. Variable input sensitivity and a highly useful 90/180/270-degree phase selector are included as well. The unit does not include any bass management, so it must be used strictly for either bass extension

*continued on page 134*

# The New JOEMEER VC60

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World Radio History

# TC Electronic Gold Channel

A do-it-all device  
that fits in a single  
rack space

BY EDDIE CILETTI

Rack space being the precious commodity that it is, you might get pretty excited about a product that combines a stereo mic preamp (with phantom power), 24-bit converters, dynamics processing, and equalization all in one rack space. That describes the Gold Channel from TC Electronic. A purist might wince at such an all-in-one product, but, after using the Gold Channel, I found it was never a matter of how well it did the job, but how easily.

Some audio jobs are more about speed than sonic purity. The Gold Channel has 100 factory presets and user-presets. There are vocal presets for male, female, background, and rap, plus de-essing for that pain in the "S" in everyone's life. Electric and acoustic guitars, bass, and percussion are also in the "Top 100," as well as microphone-specific settings (Neumann U 87, AKG 414, Sennheiser 421, among others). There's even a "transformer-emulation" preset.

The perfect home for the Gold Channel is in a production house where speed is a top priority — especially if, for example, there is minimal "in-session" time to audition (and/or the luxury to own) several microphones. Assuming you can take time before a session to roll your own, as I did, the presets will reduce the time it takes to get a variety of sounds, be they

"straight" or effected. You might be asked to "call up that telephone sound," making heavy use of high- and low-pass filters. Do it once and dial it up any time.

## BEING FIRM

At first, I didn't find the Gold Channel to be quite as "accessible" as TC's dBMAX (the broadcast version of the Finalizer). Upgrading the software from Version 1.02 to Version 1.05 via PC memory card improved its functionality. In addition, the front-panel interface is a departure from the aforementioned family members, forcing me to get acquainted with the "operational logistics" before really putting the Gold Channel to the test.

TC packs so much power into 1.75 inches of rack space; a feat that is both to their credit and to their detriment. The latter because I think TC hurt themselves by not providing a "universal control surface," one that can address all of their products (as well as those of other manufacturers). In my fantasy, there would be plenty of dedicated knobs and at least a 4- x 6-inch screen, increasing user-comfort with the product as well as inspiring users to probe deeper into the product.

## TUNING IN

Before hardcore testing the mic preamp and converters, I fed the Gold Channel a digital recording of a local radio broadcast. The "arrangers festival," hosted by Jazz Historian Phil Schaap, was recorded from Columbia University's WKCR. It was free from the usual obnoxious compression common with commercial radio. This program gave me two very distinct sources with which to experiment — a male announcer and several vintage recordings

from the late '20s and early '30s.

I was especially impressed with the amount of low-frequency information the Gold Channel could add to these early electronic recordings. I found the EQ quite musical, inspiring me to approach the re-mastering of vintage material in a new way. Rather than use a single equalization setting for the entire song, I optimized each section — opening instrumental, vocals, brass, and solo — auditioning the transition by saving each song section as a preset. I would still edit the changes together on a workstation, so that the timing and cross-fades could be as seamless as possible.

While the equalizer was quite powerful, it is tedious to scroll through all of the bands. On more than one occasion — while choosing bandwidth, frequency, and the amount of boost or cut — I inadvertently tweaked the wrong band. (Let's see...was that Fletcher Henderson or Sheryl Crow?)

## I/O, I/O, IT'S OFF TO WORK WE GO!

The Gold Channel has optical, coax, and AES digital I/O, as well as XLR analog I/O. The front-panel input selector chooses Mic, Line, or Digital. There are gain pots, three options for input pad and high-pass filters, Mute and Phantom switches, and switches to activate the various processes, such as EQ and compression.

A bit more elusive was the accessibility to the I/O alternatives. The optical I/O serves double duty as both consumer S/PDIF and ADAT Lightpipe. The Gold Channel has so many configuration options — one set of ports can be the primary input and output, while the other used to "insert" another piece of gear.



**MANUFACTURER:** TC Electronic, 742-A Hampshire Rd, Westlake Village, CA 91361-9773. Tel: 805-373-1828. E-mail: tcus@tcelectronic.com. Web: www.tcelectronic.com.

**APPLICATION:** Mic preamp-converter-dynamics package.

**SUMMARY:** A "deep," multi-function, space-saving, 24-bit device with dither and various connection options (digital: optical, coax and AES; analog: one pair of XLRs for mic or line level) that can be used as the primary I/O as well as the "insert" points.

**STRENGTHS:** Manufacturer and user presets; many (but not enough) knobs and buttons on the front panel.

**WEAKNESSES:** More power inside than ease of accessibility outside.

**PRICE:** \$2495

**EQ FREE LIT. #: 111**

### WHO'S THE DADDY?

I took the Gold Channel into Jeff Roberts's Latch Lake Music Studio (just south of the Twin Cities) to record a demo consisting of drums, guitars, and vocals — all overdubbed. The only mics used were a pair of Neumann TLM-193's, large-diaphragm, cardioid condensers. The studio has two Yamaha 02R's connected to six ADAT XT's (three Panasonic MDA-1's and three Fostex CX-8's). The 02R became Master clock to the Gold Channel, which fed one ADAT XT. From the Gold Channel's SETUP button, I was able to access the routing window, assigning the mic preamps to any pair of ADAT channels. Cool.

### PERFORMANCE, PLEASE (PART 1)

Starting with acoustic guitar (one mic near the bridge, the other several feet away), the Gold Channel was set to a super gentle, compression preset (optimized for the radio program but without EQ). The settings were as follows: a ratio of 1.45:1 and the slowest Attack setting (50 ms). We varied the Release time as needed (between 25 ms and 300 ms). Threshold was -40 dB. (Every reviewer is a wannabe product developer. I am no exception. Check out my wish list in the sidebar.)

For drums, the mics were placed front and rear of the kit, in a straight line, at 10 o'clock and 4 o'clock, facing each other about 5 feet apart. The same compression setting worked just as well, giving a good snap to the snare, which was well balanced with the kick, until the drummer's trashy hihat technique got in the way. (This proves yet again that it isn't always about the gear.)

During the recording process, I used the front-panel Preamp Gain pots to control level. With the soft clipping On and the recovery gain set high at 18 dB, it

was easy to max the overload segment of the ADAT. Although the distortion wasn't audible, I turned the recovery Gain down. This only caused a problem later, when recording the vocal, until I raised the Threshold from its -40 dB setting.

### FAMILIARITY FACTOR

In this application, the Gold Channel had plenty of headroom and a low noise floor. The mic preamps are certainly sensitive enough when matched with the Neumann mics. I don't believe the input pads were ever completely disabled for this session. The bottom was warm and the top airy. I generally avoid using EQ during the recording process, especially

when in unfamiliar territory (as was the case in this studio using those microphones and Westlake monitors).

### IN THE MIX

Jeff and I briefly listened to some mixes through the Gold Channel, comparing only the Dynamics section to the Crane Song Trakker and the JOEMEEK SC-4. In this instance, the Gold Channel was at a slight speed disadvantage — even with all of its power. The other two analog devices were just so much more accessible and faster — because all the knobs are in your face for the only available parameters.

The learning curve aside, if you take the time to get intimate with the Gold Channel, it could be your "Audio Leatherman." It's a powerful tool. By creating an assortment of presets in advance, you will look good on a session. I don't think that the Gold Channel is the type of product that someone could walk in cold and use on a live date, because its power is somewhat hampered by its interface. TC needs to create one very good interface, like, for example, the Alesis BRC and TASCAM RC-848. Remember that this wannabe product developer wants to see loads of dedicated knobs with at least a 4- x 6-inch dot-matrix display panel. **EQ**

## PHILOSOPHY MAJOR

As mentioned in the dBMAX review (March '99), my philosophy differs from most regarding attack and release settings. In the analog-only daze, I'd use a pair of LA-2A's followed by a dbx 160X on the mix bus. This translates into using slower attack times and, in many cases, matching (or faster) release times. (Optical limiters often have a nonlinear release time.) After the "front-end" compressor has optimized the RMS level, I want to follow it with a fast peak limiter.

TC's compressor has an attack window that ranges from .2 ms to 50 ms, while release starts at 10 ms and extends up to 1 S. My "gentle" soft-knee compressor preset used a ratio of 1.45:1, the slowest attack setting (50 ms), and a varying release time as needed (between 25 ms and 300 ms). Threshold was -40 dB. This is where I start from, just to even out a mix. If the track needs more aggressive, I can go there, but might want to do so on a second pass.

Digital signal processing permits the luxury of "look-ahead" or predelay, a truly wonderful feature made even more useful by having the ability to link it to the attack time. Doing so would make the gain manipulation seem less obvious when this is desirable. A human reading a musical score can anticipate the next dynamic change, leaving the transient response intact. (Note that using predelay in this manner would be a problem in a live video broadcast, where sound and picture must stay in sync.)

As is, TC inspires users like me by providing so many parameters to play with, but they do not have the physical room for an in-depth display to show how features are working, or how they might be interrelated. In this instance, I'd want to know and see how attack and predelay are "interconnected." —Eddie Ciletti

# Pendulum Audio 6386 Variable Mu Tube Limiter

Tube or opamp —  
the choice is yours  
with this new  
compressor/limiter

BY EDDIE CILETTI

In the world of vacuum tubes, nothing is new. It should be no surprise then that "Variable Mu" limiters have existed since the early days of radio, becoming popular in recording studios through the '50s and early '60s. Altec, Fairchild, and Universal Audio were building Variable-Mu limiters then; Manley and Tube-Tech make all-tube versions now. What differentiates the Pendulum Audio 6386 from the rest is its hybrid design. The front end consists of an input transformer followed by a 6386 tube (the same Variable-Mu dual-triode that was used in the Fairchild). The rest of the circuitry consists of high-performance opamps, biased for Class-A operation to lower the distortion below that of standard Class-AB. All connectors, switches, and tube sockets are gold plated. Layout is clean and straightforward, with special attention to internal grounding so that external interference won't be a problem.

