Recording Vocals
Advice From Top Engineers
Digital Reverb
Tips and Tricks
Wedge Monitor Buyer’s Guide

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Solid State Logic

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Tel: +44 01865 842300
Fax: +44 01865 842118
E-mail: sales@solid-state-logic.com
http://www.solid-state-logic.com
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20 Fast Lane: More for Less, Less for More
   by Stephen St.Croix

24 Insider Audio: In Search of a Graceful Death—Today's Gear Means All or Nothing by Paul D. Lehrman

30 On the Cover: Teddy Riley's Future Recording Studios

32 The Mix Interview: Robbie Robertson
   by Blair Jackson

46 Recording Vocals by Rick Clark

58 Digital Reverb Tips and Tricks: Making the Most of Your Gear (Without Reading the Manual)
   by Larry the O

66 Apple Talk: Desktop Audio Vendors on the Future of the Mac by Philip De Lancie

76 Atlanta Post: Growing From the Top-Down and Bottom-Up by Dan Daley

81 Muscle Shoals Sound by Rick Clark

88 Mix Masters: Mick Guzauski by Maureen Droney

99 The Project Studio: Scrinshaw Sound Recording
   by Loren Alldrin

100 The Project Studio: Steve Hackett by Chris Michie

164 Recording Notes
   • Michael Penn by Paul Myers
   • Rob Mounsey and Steve Kahn by Gary Eskow
   • Horace Silver by Chris J. Walker
   • Classic Tracks: Bob Dylan's "Hurricane" by Blair Jackson

180 Media & Mastering News by Philip De Lancie

224 Power Tools: BSS Audio DPR-901 II Dynamic Equalizer by Mark Frink

132 Post Script
   • Gathering Your Personal Effects, Part 1 by Larry Blake
   • Werner Herzog's Documentary "Little Dieter Needs to Fly" by Tom Kenny
   • Wendy and Lisa—Music to Film by David John Fariella
   • Facility Spotlight: Rockin' Chair Creative Sounds by David John Fariella

144 Audio Products for Film/Video
HR824 MONITOR

“Overall frequency was almost hard

Logarithmic wave guide helps accurately propagate high frequencies over a wider area. Result: better dispersion, more precise imaging and a far wider sweet spot.

Edge-damped 25mm high-frequency transducer is directly coupled to its own 100-watt FR Series' Low Negative Feedback internal power amp.

Alloy dome is free from “break-up” that plagues fabric domes, causing high frequency distortion.

Signal present and overload LEDs.

Instead of a noisy port, a passive honeycomb aluminum transducer on the rear of the HR824 almost doubles the low frequency radiating surface.

“This allows the HR824 to move a large volume of air with minimal low frequency distortion & power compression.” EM Magazine*

Specially designed 224mm low frequency transducer has a magnet structure so massive that it wouldn’t even work properly in a conventional passive loudspeaker. But servo-loop-coupled to a 150-watt FR Series' amp, it’s capable of incredibly fast transient response and extremely low frequency output.

Inside: the HR824 cabinet is 100% filled with adiabatic foam. Result: Unwanted midrange reflections from the low frequency transducer are absorbed inside the enclosure instead of being reflected back out through the cone into your listening space.

* Electronic Musician, October 1997. All quotes are unedited.

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Ready to confront reality? The HR824 Active Monitor is now in stock at Mackie Dealers.

Owning a set of HR824 near field studio monitors has the potential of seriously altering your perception of sound. For the first time, you'll be able to hear precisely what's going on all the way through your signal chain—from microphones right through to your mix-down deck. You'll suddenly discern fine nuances of timbre, harmonics, equalization and stereo perspective that were sonically invisible before.

Some tracks you've recorded will amaze you; others may send you back for an immediate remix. But either way, for the first time, you'll be hearing exactly what was recorded—not what a conventional loudspeaker may or may not have been capable of reproducing.

Admittedly, these are pretty brazen claims (which is why we're backing them up with comments from a credible, third-party source). But all you have to do to become a believer is to visit your nearest Mackie dealer. When you compare HR824s to the competition, you're going to hear some dramatic differences.

First you'll notice low frequency output so accurate that you might look around for the hidden subwoofer (some of the world's most experienced recording engineers have done this, so don't be embarrassed). The HR824 really IS capable of flat response to 39Hz. Moreover, it's capable of accurate, articulated response that low. Rather than a loudspeaker's "interpretation" of bass, you can finally hear through to the actual instrument's bass quality, texture and nuances.

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Finally, let the salesperson go wait on somebody else and enjoy an extended session with one of your favorite CDs. When you're through, you'll discover that when distortion and peaky frequency response are minimized, so is ear fatigue. You can listen to HR824s for hours on end.

Along with good microphones, HR824s are the best investment you can make, no matter what your studio budget. And, like premium mics, HR824 monitors cost more than less accurate transducers. But if you're committed to hearing exactly how your creative product sounds, we know you'll find owning HR824s well worth it.
FROM THE EDITOR

VIVE L’ANALOG!

In 1978, the audio industry was in a state of flux. Sony unveiled a videotape-based digital recorder/edit (the PCM-1600), 3M delivered the first digital 32-tracks, New England Digital debuted the Synclavier, and talks were already under way about a new consumer digital disc format. From pocket calculators to wristwatches, digital had taken the public by storm, and to many, the demise of analog technology loomed on the horizon—if not by the next year or so, then certainly in a decade’s time.

Yet somehow, two decades later, our old friend analog remains with us—and not merely in whimsical waves of nostalgia, but as high-performance products that coexist with digital systems and often exceed them in terms of quality. In today’s consumer market, some very non-digital items have skyrocketed in popularity, whether they be Rolex watches or discrete designs in audiophile components.

The situation in the musical instrument market isn’t really much different: Once almost completely written off in the wake of the synth-pop revolution, guitar sales are currently at near-record levels. Fender and Gibson are turning out Strats and Les PauIs at an unceasing pace, and MIDI for guitars is more accepted as means to control effects than a means to translate picking and fretting into performances. Electronic drum kits and wind instruments are barely a ripple in the pond compared to their acoustic equivalents. In the keyboard market, where synths and samplers rule the roost, the most sought-after sounds are grand pianos, organs and vintage analog keyboards.

Meanwhile, in pro audio, the list of manufacturers without a tube product in their line is getting shorter, while the use of analog multitrack and mix formats has risen rapidly in recent years. Mastering houses, for example, report that a large percentage of major label product today is delivered on 30 ips ¼-inch tape.

Despite all the buzz about hot new digital 96kHz 24-bit technologies, it’s refreshing to hear about someone dropping a reel of Ampex 490 or BASF 900 onto an analog transport and really laying down some fat tracks. So whether it’s for the sweet sound of saturation, the fuzzy warmth of that bottom-end head bump or just the satisfaction of those 2-inch reel slabs spinning in sync, we love to love our analog. But along the way, we have to accept that most of our projects will eventually wind up on some digital medium. And if the much-maligned CD format is really so bad, then why do we all have a few inches tape.

At the same time, we can still listen to recordings made 30 or 40 years ago that offer awesome clarity, detail and depth—and if this were simply due to the analog medium, then every recording from that era would be great. The key here is a combination of solid audio techniques and careful attention to every step in the signal chain as the first move toward a great recording.

Add a great song, an emotional performance and a well-crafted mix, and—analogue or digital—you’ve got a great result.

Bet on it.

George Petersen
Editor

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Robert Myers
Mari Stanchak
Kath Thompson
Amanda Warden

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Special Projects & Art Director Judy Oliver

CIRCULATION SERVICE MANAGER Jone Byer

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Hillel Resner
Special Projects Art Director Judy Oliver

Indianapolis

Director of Operations & Manufacturing
Anne Letsch

Productions Director

Georgia George
Collateral Production Director

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Advertising Traffic Manager

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Production Assistant

Tom Marsella
Reprint Coordinator
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Computer Support Technician

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Founded in 1977 by David Schwartz and Penny Riker Jacob

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Founded in 1977 by David Schwartz and Penny Riker Jacob
We're blushing. Coming from Teddy Riley, whose credits include more than 30 platinum and multi-platinum records, that's a pretty powerful statement. How could Pro Tools possibly make this superstar's life more complete?