## ADJUSTABLE COW

"Variable-Mu" does not describe a cow with vari-speed on her voice box. "Mu" refers to the symbol " $\mu$ ," the numerical value assigned to describe a vacuum tube's characteristic

"amplification factor." A 12AU7, for example, is described as a Medium-Mu dual triode, as is the 6386, but the latter is better suited for use in a compressor-limiter. Hey! Don't let a little geek-talk scare you away!

## BACKGROUND

As mentioned in previous articles, Fairchild built disc-cutting systems, and their stereo limiters interfaced directly with their cutting amplifiers — hence the "Lateral" and "Vertical" control designations. Unlike our "modern" 45/45 system, Fairchild created a matrix, combining left and right into mono (the lateral signal) and subtracting left from right to make the vertical groove component. To do this required many transformers. Pendulum Audio's designer, Greg Gualtieri, wanted the functionality of the Fairchild without all of the "iron" clouding the signal.

## JUST MY LUCK

I tend to be heavy-handed when reviewing compressor/limiters. After cranking up the 6386 and getting those meters swingin' wildly, I found that it remained clean, open, and airy as expected, despite the abusive settings. However, I felt I hadn't crossed the threshold into where the device really began to have a "sound." Well, in fact, I had passed it.

One of the beauties of reviewing products made by small companies is the ability to communicate directly with the designer. Therefore, after my initial tests, I picked up the telephone and called Mister "G." Our chat resulted in a personal sonic revelation.

I know that the slow response of a VU meter inhibits its ability to reg-

ister transients (drums, percussion), while more accurate needle movement occurs with average material such as vocals, bass, and crunchy guitars. Despite my geek degree, I did not transfer this knowledge of a VU meter's characteristics to its inability to display transient amounts of gain reduction. Until now...

You would not record a tambourine at 0 VU on an analog tape machine because the transients would be 10 dB to 15 dB higher. I got the sound I was looking for with the 6386 set to Fast mode, with no control options except Threshold and no more than 1 dB of meter movement when viewing the amount of gain reduction. In Fast mode, the 6386 is doing much more than the 1 dB of meter movement indicates. Much more!

The 6386 has a three-position Mode switch labeled: Fast, Presets, and Manual. There is no Ratio control, and the 6386 vacuum tube doesn't need a dominatrix to get it to move. The way it reacts to the Fast preset is impressive. It simultaneously turned on the mental light bulb while humbling me with its almost hidden power. The first four presets are modeled after the Fairchild, while the last two presets — one faster than the other — are both program-dependent to minimize "breathing."

## IN MY ROOM

I daisy-chained the 6386 and Pendulum's OCL-2 [optical tube compressor] and installed them into a rack along with a Great River transformerless mic preamp and TASCAM DA-45HR 24-bit DAT recorder. The rig was schlepped to a room to make a stereo recording of a rock band in re-





hearsal mode. I set the band up around a pair of spaced omni mics (AKG C300 bodies with CK92 omni capsules).

Off in another room, I listened through Fostex headphones while experimenting with both limiters, using one, then the other, sometimes both, and sometimes none (taking detailed notes). Up until this point, I only used the slowest Attack and fastest Release settings to play it safe. More aggressive tweaks were planned after the recording.

Back at the ranch, I listened on two systems, one not so great, to prove the original purpose of compression — to squeeze a wide dynamic range into a smaller dynamic space. As deranged as some boom boxes can be, most only have between 5 and 10 watts of power. A single guitar amp has much more power, not to mention the bass amp and the drum kit.

#### LIVE MUSH

Listening on the compromised system — computer speakers with a subwoofer — I began with the slowest Attack and fastest Release settings, which in this case are 40 ms and .1 ms, respectively. I gradually increased Attack time until the small amplifiers stopped distorting, taking maximum advantage of their limited dynamic range and making a DAT copy for later comparison.

On my real system, which features Dynaudio BM15A self-powered monitors, I quickly realized that reducing the dynamic range only confirmed what my ears (in the original recording space) had first told me — that the band's playing was a bit too sloppy and no magic box was going to polish their performance. It is not always possible to hear compression on small speakers. Always check an alternate set of monitors, preferably a more accurate system, to make sure you can stand to listen to all the details, as well as the compression artifacts. (Wink-wink. Nod-nod!)



#### TIGHT TRACKS

I then dug up a DAT remix of a 24-track project originally recorded 20 years ago and recently remixed on a Soundscape workstation. The song, "I Move Easy," written and produced by guitarist T.J. Tindall, had a slow almost N'awlins-style groove. The session players comprised the main rhythm section for many of the Gamble and Huff projects that came out of Philadelphia back in the '70s. The vocalist was Willie Chambers of the Chambers Brothers.

In the remix, the breakdown was too soft relative to the meat of the track. The OCL-2 was first in the chain, using preset four (the faster program-dependent setting) and a 5:1 Ratio. The goal was to raise the breakdown up to the level of the main section of the song. It worked, though it would have been "more perfect" had I added sidechain EQ. (A low frequency roll-off would have desensitized the OCL-2 when the bass came in about midway through the breakdown.)

#### LESSON LEARNED

With one problem solved, I was still wishing for more Release time to bring out more of the natural room sound.

The track was precisely mixed, with a punchy kick and snare up front (the latter with an early Kevlar™ head giving it a monstrously dead "thwomp"), but the real room ambience was a bit too far back.

Instead of asking for more from the OCL-2, I added the 6386 in Fast mode. Reducing the Threshold — until the gain reduction meter was just beginning to show signs of processing — instantly made the track open up. I felt like Moses conducting the Red Sea! After finding the magic settings, the tracks became "one" and more alive without losing impact and without side effects.

Previous attempts at using Fast mode failed because I was looking at the amount of gain reduction instead of listening. If the meter could be more sensitive in Fast mode, and/or perhaps augmented with a multicolored LED, it would give the necessary user-feedback, the knowledge that work was actually being done.

#### DIALING FOR DOLLARS

The luxury of using both units together was not lost on me. I am very aware of the price for each, which is comparable to other low-

volume pieces of quality outboard; together, they're still about one-third to one-quarter of the street price for the beloved Fairchild. The combination of Pendulum 6386 and OCL-2 kicked sonic ass, and, as a new Dad, I can easily say it wiped it clean and changed its diaper! I was completely comfortable using both with no fear of signal degradation.

In all cases, I was so thankful for the Bypass switches, which are not com-

*continued on page 134*

EQ
L A B R E P O R T

**MANUFACTURER:** Pendulum Audio, Inc., P.O. Box 339, Gillette, NJ 07933. Tel: 908-665-9333. Web: [www.pendulumaudio.com](http://www.pendulumaudio.com). E-mail: [info@pendulumaudio.com](mailto:info@pendulumaudio.com).

**APPLICATION:** Audio dynamics processing.

**SUMMARY:** Stereo (or dual-mono) compressor/limiter with Variable Mu, vacuum tube front-end followed by high-performance opamps, biased Class A for low distortion. I/O connections: transformer-balanced inputs, active-balanced outputs, both on XLRs; in addition, 1/4-inch TRS sidechain access. (Transformer-balanced outputs are available, but not recommended.)

**STRENGTHS:** Three Response modes: Fast, Preset (four are "normal," plus two "program dependent" settings), and Manual (front panel Attack and Release controls); in addition to a Bypass switch, the output is normally bypassed until the unit warms up and voltages are stabilized.

**WEAKNESS:** The gain reduction meter needs (and may get) expanded range in order to more accurately reflect the amount of processing when in Fast mode.

**MANUAL:** The operator's manual is well organized and covers all the bases — from mounting (for proper cooling) to grounding (noise elimination) considerations; no schematic is supplied.

**PRICE:** \$3995

**EQ FREE LIT. #: 112**

# Y2K Tape Tips

How to deal with tape machine manufacturers when service is required

BY EDDIE CILETTI



All of the “Random Access” technologies — hard disk, CD/CD-R, DVD, MO, and MiniDisc — are challenging what was once the sole domain of linear recording tape — analog *and* digital. But tape is not dead. From DASH to DAT, DTRS to ADAT, all of the current formats are still very active. TASCAM recently introduced one new 24-bit model — the DA-78 HR — and upgraded the 16-bit DA-98 to a 24-bit “HR” version. (Via e-mail, I asked if the old DA-98 could be upgraded. I await a reply.)

Keeping older technology alive seems to be almost unique to the audio industry, with Rap and House music pumping out the vinyl, while the archivists, our sonic historians, worship at the altar of analog tape. (For some of them, digital is still the anti-Elvis.) No matter what your persuasion, we have the luxury of choice, taking advantage of each format for its strong suit. Tape is good for tracking and (some would argue) archiving, while the random access group is ideal for the rough and tumble world of overdubbing and mixing.

Digital is a black box compared to analog, but knowing what’s under the hood has always been the underlying theme here at “Tangible Technology” central. User fixes dominated the November column, but I forgot to mention one DTRS tip that is particularly applicable to the DA-88 (and also might affect the DA-38 and DA-98). Put your ear up to the cassette loading port and listen for a *wacka-wacka* (washing machine sound) when the machine is in Play and Shuttle (both directions). Bad reel-table clutches cause the noise, and can contribute to slow sync lock-up, intermittent high error rate, and/or error messages.

Based on numerous e-mails and interactions with various manufacturers, I detoured from the original plan for this month (more pictures of naked transport parts). Instead, I have suggestions for improving the dialog between consumers and manufacturers (a.k.a. customer service), plus a few more tips for both ADAT and DTRS users.

### I CAME HERE FOR AN ARGUMENT

Like the classic Month Python sketch, many users are ready to spew venom at

manufacturers, assuming the worst — an argument — before making proper contact. In addition, Web travelers seem dissatisfied with the “online support” areas provided, in this case, specifically by tape machine manufacturers. I went to each of the sites listed in table 1. Following the highlights of my “tour” are tips for getting the most from what customer service currently has to offer — in and out of warranty.