"If you could see me, you'd think I was a real wiz. I do everything in Pro Tools. I track directly into the system... take a guitar part and loop it. I do fade ins, cross fades. I put together the whole Blackstreet album so fast — mixing, effects, and everything. And I really dig some of the TDM Plug-Ins like Drawmer and Focusrite. There's always new stuff that truly amazes me... like the 24-bit, 32-track system."

Now, you're probably thinking we had to pay Teddy to say all this. But the truth is, he's been using Pro Tools on every project since Michael Jackson's Dangerous — simply because it's the best tool for the job. Based on the number of hits he's cranked out, his career and life have been nothing short of remarkable. Or, as Teddy would say... "complete."

For more information about Pro Tools and Third-Party development products, call 1.800.333.2137 ext. 323 for a free Pro Tools video, or to schedule a free demo.

www.digidesign.com
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Teddy Riley, Producer/Artist
Lil' Man Records/Future Recording Studios, VA
FEEDBACK

EPIC OMISSION
I just received my Jan. '98 issue of Mix and was astounded to see the cover story on the “sound design” of Titanic without comment, inquiry or mention of the incredibly specialized, profoundly challenging contribution made by Jim Cameron's production sound team. We endeavored for nearly six months at night, exterior seaside, mostly in winter, to get all the primary tracks for the show. By most accounts, 60% to 70% of the dialog in the finished picture was original production track. Jim likes to do ADR lines on his whole show and then pick his preference after the fact.

We did the entire show with wireless boom and Audio Limited with full duplex, wireless com for the sound department, as well as several other simultaneous mixes for various other departments. We innovated a variety of specialized methods to deal with working production sound in the salt water environment as well as the complex communications requirements of the biggest film in history. Don't you think making inquiry into this work would have been of interest to your readers?

If the show gets nominated and should succeed at the Oscars, the Motion Picture Academy will be giving their award to the whole sound team. That means acknowledgment for production sound as well. Maybe you should break tradition with your consistent history of ignoring the essential contribution we make in production sound and talk to the whole team before you embarrass yourself the way you have with this article.

As a three-term sitting member of the Board of Directors for the C.A.S. (Cinema Audio Society), I have watched this wonderful organization work effectively to bring these two segments of the film sound industry into closer contact. Why can't you plug into that reality? No film industry into closer contact. Why (mix, FX, lights, laser, etc.)

WINNING SOUND
I have always enjoyed Mark Frink's articles in Mix magazine, and now I must write to second his nomination of George Belles for a TEC Award, Sound Company ("...The Envelope, Please," Dec. '97).

This past summer I saw Tom Scott and John McLaughlin at the Brit Festival in Jacksonville, Ore. To my pleasant surprise, this gig included George and his new MSL4 rig. The sound was just fantastic! When Tom Scott played his encore/closing song, "Rock Island Rocket," I was in audio ecstasy. I've waited since 1976 when this album came out to hear it live—the highlight of the summer concert season!

I worked as a live mixer on a semi-pro level from 1982 to 1990, and I'm basically retired. But I still enjoy listening and reading Mark's excellent articles. They keep me feeling like I'm connected and passing voltage. Gig on, my friend! Ty Karney

Olympia, Wash.

DISILLUSIONED
Fortunately for the world, I've got a much smaller soap box than Stephen St.Croix has. In the November issue Stephen St.Croix (The Fast Lane, "America Today") made the mistake of asking what "you" thought about the "trend toward the mindless mass-production of 'music.'" He was addressing me, right? Well, here it goes...

My wife and I were road musicians for years, until 1997. The "trade for technology" was partially responsible for the end of our road careers. We were among the "pioneers" who were using automation to augment live performances. We were using an Oberheim DMX pre-MIDI (still have it), then synchronizing early MIDI sequencers via Garfield Nano-Docs, and eventually using sequencers to control events musical and otherwise (mix, FX, lights, laser, etc.).

The point here is that when we began, if you didn't possess the musical skills to dissect a piece of music and the technical expertise (or at least persistence) to re-create it on synths, etc., you were left with a Rhythm Ace (a different set of skills to be sure!). But now, buy a single keyboard and buy/pirate a few sequences and you are a "band." No playing required.

This has broken our hearts often. It also helped put us out of work because the "karaoke" bands, having few funds and no time invested, can and will work for less money. (This also doesn't speak well for the modern purchaser of entertainment who can't tell the difference.)

Now, I know we were just doing the club scene, but we provided a high-quality entertainment product at a bargain price. Our show used primarily original synth patches, exclusively original sequencing, and even (hold your breath) live playing/singing. We did some really cool stuff! On the rarest of occasions, someone would seem to appreciate the time, effort, skill and passion we "wasted." Oh well.

So, having come off the road, I looked into the local recording scene. I was disappointed to discover that the local recording market was too similar to the "road market." Quality matters little. And now, I'm working as a "service tech" at a local telecommunications company where I'm observing the same thing! Good work for honest pay seems to have been a myth my father sold me.

Don't know why St.Croix would be the least bit interested in my disillusionment, but, one cynic to another, keep up your good work. And if you ever find a place where people are more interested in doing good stuff than telling people they are doing good stuff, send me the address.

Jim Sharp
Yadkinville, N.C.

Send Feedback to Mix, 6400 Hollis St. #12, Emeryville, CA 94608; fax 510/653-5142; or mixeditorial @cardinal.com.
"I have consistently been impressed with the sound quality of the mixes I have received from projects using Capricorn.

"Particularly impressive are the ones where care has been taken to preserve the 24-bit signal throughout the project.

"I feel there is a quality and resolution that is rarely attained with other systems."

Ted Jensen, Chief Engineer, Sterling Sound Inc.
COLIN SANDERS, 1947-1998

Colin Sanders, founder of Solid State Logic, died January 28 when the helicopter he was piloting crashed near Bicester, just outside his estate at Souldern Manor, England. He was 50 years old.

The cause of the accident was unknown at press time. It was reportedly a dark winter evening, with a light fog and light mist. Mr. Sanders, an avid pilot who was returning home from London, was the only person aboard.

"I had the good fortune to meet Colin at Souldern Manor in 1991, when we began discussions on the possibility of my writing a history of SSL," says SSL marketing director John Andrews. "He was a charming host and a delightful lunch companion, with some fascinating stories about the early days of the organ company which branched out into audio mixers. It's a great sadness to realize that if a history does ever get written, it won't have Colin's personal input."

Mr. Sanders founded Solid State Logic in 1969 as a manufacturer of components to provide electronic control of valves in pipe organs. (SSL Organs, based out of Suffolk, continues as a leading manufacturer of organs, with a subsidiary in the United States.) In 1971, he began researching console design, applying many of the same electronics principles on which the company was founded.

In 1977, SSL released the 4000 Series, the first in-line console with integrated machine control, and arguably the most successful large-format recording console in history. More than 20 years later, it is still in production, with more than 1,500 boards sold worldwide. In 1981, SSL jumped to the forefront of automation systems with the release of Total Recall, which was followed in the '80s by forays into workstation technology with ScreenSound and integrated production systems with the development of Scenaria, and later OmniMix.

In 1987, Mr. Sanders sold his shares of the company to UFI, which later was bought by Carlton. Mr. Sanders continued as managing director until 1991.

"He was a unique personality," says former SSL marketing director and friend, Colin Pringle, now with AMS Neve. "Colin had that special ability to profoundly influence the lives of others, either through the landmark SL 4000 console design or, for those lucky enough to know him, through his charm, humour and generosity.