### SURFIN’ USA

Each of the sites offered a taste of the future in terms of online product support. True, the manufacturer’s first and foremost goal is to sell more stuff. However, the Web has more to offer than that. Mass production has minimized the head count at most companies, making it difficult to make instant contact with a human being at that critical moment of need. E-mail is the perfect way to initiate dialog with a customer service representative, and the Web is super-efficient at being the source of, and distributor for, the much-needed information.

The TASCAM site was a bit out of whack when I first visited, but was subsequently fixed after I sent a rough draft of this article to their Webmaster. The site opens with lots of new product information. A Menu bar across the top includes News, Users, and Employment options. Click on Service, and you will find Adobe Acrobat PDF files of popular product manuals and “Cliff’s Notes” versions of product features (designated Quick Start). From there, a link to the Authorized Service Center area also includes important access numbers and e-

**TABLE 1: MANUFACTURER ACCESSIBILITY**

Company	Vox	Fax	Web: www.	Online Support + FAQ	Online service locator	Direct vox parts/ Online parts	Links to Eddie
Alesis	800-525-3747	310-255-3541	alesis.com/	support@alesis1.usa.com + yes	yes	800-5-ALESIS parts@alesis.com	yes
Fostex	562-921-1112	562-802-1964	fostex.com/	yes		800-9FOSTEX, x125	
HHB	310-319-1111	310-319-1311	hhb.co.uk/	tech@hhbusa.com	yes		
Panasonic	800-833-9626	800-237-9080	panasonic.com	yes	yes	yes	
Otari	800-458-6484	800-300-3055	otari.com/	—	service@otari.com.	parts@otari.com.	
Sony	800-686-SONY		sel.sony.com/	bpinfo@info.sel.sony.com		yes	
TASCAM	323-726-0303		tascam.com/	323-726-0303 x617 custser@teac.com.	yes	323-727-4840/ parts@teac.com	

mail addresses. I particularly enjoyed "The TASCAM Story: The First Twenty Five Years."

For such a large company, it's obvious that Panasonic's Pro Audio division is a small part of what they do, but their online parts ordering system was most impressive. You don't even need to know the part number. Their search engine is amazing, calling up all the parts for a specific machine. A service center locator is also slick, just plug in your zip code and the size of the search radius in miles, and *voilà!* Fostex sells their products from the Web (at list price in order to avoid pissing off their dealers), and this service will soon be expanded to include owner's and service manuals.

The Alesis site is by far the most extensive, addressing a multitude of "Frequently Asked Questions." If that weren't enough, they also provide a corner for Craig Anderton to hang a shingle, sharing his wealth of knowledge ranging from quality control issues to guitar effects, speaker placement to maintenance, plus tracking and mixing tips. Alesis also has monthly "Service Specials," encouraging scheduled repairs and overhauls rather than the more typical deferred maintenance. Waiting for the inevitable meltdown not only puts you out of biz, but also decreases that bang-for-the-buck on everything from express shipping to rush service rates.

#### WARREN T. WATCHDOG

To get the best service from a product, you must be sensitive to the feedback it provides, no matter how simple the message. Do not ignore a problem — for example, digital distortion — because that can point to a range of problems — from the simple clogged head to the more serious (and costly) defective head assembly (the most expensive part of any tape machine).

Head life is determined by so many factors — materials, design, environment, the abrasive quality of the tape stock — that it is the one component specified in the warranty. From my own experience, manufacturers are pretty good about accommodating premature failures within the warranty period. They want you to be satisfied. Contrary to popular myth, products are not designed to fail "the morning after" the warranty expires. When this does happen, there are more options than you might think. *If you are organized and*

approach the customer service rep without weapons of mass destruction, there is more than a good chance your experience will be positive. Be Cool! Be Patient! Buy, rent, or borrow a spare machine!

#### THE STEPS TO SUCCESS

Table 1 will help you connect with the popular digital tape machine manufacturers. Next, locate the sales receipt and, if your machine has a head-hour counter and error-rate display, query them now. Then, look in the manual, read the fine print regarding the warranty, and keep all that in mind in case of trouble. The next three steps will serve as a refresher course, as well as prepare you to interact with the manufacturer.

#### ONE: KEEPING A COOL HEAD

Whenever your tape machine misbehaves, start by checking the error rate — detailed in the manual, on my Web site, or in back issues of *EQ* (also available via the Web). High error rates may point to dirty heads, and you can easily rule out a clog with a thorough cleaning. A dry cleaning tape is worth trying once on a DTRS machine and twice on a DAT deck. Alesis recommends two cleaning tapes: one, the ADAT-311B (about \$20), is available from ART Technologies (800-527-9580); the other is a 3M Blackwatch, model HC (about \$17.46). I don't use wet tapes.

*Note:* Head cleaning is not the answer to longer life, just better performance.

My preferred method for cleaning helical heads — the heart of DAT, ADAT, and DTRS machines — is by hand. Buy a pack of lint-free cloths from an audio supplier and cut them into 1-inch by 2-inch squares. Dampen the cloth with low-moisture, 99 percent alcohol. It is more environmentally friendly than the more volatile solvents. It does not, however, evaporate nearly as fast, so do not soak the cloth, and always follow-up with a dry lint-free cloth to absorb any un-evaporated liquid. I am not comfortable using hazardous chemicals or pre-moistened wipes (with anything but alcohol), or chamois (cloth or stick), or foam sticks.

If I seem just a little extra emphatic about doing it my way, it's just because a reader recently attempted to reinvent the wheel and ended up with tape wrapped around the heads. Such a dis-

*continued on page 134*



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# Steal *this Column*

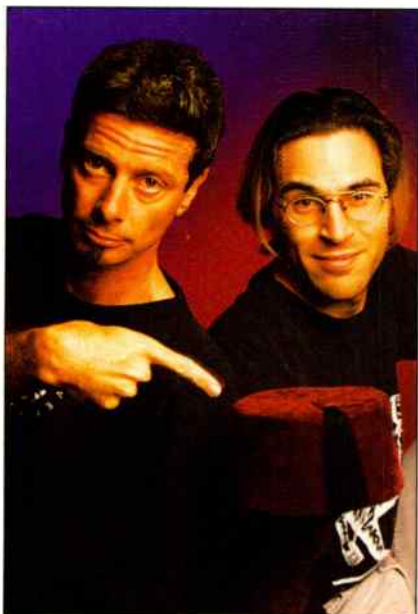


PHOTO BY STEVE JENNINGS

The Grateful Dead show how Web promotion should be done

BY JON LUINI AND ALLEN WHITMAN

Ahh, the ever-morphing face of the Internet. What started as a new hope for leveling the playing field is mutating before our eyes into a cannibalistic, sycophantic rush to be a big player in an exclusive old-boy country club. MP3.com, Riffage.com, and most of the rest of the sites spend more energy pushing themselves than promoting music. Upload a song to almost any of these sites and get bombarded by spam from other similar services trolling for musicians or an "Amazing CD Duplication Deal That Can't Be Missed!" Retail sites engage in a radical new business model: stocking shelves of a store with product requiring people to actually travel in physical space. What a concept! Take the promise of the Internet and ram it into the old-school business model. The corporate old guard looks down at the face of brown-nosing, fawning Internet audio and says: "You clean up good!

Here's a biscuit." Maybe it's too hard for the upload sites to think new thoughts.

Someone must be doing something interesting and useful out there. And yes, here they are, suffering the premature loss of their spiritual guide, recently disbanded and energetically mourned: The Grateful Dead. Unwilling to fade away, the remaining members (in their own corporate form: Grateful Dead Productions) actively promote new releases (of old material) on the Internet.

The occasion is a new five CD box set, *So Many Roads (1965-1995)*, released by Grateful Dead Productions (GDP) November 9th, 1999. Though the band has a traditional distribution deal in place with Arista, they chose to take the extra step of creating an immersive and compelling Web site ([www.boxset.dead.net](http://www.boxset.dead.net)) to grow interest in the album. (FezGuys full disclosure: a FezGuy had the happy opportunity to assist in the creation of the site.) The box-set promo site is built as a section of the popular and comprehensive [www.dead.net](http://www.dead.net) Web site, and offers exclusive online-only content to fans.

You, the happy FezReader, can liberate any and all of the wide array of methods used on the site. The best ideas are stolen, right?

Launched one week before the album's release in stores, the site features three complete free bonus tracks not available on the album (downloading and streaming in no less than five formats: QuickTime 4 [QT4], RealAudio G2 [G2], Liquid Audio [LA], Microsoft Windows Media [MSWM], and MP3). A new video retrospective of the band's 30-year career for the song "Liberty" (produced by Justin Kreutzmann — son of band member Bill Kreutzmann) is also offered in QuickTime 4, Windows Media, and RealPlayer. One-minute excerpts from 15 album tracks were uploaded one per day to keep fans coming back. There's a full track listing with song times, and album credits are posted as well. There's a nice photo gallery of images from the booklet and essay excerpts. Fans are encouraged to participate in a charming contest by submitting a 300-word essay describing their favorite era of the Dead and why. Winners receive sampler CDs and a lucky (randomly selected) winner gets a two-

night stay in the Jerry Garcia suite at San Francisco's Triton Hotel.

A lot of time and energy went into the creation of the site, and more than a few software tools were brought to bear. Sorenson Video and QDesign Music codecs were used to create the QT4 video files. Terran Interactive's powerful Media Cleaner Pro was used to easily compress and encode audio and video into files in multiple formats so the site creators could provide users with different audio quality choices sorted by bitrate, video size (by pixel), or connection speed. The Dead own their publishing rights; they have the flexibility to make their content available in any way they wish. Hence the site is technology agnostic. Covering so many bases benefits visitors by allowing them to use the format that works best on their computer and Internet connection.

The site allows GDP to collect e-mail addresses (by user choice) for a maillist promoting future events and [dead.net](http://dead.net) news. A Help/Configuration page includes test sample clips and a follow-up form if visitors have questions or problems. These e-mail questions are actually answered. One thing The FezGuys would have liked to see: full integration throughout the site to immediately purchase the album. Because of GDP's relationship with traditional distribution channels, they still find it useful to share the point-of-sale.

The FezGuys offer a few thoughts: Contests are always good ways to inspire people to visit. Make it look and feel above and beyond the standard corporate marketing idea, instead, make it something interesting and personal. Instead of giving away a readily available album for guessing a well-known fact, ask for fan's opinions and choose interesting ones to post on your site. Give away a CD-R of the band's first rehearsal tape or something equally arcane. Provide a deep level of information on the site: when and where was the music recorded, behind-the-scenes photos, etc. Offer original content not available elsewhere. It can be prohibitively expensive to include a 10-page booklet of the story behind your music in every traditional CD, but you can do it very affordably on your Web site. The more energy and effort you put into it, the more

you'll get out of it. That's the FezGuy Promise. And answer every e-mail! Your Mom told us to remind you. Go to: [www.fezguys.com/audio/everye-mail.mp3](http://www.fezguys.com/audio/everye-mail.mp3) if you don't believe us.

### MP3 PAYOLA AND PAYBACK

The self-styled saviors of the music business prove themselves double agents for the Dark Side with the release of a "new" promotional vehicle called "Payola." Designed to ratchet up some revenue, Payola is an online auction for high-visibility placement of musicians' downloads on the site's main page. Song popularity no longer rewards the singer. As usual, this puts the power in the hands of the people with the most money. It ain't about community, it's about bribery. At least MP3.com didn't sugarcoat it, the name says it all. It's too bad they have to resort to this. It shows they're not even remotely interested in being part of the solution. The FezGuys think they should be using their high profile to bust out with some new ideas instead of exhuming old ones. Try to think outside the box, gang. Yeah, yeah, you're right, of course, we're a little tough on MP3.com. But when you represent yourself as the cowboy in the white hat you better show some grace and class to back it up.

Another new program on MP3.com, "Payback for Playback," is supposed to actually reward musicians based on number of downloads. MP3.com has apparently set aside no less than \$200,000 of its multi-billion dollar resources to reward musicians (who are the only reason the site exists). It's a step in the right direction.

### REAL PRIVACY

RealNetworks got slapped on the wrist when it was discovered they were secretly collecting data from users. Information about users' music choices was sent to RealNetworks's servers by globally unique identifiers (GUIDs). GUIDs enable transmission of RealJukebox (still Windows only!) users' data back to RealNetworks. This pissed a lot of people off. After all, they're collecting information about what you do and you don't know what they're doing with it. Imagine visiting some big stock brokerage Web site to research investment ideas and immediately receiving an e-mail from the IRS reminding you about tax ramifications. It should be remembered that the collected information was never intended to be used for anything other than music preferences and

was thrown away immediately. What Real did wasn't evil, just clumsy. They apologized publicly and promise to be good in the future. Effective immediately: "It is imperative for senior management of a company to be active in communicating the importance of consumer privacy and trust through the design and development of their products and services." (R. Glaser — RealNetworks CEO)

The FezGuys aren't convinced he wrote that himself, yet are hopeful he truly means it.

### GET OFFA OUR BACKS

We almost forgot to mention the Official FezGuys Favorite Albums (OFFA) list. Since most people seem pathologically focused on distilling the "best" of the 20th Century, we thought we'd bring you our favorite albums of the 19th. A complete list follows:

Now, in other news....

EQ

The FezGuys told you never to call us here! [www.fezguys.com](http://www.fezguys.com)



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CIRCLE 32 ON FREE INFO CARD

## AL KOOPER

*continued from page 46*

template of your choice, one next selects a background for the label. They have hundreds of choices, and half of them are actually usable. After learning the hard way that you have to save your work every few minutes to beat the buggy, crashing software, I finally had labeled jewel boxes and CDs. The only thing that really bothered me was that there are only ten choices for backgrounds for J cards and tray displays. This could easily be remedied by The Stomper Organization if they're reading this. [Editors Note: We'll send them a copy. —Al]

CD Stomper won as the hands-down, out-of-the-box simplest program to operate; albeit buggy. It is also the only stand-alone application of the three. I was able to import a photo from my private collection (using Photoshop) pretty painlessly. I never used the manual. Did I mention there is no manual? Good. Well, we're all pioneers out here. We're riding in the CD Label Conestoga wagons and I hope I've helped you avoid the outlaws on the old Lame Dirt Trail in Necessity County. Good luck out there, podners!

*P.S.: If you're running Macintosh System 8.6, stay there. My machine is running much slower with 9.0. Wait for the next big upgrade — 8.6 is stable and journeyman-like.*

*Can't get enough AI? Check out his top 100 picks for the greatest record-albums of all time on page 60.*

## HAFLER AUDITION

*continued from page 125*

sion or low-frequency effects unless an outdoor unit is used. The TRM12 is 19.5" W x 18.25" H x 19.375" D, and weighs a solid 94 lbs. Hafler states that the unit has a peak acoustic output of 115 dB with music at 2 meters; a frequency response of 25 Hz–110 Hz ( $\pm 2$  dB); and Total Harmonic Distortion (probably the most important spec for a subwoofer) of less than 3 percent at 90 dB at 2 meters.

The Hafler manuals are among the best in the business and really should be used as a template by other manufacturers. Included are installation tips, technical references, schematics, interior pictures, a parts list,

theory of operation, and calibration procedures. Despite the abundance of information, the manual is still easy to read and understand.

### IN USE

I used the Hafler surround system for a remix of a Pat Benatar TV special (intended for release on DVD). In addition, I used them for some high-resolution (96-kHz/24-bit) mixes for the hard rock band Steamroller and blues legend Joe Houston. The speakers were very easy to listen to and tracked well at any volume level. There was plenty of level for the most part, with the limiting factor being the size of the subwoofer — given the size of the control room (25' by 20' by 18'). Nonetheless, the results were both pleasing and quite usable.

As a total surround system solution, the TRM6, 8, and 12 combination falls a bit short in one area — the lack of bass management on the subwoofer necessitates using an outside box (which may not be such a bad idea) in order to gain the full advantages the subwoofer brings to the system. In addition, although I generally hold to the philosophy that the rear channels be identical to the front, especially for production, I did use the smaller TRM6's as surround speakers with generally good results. That said, the Hafler system delivers what it promises and certainly would be a choice worth considering if you're looking for a quality surround system.

**MANUFACTURER:** Hafler, 2055 E. Fifth St., Tempe, AZ 85281. Tel: 888-423-5371. Web: [www.hafler.com](http://www.hafler.com). Circle EQ free lit. #113.  
**PRICE:** TRM8, \$825 each; TRM6, \$625 each; TRM12, \$795; TRM10 subwoofer, \$695.

## PENDULUM AUDIO

*continued from page 129*

mon on vintage products (and even some modern units). Having both units in the signal path allowed me to compare identical settings. With slow Attack and fast Release, the response was similar, but in Fast mode, the 6386 is more responsive.

The OCL-2 has the absolute minimal signal path with enough speed if need be (certainly faster than any other optical processor). Though not as quiet as the 6386, it has gobs of headroom. (Maximum out is +35 dBu into a hi-Z load, +24 dBm into a 600-ohm load.) Faster yet is the 6386 with more

support circuitry but no detectable difference in the sonic texture. (Maximum out is +27 dBm into a 600-ohm load.) Maximum gain reduction is only 12 dB for the Variable-Mu design, while the optical is capable of 27 dB. I did not test either of these units on individual tracks, consider this more of a mastering-style review.

### HYBRID PHILOSOPHY

In my conversations with designer Gualtieri, one comment that really stuck was his description of the physicist's philosophy as being "in search of the truth." In scientific terms, it means the ability to repeatedly conduct an experiment and get consistent results. In audio terms, this translates to the ability of a product to consistently deliver the goods — something the 6386 certainly does. The Pendulum 6386 Variable-Mu Tube limiter is good sound, clean science. **EQ**

## MAINTENANCE

*continued from page 131*

concerting e-mail while in the midst of preparing this column gave me "Pause." No sooner had I resumed "Play," than another e-mail requested a service manual for a TASCAM 32/32-2. These two models are grouped together on my Web site, but are quite different 1/4-inch analog recorders. I asked whether the machine in question had one or two pinch rollers. The user didn't know a capstan from a Captain Crunch...

### TWO: CZECH MATE

Après cleaning, check the error rate. If the problem still exists, try another known good tape or format a new tape and check the rate again. The best way to resolve a suspect tape is to make a clone on a known good pair of machines. If the problem still persists, at least you've done enough homework to share the details with the manufacturer.

### THREE: CALL MOMMA

If your machine is ill, contact the manufacturer to learn more about their in-house services as well as to locate service centers that are closer to home. Service rates and warranty issues are the variables. Here's an example...

Alesis will cover the cost of any head-stack if the drum-on hours are 250 or less, regardless of the age of the machine. This does not include non-warranty recorders with drum hours reading 9999 or units with broken heads or obvious signs of user tampering. When

a unit reads 9999 drum-on hours, users are advised to have this benign problem resolved so that the head hours more accurately reflect actual use in the event a real problem occurs. Otherwise, Alesis will evaluate the past repair records and the transport parts to determine the approximate hours.

Alesis warrants all head-stack replacements for a period of 90 days, or 500 drum-on hours, whichever comes first. It is the customer's responsibility to report the complete details of any and all problems to the technical support representative at the time the original repair order (RO) number is generated. Do not send any product to Alesis without first receiving an RO; otherwise the shipment will be refused.

*Note:* This policy applies only to units repaired at the Alesis factory. Service center and international distributor policies and rates may be different from those outlined above.

*Additional Note:* Contact Alesis for service center recommendations regarding ADAT clones, particularly the Fostex RD-8.

Alesis only recently authorized my company to service tape machines under warranty. I have been authorized by TASCAM for many years, and their

"head" policy is similar in scope and intent to the competition. I recommend contacting the manufacturer first for their in-warranty policy and authorization (warranty extension) if your machine is out of warranty. Then, contact a local authorized service center and weigh the options of turnaround time and what minimal costs may apply.