"Colin was always liberal with his praise, and as a result seemed more impressive for it. This trait also engendered a loyalty in others which is extremely rare. Indeed, it was his ability to bring out the best in others which was Colin's true skill."

Mr. Sanders is survived by his wife, Rosie, and three adopted children, James, 13, Craig, 11, and Terri, 9. Contributions are requested to The Prince's Trust or a charity of the donor's choice.

NASHVILLE'S MASTERFONICS DECLARES CHAPTER 11

Masterfonics, one of Nashville's leading recording and mastering facilities, filed for protection under Chapter 11 bankruptcy provisions on January 29. Studio owner and mastering engineer Glenn Meadows cited several reasons for the filing, including an overall drop in revenues in 1997 that affected many studios in Nashville, continued downward pressure on rates from record labels, and the proliferation of local home and producer-owned studios, as well as the opening of new major facilities that contributed to a saturation of the Nashville market.

Meadows stressed that the studio was in the process of reorganization, and that creditors were being cooperative and that he expected that the studio would emerge from the filing intact. However, he also said he expects that the same forces that precipitated Masterfonics' move are having a similar effect on other studios in Nashville, both upper-tier facilities and mid-sized ones. "It's going to be rough; several studios are for sale," he said. Masterfonics had laid off several employees late last year, but Meadows noted that bookings for 1998 were up significantly over 1997.

STUDIOPRO '98 SESSIONS ANNOUNCED

Plans are moving forward for Mix's StudioPro '98, a two-day conference on the technology of business and recording being held on June 25-26, at the Marriott Marquis in New York City. The conference will feature a dozen workshops and panel discussions; some of the scheduled sessions include "Making the All-Digital Transition," "New Technologies/New Specialties," "The Creative Interface: Project Studios/Commercial Facilities," "That Dangerous Upgrade Path," and "MDMs: The Revolution Continues." Other panels and workshops will focus on design solutions, sound for picture and file format interchange. In addition, producer forums, hosted by the Music Producers Guild of the Americas, will be held on both days; MPG president Ed Cherney and other world renowned producer/engineers will address creative and business issues facing producers today. There will also be manufacturer forums dealing with the latest trends in equipment design. More events will be announced as they are confirmed.

For registration information, contact Daniela Baronne at 510/653-3307 or fax 510-653-5142. Conference sponsorships are also available: interested companies should contact Hillel Resner, conference director, at 510/284-7729.

MFEA DISTRIBUTES TEC AWARDS PROCEEDS

The Mix Foundation for Excellence in Audio has announced the distribution of proceeds from the 1997 Technical Excellence & Creativity Awards held —CONTINUED ON PAGE 16
There’s Only One Way To Get The Sound You Want...

Introducing the Neumann TLM 103

Regardless of your recording gear, the single best way to improve your sound is with Neumann microphones. Utilizing a large-diaphragm capsule derived from our world-standard U 87, our new TLM 103 gives you the full, rich, warm sound that Neumann is famous for. It has the lowest self-noise of any condenser mic in the world – important in today’s low-noise digital recording environment. And with our new TLM 103, owning a Neumann has never been easier... for less than $1000 US, you can have the most important piece of equipment you’ll ever own.