**SHIPPING AND RECEIVING**

This one is simple. Double box your machine. If you don't have the original packing, bubble-wrap the deck after attaching the trouble report to the top. Put it in a snug-fitting box, followed by a larger box filled with either bubble wrap or peanuts. (Please do not drop the machine into a box of peanuts and do not send any terminators, power, or sync cables!)

**USED MACHINES FOR SALE**

While on the subject of head hours, tape machines — like cars — should not have their "odometers" reset by the unscrupulous, so all manufacturers make "time travel" as difficult as possible, even for us techno-geeks. Such top-secret information is distributed on a need-to-know basis to authorized service centers only. This explains how

some machines get new heads *sans* reset, confusing users and technicians alike. (I wish I could share some of the more humorous procedures, but, if I told ya, I'd have ta kill ya.)

When negotiating to purchase a used machine (especially via Internet), always factor in the worst-case price of head change — \$650-\$850, parts and labor — and compare that price with a new machine. I rest my case.

**THE QUIET FAN: A FREE UPDATE**

TASCAM does have a free "quiet-fan" update for the DA-45HR. While taking advantage of this generosity, you should also have the software updated and the transport cleaned and checked for alignment, especially back-tension, which should fall between 6 and 8 cm/grams (and no higher). Remember that the DA-45 — in 24-bit mode — runs at twice normal speed, so headwear is more of a consideration than on a standard DAT recorder.

Assuming all of us are Y2K compliant, I'll see y'all in "00."

*Eddie Ciletti lives online at [www.tangible-technology.com](http://www.tangible-technology.com) and can be seen shoveling snow in Minnesota. Brrrr...*

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## FOO FIGHTERS

continued from page 94

ly delayed and can be re-aligned with the original miked track. —Ed.]

Part of the character of *There Is Nothing Left To Lose* comes from interesting guitar sounds. A good example is the song "Aurora," where Grohl played his guitar through an old tube Echoplex tape delay into a Vox AC30 amp. Since the entire song was based on the guitar riff incorporating this delay, Adam tracked the sound as you hear it on the record with the delay. "We used the AC30 quite a bit," he reveals, "but we also used an old Gibson tweed amp and some Mesa Boogie amps as well."

"On the song 'Stacked Actors,' the tuning of the guitar played as important a role as the amp. Some of the shred on that song is the Vox amp, but it's also in the tuning of the guitar. I think on that particular song the low E string is tuned down to A. So it sounds like it's ripping up the amp. Also, we used a little trick on the Vox amps referred to as bridging the inputs. The amp has a normal and a bright input, each with two guitar jacks. You put a patch cord from one of the

bright jacks to one of the normal jacks to bridge the inputs. Then you plug the guitar into the normal input. I guess it overdrives the preamp, and any of the controls for either the bright input or the normal input will change the tone of the amp. Doing this loads the pickups and the preamplifier differently. We did that a lot for the shredding-type sounds. I first saw this done on an old Marshall. The Vox has separate volume controls for the normal and the bright input, so you can back the bright off to get a meatier sound. It gives you a whole new level of sounds to work with. You can't do that on most of the newer amps."

For this project, Adam frequently used ribbon mics on the guitar amps: "I generally like ribbon mics on guitar amps, but you have to be careful to use ribbon mics that can handle the SPLs. A lot of the old RCA ribbon mics can't really take it. We were using beyer M160's, which can handle the level without a problem. I'd put the mic right up on the grille and the high end is so clear. Usually, there's a main guitar and a double comes in for the chorus or certain sections of the song. In addition, Dave might have another different guitar part, but we didn't record three or four rhythm guitar tracks and stack them

together. Sometimes I'll only use a double in the chorus because otherwise the mix gets mushy. It takes up too much room and you have no dynamics. By the time you get to the chorus or the bridge, there's no where to go dynamically speaking."

As *There Is Nothing Left To Lose* neared completion, Kasper jokes they'd "been in there for about five months, so it was getting like *The Shining*. No, just kidding — it was fun. Seriously though, we'd thought it'd be good to go to L.A. to hear everything on a big desk with a great monitor system.

"I wanted automation for the mix, plus we wanted to do a few additional overdubs like a bit of percussion or guitar — so we needed to lock up another machine. But also we wanted to get out of the house! Doing the recording at Dave's left us to our own devices — which I've always found to be a good thing. You have to follow through and believe in what you do. Dave is able to let go because he believes and trusts in his own abilities. I really picked that up from him. It's refreshing, and it's rock 'n' roll."

Adam Kasper may be reached via Thom Trumbo at Moire/Marie Entertainment: 818-995-8707.

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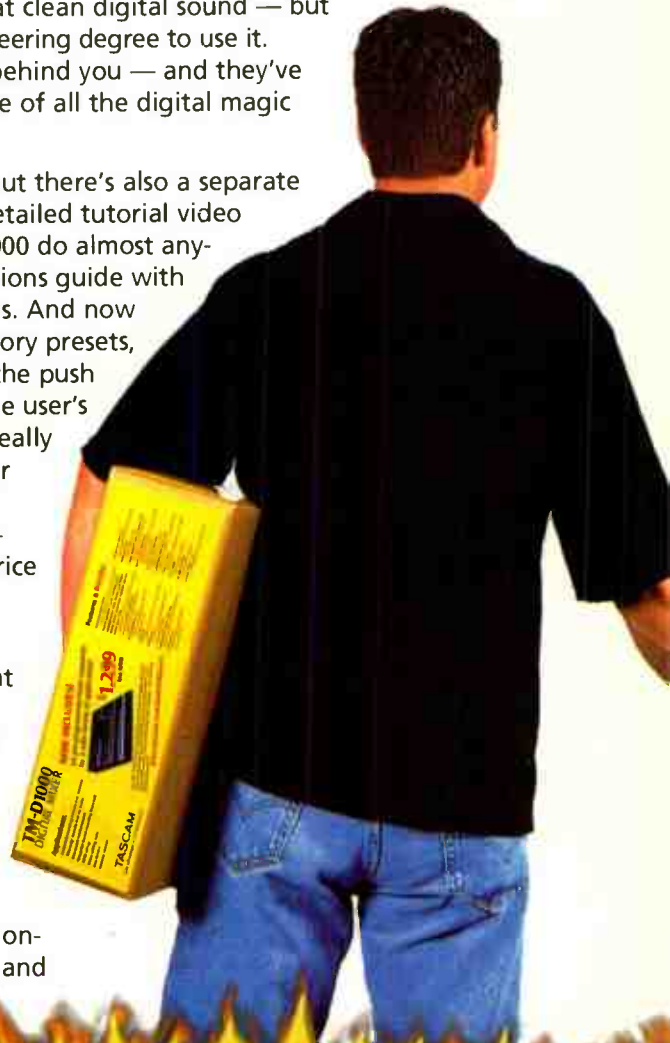
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know this mixer inside and out, and an unbeatable U.S. List price of just \$1,299.

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# One Person's Trash...

What to do with your old gear once it has been replaced with newer equipment

BY MARTIN POLON



The question of what to do with older equipment in today's world of ever-evolving project recording studios has more significance attached to it than one might assume at first glance. Every studio, no matter what its size or scope, eventually runs out of space and needs to upgrade existing technology. New equipment is purchased and old equipment is replaced and retired.

With the possible exception of vintage or specifically designed modern vacuum tube gear — which is worth hanging onto indefinitely — some destination has to be found for the used gear from a constantly changing recording environment. Peripheral issues such as whether the equipment has been engraved or otherwise marked permanently with the studio in question's identification (and just how prominently) certainly impact the pass-on value of the now-surplus recording equipment.

Here are a number of options to consider!

**1. Place the Equipment On Consignment:** This can be a useful way to dispose of old equipment if the equipment is clear for open sale (title-wise and previous tax deduction-wise). However, the bar talk at AES and NAMM conventions is peppered with lurid stories of studio owners who have lost gear placed on consignment to dishonest

dealers or to honest dealers with unscrupulous salespeople who pocket the proceeds of a consignment sale and then depart for places unknown. Make sure you have a contract from the head of the firm that will sell your equipment and that you have done your homework on the reliability of that firm itself!

**2. Trade the Equipment In:** This is a perfectly acceptable practice that many vendors engage in. The value of the trade reduces the amount of money that has to be found for new equipment, although if the previously purchased gear supplied for the trade-in was subject to the practices of wholly or partly being written down for tax purposes, then the tax write down on the new purchase will be subject to rather complex computations. A competent tax professional should be consulted for these and all other issues arising from the getting rid of no-longer-needed equipment.

**3. Sell the Equipment via Advertisement or Word of Mouth:** This is another somewhat acceptable method of disposing gear, but one has to be very strict in insisting on payment via a certified bank check that is verified over the phone before the equipment in question is released. Also, in some states, a lemon law can place you in jeopardy of litigation while, in others, if the equipment you sell can be proven to be in any way faulty, similar jeopardy will ensue!

**4. Donate the Equipment to an Educational/Non-Profit Institution:** This may be the best way to dispose of equipment, since it provides a tax credit for charity, generates good will in the recording community as a whole, and creates new contacts with the receiving educational institution (which can lead to new employees and interns).

**5. Give the Equipment to Your Employees:** This is an acceptable way to dispose of equipment previously subject

to tax write down. The only problem is not to give it all to one employee, who can then turn around and start their own facility!

**6. The I.R.S. Makes its Presence Known:** Like a perpetual road company of *The Iceman Cometh*, the U.S. Internal Revenue Service (I.R.S.) becomes, in many cases, an unwanted player in the financial transactions surrounding the disposal of used gear. In theory, any equipment that was bought originally with the assistance of tax write-offs intended to help small businesses, or that has been written down tax-wise in any other way, cannot be donated with a

value deduction received nor can it be sold without reporting the sale as income for Federal, State, County, and/or Municipal purposes.

The nature of most sales or similar exchanges involving used equipment does render the transaction difficult to detect for tax purposes, but playing dodge-'em with the tax man is a lot like an old folk singer used to call sliding down the razor blade of life! Any donation with associated tax credit is reasonably visible to the tax authorities. Ask yourself the question of what do you do when an auditor comes to your studio and asks to see the equipment you took a write-off on last year — that you just recently sold!

**7. Expand Your Studio:** Gather up your used and replaced studio gear and create a new recording room solely with your

discards. In a rather perverse way, several studios have found that this new room can become more popular than their current facilities! Groups coming to record have found the array of older features desirable in their sessions.

Whatever method you decide on, placing your surplus gear back into the hands of others furthers the business of recording in ever-widening circles! **EQ**

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**CIRCLE 72 ON FREE INFO CARD**  
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## ACROSS THE BOARD

continued from page 154

you had a recorder that had one roll of tape that couldn't be removed? You could record on it until the tape got full, and then you would have to copy it off to some other machine and erase the built-in tape before you could record anything else. Let's go Sony, where is our 100-GB Optical Disk cartridge with 4 ms access time?

### TIME FOR THE WISH LIST

Now that we have that problem all straightened out, I think it is time for the rest of my Christmas wish list. Remember that these items are things that I need. Some of them I already have, but I think you should have them, too. Some of the items have appeared on earlier lists. Some of them appear again because I think they are very *cool*, and others because I still want them and Santa hasn't brought me one yet.

2. The new TASCAM MX-2424 24-track, 24-bit hard-disk recorder. If Ford dropped their Mustang prices to under \$5000 would you still buy a Chevy? I don't think so!

3. Pro Tools 5.0. This is a no-brainer. MIDI and digital audio finally merged together into an environment that can allow sample accurate editing of both audio and MIDI data.

4. Mackie Digital 8•Bus console. If you were watching the October issue of *EQ*, that was the D8B out by my pool. Now if Mackie could just make a waterproof enclosure for it so I could mix while floating with my umbrella drinks, then I'd be all set.

5. Waves C4 multiband parametric processor plug-in for Pro Tools. And, of course, you don't really have a Pro Tools system unless you have the entire Waves Gold Bundle.

6. Z-Systems z-3src sample-rate converter. Sample rates from 96 kHz to 32 kHz, 16 bits to 24 bits. The best of the best.

7. Antares Microphone Modeler plug-in for Pro Tools. Auto Tune v2.0 saved my life. I can't wait to get ahold of the Microphone Modeler.

8. TC-MasterX TDM plug-in. Before the MasterX, I had to go out of Pro Tools through my Finalizer. Now I don't have to leave the Pro Tools environment if I don't want to.

9. Glyph Cobra fiber channel network supports up to six users connected simultaneously to a rack full of

SCSI/LVD drives. Transfer rates of 100 MB per second make audio transfers between workstations scream!

10. Hosa ODY-314 Optical Splitter. Finally. How many times have you wanted to send your optical signal to more than one place? Split the Lightpipe from an ADAT deck and send it to your Pro Tools ADAT bridge and your Mackie D8B both at the same time.

11. Meyer X-10 speaker system. Two-way amplified speakers flat from 16 Hz to 20 kHz. NASA technology. Still top secret? I wasn't supposed to talk about them yet? Oh, sorry.

12. Alesis M-20 Professional ADAT. The ultimate ADAT machine. No longer is the line between digital multitrack and professional digital multitracks blurred — it is gone.

13. A Fat Burger. I have been in Miami too long. There are no good hamburger places in Miami. Big, juicy, fresh ground beef (or close substitute) with big tomatoes and dill pickles... If you know of a place in Miami (or within 100 miles), let me know.

Well, I didn't really want much this year. I am happy as a clam. Next month I will probably complain about all of the stuff I didn't get, so maybe you should just skip the January issue. **EQ**

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## DIGITAL MIXERS



### Digital 8 Bus Mixing Console

Everything you've been waiting for and more!!! The 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 delay
- 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 an 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.



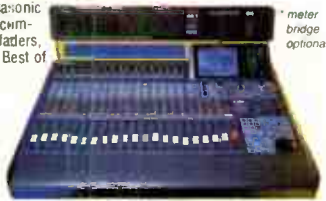
## Panasonic

### 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 TMD1000 from Tascam will have you smiling & automating 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 D/A conversion, 64x oversampling on input, 128x on output • Store all settings, fully MIDI compatible.
- **Optional IF-T01000** 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.



## MASTERING

### dbx QUANTUM Digital Mastering Processor

24-bit/96kHz mastering processor with a 48-bit digital signal path and the dbx TYPE IV Conversion System that retains the warmth and body of your signal while adding punch and depth. The intuitive user interface puts several high-end mastering tools at your fingertips including Tape Saturation Emulation (TSE), compression, EQ and more.

#### FEATURES-

- 96 kHz, 24 bit A/D/A, and Digital I/O on AES/EBU or S/PDIF • 48 bit internal signal path for increased headroom and low level resolution • Type IV A/D Conversion system with TSE • 4 band stereo compressor-gate-limiter • 5 band EQ Hi and Lo shelves, 3 band fully parametric • Normalizer • Stereo adjust controls stereo image • Sync I/O using dbx's own proprietary clock chips for extremely low jitter sync • Either outputs to 16, 20, or 24 bits • Sample rate conversion • Software updatable via Internet and MIDI • 4 band crossover with variable slopes

## t.c. electronic Finalizer Express

The Finalizer Express is a fast and efficient way to turn your mix into a Professional Master! Based upon TC's Multi-Award winning Finalizer Mastering Technology, it delivers the finishing touches of clarity, warmth and punch to your mixes, putting the world of professional mastering within your reach.

#### FEATURES-

- 24-bit resolution A/D/A converters • 16 & 21 bit dithering • Multiband Comp & Limiter Algorithms • Boost and cut over three bands with the Spectral Balance Controls • Soft Clipping and Look Ahead Delay • Finalize Master for 25 variations in style and rate • Optimize overall level with the Automatic Make-Up Gain • Extra compression in each band using Emphasis keys • Record fades from the built-in Digital Fader or the optional TC Master Fader via MIDI • Connections include AES/EBU, S/PDIF, Optical Toslink & MIDI I/O's • High Res LED Metering of I/O & multi-band gain reduction

## DIGITAL RECORDING

### 1224 Recording System



The 1224 is an expandable, cross-platform recording system using the latest 24-bit A to D and D to A converters. The system includes a 1224 single-rack space interface with 8 balanced 1/4" I/O's a pair of balanced XLR main outputs as well as AES/EBU and word clock I/O, the same PCI-324 audio card used in the 2408 hard disk recording system. ASIO drivers for Mac and PC, a multi-channel Wave driver (Windows 95/98), Sound Manager (Mac OS), and MOTU's AudioDesk workstation software for Mac OS. Connect any combination of up to three 1224 or 2408 interfaces with one PCI-324 card for a wide range of I/O configurations, customized to suit your specific needs.



#### FEATURES-

- 24-bit analog audio interface • Mac OS and Windows 95/98 compatible • State-of-the-art 24 bit AD/DA
- Simultaneously record and play back 8 channels of balanced (TRS), +4 dB audio • 24-bit balanced +4 XLR main outputs • Stereo AES/EBU digital I/O
- Word clock in/out • Includes software drivers for compatibility with all of today's popular audio software plus AudioDesk, MOTU's sample-accurate audio workstation software for Mac OS
- Host computer determines the number of tracks that the software can record and play simultaneously, as well as the amount of real-time effects processing it can support
- Front panel displays six-segment metering for all inputs and outputs

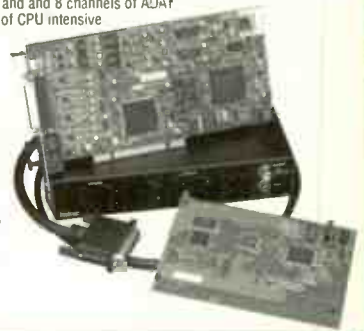
- Dynamic range of 116 dB (A-weighted)
- Headphone jack with volume knob
- Up to 2 optional 1224 single rack-space expander units, be added to a core 2408 or 1224 system
- **AudioDesk Audio Workstation Software** for Mac OS features 24-bit recording, multi-channel waveform editing, automated virtual mixing, graphic editing of ramp automation, real-time effects plug-ins with 32-bit floating point processing, crosslades, support for third-party audio plug-ins (in the MOTU Audio System and Adobe Premiere formats), background processing of file-based operations, sample-accurate editing and placement of audio, and more
- Available with MOTU's award-winning Digital Performer audio sequencer software package

## Lexicon CORE 2 Recording System

High quality, true 24-bit computer based audio system at an affordable price (List \$599.00). Easy to use interface offers 4 analog inputs and 8-outs as well as coaxial S/PDIF and 8 channels of ADAT optical digital I/O. Dedicated hardware takes on the burden of CPU intensive tasks, putting less strain on the computer's processor.

#### FEATURES-

- Ultra wide-range 24-bit A/D and D/A converters
- Four channels of analog in, eight channels of analog out.
- Eight channels of ADAT™ digital I/O and a stereo S/PDIF pair.
- Selectable dbx Type IV™ soft-knee limiting on every input channel to simulate tape compression and provide 4dB of improved headroom.
- Ships with Lexicon Drivers and Control Panel for Win 95/98
- Includes Syntrillium's Cool Edit Pro SE, providing as many as 64 mixing tracks.
- An optional MP-100 daughterboard will be available soon and will include all of the effects found in the Lexicon MPX 100 Dual Channel Effects Processor, Chorus, Flange, Pitch, Detune, Delay, Echo, Rotary, Tremolo and Lexicon Reverb and Ambience



## EFFECTS PROCESSING

### t.c. electronic

### M3000 Professional Reverb

Incorporating TC Electronic's new VSS-3 technology, the M3000 is a great sounding, versatile reverb that is easy to use. Combining ultimate control of early reflections with a transparent reverb tail, the art of reverbation is brought to a new level. Whether it's a phone booth, cave or concert hall, the M3000 delivers high-quality ambience.