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**INDUSTRY NOTES**

At Quantegy Inc. (Peachtree, GA), president and CEO Jack Kenney announced his resignation effective April 2, 1998. Kenney stated that he will continue to direct Quantegy's operations and will work with the company to facilitate the selection of a successor and an orderly transition. Tony D. Wilson was recently named vice president of sales and customer support, U.S. and Canada. Before coming to Quantegy, Wilson worked for Allied Signal and 3M... Rocco Ferraro was appointed manager of finance and administration at Old Lyme, CT-based Sennheiser Electronic Corporation. Ferraro will be managing financial operations and logistics functions for the Sennheiser brand of products, the Neumann microphone line and D.A.S. loudspeaker series...CTI Audio Inc. announced the appointment of Buzz Goodwin to the position of vice president, sales. Bruce Forbes, who served as VP, professional products, was recently assigned a broader role as VP, product and market development... Furman Sound (Petuluma, CA) brought Joe Territo onboard as Marketing Manager. Previously, Territo was marketing and communications manager at Apogee... Sonic Foundry (Madison, WI) recently introduced a representative sales force to provide dealers with product information, merchandising support and software demos... Sun Francisco-based Dolby Laboratories announced that EDnet will now handle all U.S. and Canadian sales of the Dolby codec units necessary for Dolby Fax installations... News from the Martin Group: Founder Peter Johansen resigned from his position of managing director but will serve as consultant to the company on an ad hoc basis. Finance director Lars Dige and production director Torben Johansen were appointed joint group directors... Sam Ash Music has expanded its chain to the West coast. The new stores are located in the CA cities of Westminister, Cerritos, West Hollywood and Canoga Park... Fred Higgenbottom was named senior vice president and general manager of Crown Audio (Elkhart, IN), and Mick Whelan was promoted to the newly created position of vice president of marketing and sales. Director of marketing Bruce Peterson will still be the main press contact regarding editorial placement and advertising. Ian "Hawk" Magness joined Crown as corporate webmaster. SECOM was named Crown representative of the year for 1997... Auralex Acoustics (Indianapolis, IN) purchased a new facility at 8851 Hague Road. The phone and fax numbers remain the same. The new facility allows the expansion of Auralex's sister companies, Captive Audience Inc. and Alien Multimedia; provisions are being made for audio and video recording, CD mastering and more... Russ Berger Design Group (Dallas, TX) hired Deirdre Langworthy as marketing/production coordinator... AKG Acoustics' (Nashville) new primary phone number is 615/360-0499; new primary fax number is 615/360-0275... Tustin, CA-based Ricoh Electronics named Kimber Lee Davis western regional sales manager, and Bill Z. Oran as eastern regional sales manager... Production Resource Group (New Windsor, NY) announced the acquisition of ProMix, which becomes the first sound company in the group and the initial member of PRG's new audio division... Reg Tiessen was appointed vice president, finance, and CFO at Toronto, Ontario-based Leitch Technology Corporation. To serve the Latin American market, Leitch opened a new regional sales office, directed by Edel Garcia, at 1265 Bluebird Ave. Miami Spring, FL 33166; phone 416/445-9640... Superdigital (Portland, OR) hired Arni May as production manager and promoted Eric Squires to audio recording technology sales engineer.

---FROM PAGE 12, CURRENT---

Last September in New York City.

A total of $35,350 was presented to organizations involved in the prevention and treatment of hearing impairment and to scholarship programs for audio students. Fifty percent of the proceeds were contributed to the Hearing Is Priceless campaign of the House Ear Institute of Los Angeles. This program educates the public and audio professionals about the dangers of noise-induced hearing loss.

The remaining funds were distributed between the SPARS audio scholarship program, the AES Educational Foundation, Hearing Education Awareness for Rockers (H.E.A.R.), Berklee College of Music, Full Sail Real World Education, the Institute of Audio Education, Middle Tennessee State University, University of Massachusetts at Lowell, University of Miami and the University of Southern California. TEC Awards scholarship grants were presented to Joshua Philip Allen at Full Sail, Travis Gregg at Indiana University and Claudius Mittenorder at Berklee College of Music.

For more information about the 1998 awards show or TEC Awards scholarship grants, contact Karen Dunn at 510/939-6149 or KarenTEC@aol.com.

**TELEX AND EV INTERNATIONAL MERGE**

Telex and EVI, both controlled by affiliates of Greenwich Street Capital Partners Inc., the New York-based private equity investment fund, merged in late January. The combined companies benefit by sharing an extensive worldwide distribution network, multinational manufacturing expertise and research and development resources. In related news, EVI recently took up an option to purchase the minority share holding of Tony Qates in Shuttlesound Ltd., a distribution company owned by Greystone Industries.