#### FEATURES-

- VSS-3, VSS-3 Gate, C.O.R.E. & REV-3 reverbs as well as Delay, Pitch, EQ, Chorus, Flanger, Tremolo, Phaser, Expander/Gate, Compressor and De-Esser
- 300 high-grade factory presets including Halls, Rooms, Plates, Ambience, Gated Reverbs, and more
- Up to 300 user presets in internal RAM and 300 more using an optional PCMCIA card.
- Dual engine configuration featuring 24-bit A/D D/A's.
- Connections include AES/EBU, Coaxial S/PDIF, Optical Tos-Link/AOAT & analog XLR I/O's, MIDI IN/OUT/THRU, Clock Sync and External Control.

## Lexicon MPX1 Multi-Effects Processor

The MPX-1 is truly an outstanding multi-effects device. Using Lexicon's Lexchip, it offers outstanding reverb or ambience as well as a separate processor for effects for awesome power in the studio or on the road.

#### FEATURES-

- Intuitive user interface for easy editing built-in help.
- Balanced Analog I/O (1/4" & XLR)
- 56 effect algorithms
- Digital Inputs & Outputs (S/PDIF @ 44.1KHz)
- 18 Bit A/D; 20 Bit D/A Conversion, 32-bit processing
- >90dB of Dynamic Range
- Intelligent Sorting by Name, Number, Application, etc.
- Parameter Morphing
- Dynamic MIDi patching & MIDI automation

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## ANALOG TO DIGITAL CONVERTERS



### Rosetta 96k 24-bit Analog to Digital Converter

The high-end quality analog to digital solution for the project studio. With support for both professional and consumer digital formats you can now record your audio at a higher resolution and with greater detail than standard converters found on MDM's, DAT's and DAW's. Ideal for mastering or tracking.

#### FEATURES-

- 24-bit, 44.1-48, 88.2-96 kHz Sample Rate ( $\pm 10\%$ )
- 116dB dynamic range (unweighted)
- Improved UV22HR for 16 and 20-bit A/D conversion

#### FRONT PANEL:

- Power switch • Sample Rate (44.1, 48, 88.2, 96kHz) selector • 16-bit (UV22), 20-bit (UV22) and

- 24-bit resolution selector • S/PDIF-ADAT optical selector • Soft Limit on or off • 12-segment metering w/ over indicator • Meter Clear switch • Level trim

#### REAR PANEL:

- XLR balanced inputs • 2 x AES/EBU for 88.2/96kHz 2 channel path, Coaxial S/PDIF, switchable S/PDIF or ADAT optical outputs • Wordclock out



### lucid AD 9624 24-bit Analog to Digital Converter

Transparent analog to digital conversion designed to bring your music to the next level. XLR balanced inputs feed true 24-bit converters for revealing all the detail of the analog source. 16-bit masters can take advantage of the AD9624's noise shaping function which enhances clarity of low level signals.

#### FEATURES-

- 24-bit precision A/D conversion • Support for 32, 44.1, 48, 88.2 & 96kHz sample rates • Wordclock sync input • Selectable 16-bit noise shaping



- Simultaneous AES/EBU, coaxial and optical S/PDIF outputs • 20-segment LED meters w/ peak hold & clip indicators • **ALSO AVAILABLE:** DA9624 24-bit D/A converter

## DIGITAL MULTI-TRACK RECORDERS

### TASCAM

#### DA-88 Modular Digital Multitrack

The standard digital multitrack for post-production and the 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.

#### FEATURES-

- 1:48 minutes record time on a single 120 min tape
- Expandable up to 128 Tracks using 16 machines
- User-definable track delay & crossfade
- Shuttle & Jog capability
- Auto punch with rehearsal



- SMPTE, MIDI and Sony 9-Pin sync capability
- Options include RC-828/898 Remote Controllers, IF-AES/IF-88SD digital interfaces, MU-Series meter bridge, MMC-88 MIDI machine control interface, SY-88 Sync Card

#### DA-38 Digital Multitrack for Musicians

Designed especially for musicians, the DA-38 is an 8 track digital recorder that puts performance at an affordable price. It features an extremely fast transport, Hi-8 compatibility, rugged construction, ergonomic design and sync compatibility with DA-88s.



### ALESIS ADAT M20 20-bit Digital Audio Recorder

The M20 represents Alesis commitment to meeting the high-standards of world-class audio engineers, producers, studio owners and high-end video and film post production studios. A new professional digital multi-track, the M20 records 20-bit for outstanding sound quality. Combined with a host of production features like SMPTE/EBU, the M20 is a powerful tool.

#### FEATURES-

- SVHS Recording format - up to 67 minutes recording.
- 18-XLR connections (9 in and 9 out) as well as a 56-pin ELCO connection. • Digital I/O
- Includes LRC remote and a digital cable.



- 24-bit, 64x oversampling recording, 20-bit, 128x oversampling playback

#### 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 ultrahigh 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.

#### ADAT OPTIONS-

- BRC for all Adat (except M20) w/ 460 locate pts, smpte/absolute time & bar and beat timing references, digital editing and transport control for up to 16 ADATs
- AI3 20-bit 8 channel analog - optical I/O interface



- Remote control
- Servo-balanced 56-pin ELCO connector
- Built-in electronic patchbay
- Copy/paste digital edits between machines.
- CADi remote control/autolocator for M20 w/ jog/shuttle & r-45 ethernet connector for long distance cable runs
- Adat/Edit integrated PCI digital audio card and software for recording and editing on Mac & Windows computers

## CD RECORDERS



### CDR-850 CD Recorder

The new HHB CDR850 is one of the most comprehensive CD-R, CD-RW recorders available today. It delivers the outstanding sound quality that HHB is known at a lower price than previous models. Equipped with a complete range of analog and digital I/O and easy to use one touch recording modes make the CDR850 suitable for any audio environment no matter how sophisticated or demanding.

- CD-R, CD-RW compatible
- All functions accessible from front panel menu
- 4 one touch recording modes: 2 manual, 2 automatic
- Sample rate converter accepts any digital signal from 32kHz to 48kHz including varispeed

- Copies all CD, DAT, MD, DVD and DCC track starts
- Complete user control over SCMS
- Balanced XLR analog I/O, Unbalanced (RCA) phono analog I/O, AES/EBU digital input, coaxial & optical S/PDIF digital I/O



### marantz CDR 640 CD Recorder

Marantz' flagship CD recorder benefits from 10 years of CD-R experience. Designed without compromise aided with the help of professional end-users ensuring maximum flexibility and stability in the most rigorous studio environments.

#### Features-

- Balanced XLR Analog in/out • Analog RCA/Phono in/out • AES/EBU & S/PDIF in/out • Records on CDR and CDRW audio and data disks • High resolution 20 bit Sigma/Delta AD conversion • Full SCMS Copy bit manipulation • 0.5 dB accurate level metering • Variable Audio Delay (0-4sec): Offset your audio to compensate for late track ID's • Preset function stores personal settings



- Optional RC640 Wired remote control

## MICROBOARDS

### CopyWriter A2D CD Duplication System

The first CD to CD standalone duplicator with built-in Analog to Digital Conversion capability. Easy to use and powerful, the A2D has a 2.1GB internal hard drive and a SCSI port for direct connection to a Mac or PC. A perfect solution for audio, data and video applications.

#### Features-

- Interface includes Microphone in, Audio line in, Audio line out and external SCSI port
- Supported Formats: CD DA, CD ROM mode 1 & 2, XA, CD Bridge, Photo CD, CD Extra, Multi Session, Mixcd Mode, Karaoke, (optional)
- Duplication Speed: 8X Read/ 4X Write

- Windows 95, NT, 3.1, Mac OS and Unix compatible
- Headphone output with level control



## STUDIO DAT-RECORDERS

### TASCAM

#### DA-45HR Master DAT Recorder

The new DA-45HR master DAT recorder provides true 24-bit resolution plus standard 16-bit recording capability for backward compatibility-making this the most versatile and great sounding DAT recorder available. With support for both major digital I/O protocols plus the ability to integrate the machine into virtually any analog environment, the DA-45HR is the ideal production tool for the audio professional.

#### FEATURES-

- Word Clock
- 24-bit A/D and 20-bit D/A with dither
- XLR balanced and RCA unbalanced analog I/O
- AES/EBU and S/PDIF digital I/O

- Word Sync In/Thru
- Alphabetic data entry for naming programs
- Independent input level adjustment capability
- Output trim for XLR balanced analog output
- Optional RC-D45 Remote Controller



### Fostex

#### D-15 Pro Studio DAT Recorder

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)

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## MICROPHONES

### AKG C4000B ELECTRET CONDENSER



This new mic from AKG is a multi polar pattern condenser microphone using a unique electret dual large diaphragm transducer. It is based on the AKG SolidTube design, except that the tube has been replaced by a transistorized impedance converter/preamp. The transformerless output stage offers the C4000B exceptional low frequency response.

#### FEATURES-

- Electret Dual Large Diaphragm Transducer (1st of its kind)
- Cardioid, hypercardioid & omnidirectional polar patterns • High Sensitivity
- Extremely low self-noise
- Bass cut filter & Pad switches
- Requires 12, 24 or 48 V phantom power
- Includes H-100 shockmount and wind/pop screen
- Frequency response 20Hz to 20kHz



### audio-technica AT4060

Combining premium 40 series engineering and vintage tube technology, the AT4060 delivers a versatile and competent studio microphone. Low-noise and high SPL capabilities make the AT4060 a premier vocal mic as well as strings, guitars and other demanding applications.

#### FEATURES-

- 20 - 20,000 Hz freq response
- Dual gold-vaporized large diaphragm elements
- Includes the AT8560 power supply, AT8447 shock mount, rack mount adapters and case.



### SHURE KSM-32

The new KSM32 side-address microphone features: an extended frequency response for open, natural sound reproduction. Suitable for critical studio recording and live sound production, Shure steps up to the plate with another classic.

#### FEATURES-

- Class A, transformerless preamplifier circuitry for improved linearity across the full frequency range.
- Exceptionally low self-noise and increased dynamic range necessary for highly critical studio recording.
- 15 dB attenuation switch for handling high SPLs.
- Switchable low-frequency filter to reduce vibration noise or to counteract proximity effect.
- Great for vocals, acoustic instruments, ensembles and overhead miking of drums and percussion.
- SL model also features an elastic shock mount which greatly reduces external vibrations.



### BPM CR10

Hand-crafted in East Berlin, the BPM CR10 Studio Condenser Mic features a full frequency response for competition against the best of the best.

#### FEATURES-

- 1" Gold diaphragm
- Suitable for most guitar and vocal recording applications.
- Includes Custom Aluminum Road Case, XLR-cable, wind screen and elastic suspension.



## SAMPLING

# AKAI

## S5000 & S6000 Studio Samplers

Akai is proud to announce its next generation of samplers with the introduction of the S6000 and the S5000. Building upon Akai's legendary strengths, both machines feature up-to 128-voice polyphony and up-to 256 MB of RAM. They use the DOS disk format and .WAV files as the native sample format allowing standard PC .WAV files to be loaded directly for instant playback - even samples downloaded from the Internet into your PC may be used. And of course, both the S6000 and S5000 will read sounds from the S3000 library.

**FEATURES-**

- OS runs on easily upgradeable flash ROM.
- 2x MIDI In/Out/Thru ports for 32 MIDI channels
- Stereo digital I/O and up to 16 analog outputs.
- 2x SCSI ports standard
- Word lock connection
- Optional ADAT interface provides 16 digital outs
- .WAV files as native sample format



#### S6000 ONLY FEATURES-

- Removable front panel display
- User Keys
- Audio inputs on both the front and rear panel allow you to wire the S6000 directly into a patchbay from the back and override this connection simply by plugging into the front.

E-MU

## E-mu Systems, Inc.

### E4XT ULTRA Professional Sampler

The Emulator legacy continues with the new ULTRA series from E-mu. Based on the EIV samplers the new 32-bit RISC processing of the E4XT guarantees faster MIDI response, SCSI, DSP and sampling

#### FEATURES-

- 128 voice polyphony
- 64mb RAM (exp. to 128)
- 3.2GB Hard Drive • Dual MIDI (32 channels)
- 24-bit effects processor • 8 bal. outs (exp to 16)
- Word Clock & AES/EBU I/O
- EOS 4.0 software
- 9 CD ROMS over 2GB snds



## MIC PREAMPS



### Classic 80 Pentode Tube Mic Pre

Fronted by a low noise 6EF86 pentode tube and 2 additional triode tubes per channel gives this pre amp detail, openness and presence. Input and output level controls allows precise control of harmonic contribution of the tubes.

#### FEATURES-

- 2 Channel Mic Pre • Balanced Mic Ins w/48V Phantom Power • Dedicated 1/4" instrument input
- High & Low pass filter: w/ 3 cut off frequencies (HPF - 50Hz, 100Hz or 150Hz) (LPF - 5kHz, 10kHz or 15kHz)
- Phase reverse on channel 2
- Drive & Peak LEDs • Large rotary output faders
- Illuminated VU meters • 250V HT voltage rail



### dbx 586 Vacuum Tube Mic Pre

The DBX 586 Vacuum Tube Dual Mic Preamp uses hand selected and matched premium 12AU7 vacuum tubes ensuring ideal characteristics for a warm, distortion free signal path. Custom designed analog VU meters monitor tube level insert path or output levels well. Line/Instrument and mic inputs make the 586 versatile enough to use with virtually any input source.

#### FEATURES-

- Mic or line/instrument inputs on each channel.
- +4/-10 operation.
- Drive control for a wide variety of great tube effects
- 3-Band EQ with sweepable frequency
- Optional TYPE IV Conversion System outputs
- Separate 1/4" insert send/return on each channel



### JOE MEEK VC1 Studio Channel

The Joe Meek Studio Channel offers three pieces of studio gear in one. It features a transformer coupled mic pre compression and a professional enhancer together in a sleek 2U rackmount design!

#### FEATURES-

- 48V phantom power, Fully balanced operation
- Mic/Line input switch
- High pass filter for use with large diaphragm mics
- Extra XLR input on front makes for easy patching
- Compression In/Out & VU/Compression meter
- Enhancer In/Out switch and enhance indicator
- Internal power supply 115/230V AC



## MONITORS



### M6000/S Studio Monitors

The KRK M6000/S are designed for close-field monitoring. A smooth frequency response in a compact size make these units portable and efficient.

#### FEATURES-

- High power handling
- 62Hz - 20kHz, ±3dB
- Compact and portable
- Low distortion
- Smooth frequency response
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Offering honest, consistent sound from top to bottom, the TRM-6 bi-amplified studio monitors are the ideal reference monitors for any recording environment whether tracking, mixing or mastering. Supported by Hafler's legendary amplifier technology providing a more accurate sound field, in width, height and also depth.

#### FEATURES-

- 123 dB Peak
- Bi-amplified (50 W Lt, 33 W Rt) w/Crossover
- 45Hz - 21kHz Response
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### 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



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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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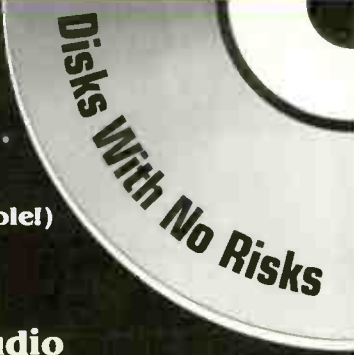
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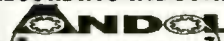
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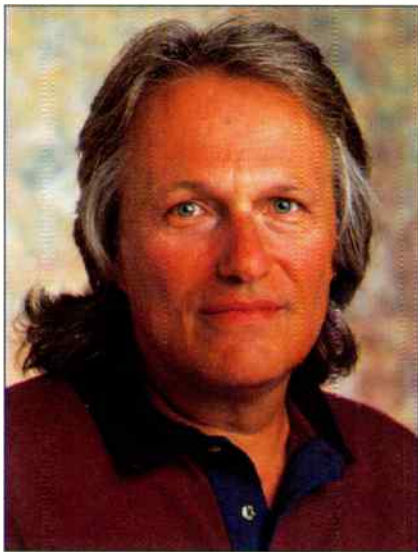
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CIRCLE 49 ON FREE INFO CARD

# No More Columns This Century



Your last chance at a little peace before all Y2K hell breaks loose

BY ROGER NICHOLS

I have had about enough of the 2KY problem. What? Is there too much KY Jelly in the South Beach area of Miami? I don't think so! Is there going to be another Kentucky show up on the morning of January 1st? Whare (bad spelling on purpose) are they going to put it? There isn't enough room for the one they have now. Maybe they could take over Arkansas and rename it. What would the state abbreviation be?

They say that there is going to be a problem with school computers crashing because they aren't ready for 2000. Because of students hacking into the computers, the schools are probably in better shape than anyone else is. I don't care so much about that, as long as the 900 number service still works. It took me a year to get them to allow 900 calls from

my cell phone. I don't always want to make those calls from home.

You know, they didn't have this much trouble last time. I have been reading through my history books, and there is nothing about the Y1K problem. I can see where writing the date down as '99 instead of 1999 saves some work, but at the turn of the previous century, '99 didn't save much as a contraction of 999.

I heard that the problem was much bigger for the Y0K rollover. Were there two year zeros? Zero BC followed by zero AD? Or was it a commonly shared year zero? What about teaching everyone to count forwards? Before Y0K everybody spent his or her whole lives counting backwards. In the year 3 BC did they write BC on their checks? Maybe they didn't write the BC because they didn't know it was BC until it was over?

Were the months backward, too? Did the year start with December, November, October, September, August, July, June, May, April, March, February, January. That makes more sense. New Year's Eve would be January 1st and the New Year would start December 31st. Numbering the days the other way around makes thing work out much better. You always know exactly how many days are left in each month. The extra day in February couldn't sneak up on you; it would be right there at the start of the month where it belongs.

Was year zero a Leap Year? The rule is every four years, except if divisible by 100, unless divisible by 1000. 1000 was a Leap Year. 1900 was not. 2000 is. Was zero?

## 24-BIT/96 KHZ

I am still not convinced that 96 kHz is the way to go for digital multitrack recording.

After recording a project on two machines simultaneously, one recording 24-bit/96 kHz and the other one recording 24-bit/48 kHz, and then mixing through the same digital console with the same automation moves, there was no difference between the final outputs. The final mix was 24-bit/96 kHz stereo.

In the stereo domain, there is just a small difference between the 24-bit/96 kHz version and the 24-bit/44.1 kHz version. The differ-

ence between 16-bit and 24-bit was very noticeable in both the multitrack and stereo mixes, but the 96 kHz difference was not worth doubling the storage requirements. So, for the time being, I think that multitrack recording at 24-bit/48 kHz and mixing down to 24-bit/96 kHz is the way I'm going to work.

## AUDIO STORAGE

Remember that everything you record has to be stored somewhere for the long term. I get e-mail from people who have purchased inexpensive 8-track hard-disk recorders and never thought about what happens when the hard disk gets full. You can store it on removable Jaz drives, but they cost \$100 for 2 GB. You can store it off on CD-Rs, but it takes forever to burn and verify the CDs. You can dump it off to an ADAT or TASCAM, but you lose all of your edit points

and most of the small 8-track hard-disk machines can only transfer two channels at a time in the digital domain.

1. It looks like a hard disk world out there right now, but things will really take off when you can plug in your media, record 24 tracks for awhile, unplug your media, plug in new media, and record something else. You know, kind of like replacing a roll of tape. What if

*continued on page 140*

*I heard that the problem was much bigger for the Y0K rollover. Were there two year zeros? Zero BC followed by zero AD? Or was it a commonly shared year zero?*

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