**CORRECTION**

A caption in the January "Coast to Coast" refers to a single Malik Pendleton and Mary J. Blige remixed at The Hit Factory. However, the pair are actually pictured working in Sony Music Studios, New York City.
If you already know these interesting facts about Akai Digital Recorders... 

- 8 Track simultaneous disk recording
- 8 machines
- 18 bit ADC
- 64X oversampling
- Dynamic MIDI mix automation
- S/PDIF digital I/O
- 50-pin SCSI port
- 3 in 16 out + stereo master
- Multispeed playback
- Machine control
- Auto punch in
- Switchable ADAT interface
- 2nd SCSI port
- Parametric EQ
- Destructive editing
- 20 bit DAC
- 8X built-in mic preamplifier
- 1/4" TRS in/out
- Balanced input on DR8, DD8 and 50-pin SCSI port
- Auto punch in
- $299
- SMF file
- MAC control
- $79
- Expansion to 128 tracks
- Link up to external processing
- 16 channel auto locator
- AES/EBU and S/PDIF digital I/O
- 8 in 8 out + stereo master
- MIDI with fine resolution mode
- MIDI automated mixing
- MIDI effects
- Word clock/video sync
- SVGA card
- $699
- $299
- BiPhase film sync
- 3 in 16 out + stereo master (DR16)
- 16 channel 3 band
- Digital disk recording
- 64X sampling
- MIDI mix automation
- SCSI port
- Balanced + stereo master (DR16)
- Monitor
- Compatible with
- Logic control
- Adjusted preroll
- 640 db line levels
- MIDI interface
- $299
- M18 MIX
- $699

Maybe you'll be interested in these new facts.

8 Track DR8 - $1995
16 Track DR16 - $2995

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The Recording Console That

The Studio 32's inline design gives you balanced XLR mic inputs and balanced 1/4" TRS line inputs, channel inserts, tape inputs and direct outputs on each channel. Four group outputs, six aux sends (four pre-fader and two post-fader), phantom power for every channel and separate control room outputs are also provided. And since all of these connections are on the rear panel, your studio stays neat and professional-looking.
Looks **Sixteen** but Acts **Thirty-two**

The world of small-format consoles seems to be suffering an identity crisis. After all, most of them look alike...and also act alike.

Where can you turn to get the advantages you need?

Introducing the **Alesis Studio 32™** Recording Console with Inline Monitoring

The Studio 32 offers 16 hybrid/discrete mic preamps that combine extremely low-noise performance (-129dB E.I.N.) with a wide 60dB range, making them perfect for driving digital recorders. In fact, the Studio 32 offers a wider dynamic range than all of the currently-available "affordable" digital consoles (and it's a whole lot less expensive).

Audio sources in your studio multiply quickly. Instruments, miked drums, vocals, and stereo signals from synth modules keep adding up. Fortunately, the Studio 32 has twice as many inputs as an average 16-channel mixer, so simultaneous recording or mixdown of multiple sources—live or in the studio—is no problem.

It's the world's most affordable 16-channel console that offers inline monitoring capability. Inline monitoring means that each channel can send signals to a recorder and receive signals coming back from tape...at the same time. So, unlike your average mixer, the Studio 32 can hook up with sixteen tracks of ADAT (or any other recorder), instead of just eight. That's double the tracks you can access.

Other stuff that makes the Studio 32 stand out from the crowd: fully-parametric midrange EQ and super high-quality mic preamps that are more comparable with the consoles you see on magazine covers than on other compact mixers.

40 inputs available at mixdown...again, twice as many as most other small consoles. All at a price so low that you can afford to get that second ADAT (now that you can use it).

The Alesis Studio 32. The console that acts a lot bigger than it looks. At your Alesis Dealer now.

For more information on the Studio 32, see your Authorized Alesis Dealer or call 800-5-ALESIS.

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Capitalism. Ain't it grand? It ensures that technology will advance. Yesterday I told my new car I was hungry, and it put 11 places to eat on screen, all within three miles of my current location. I picked one, and it gave me verbal instructions at each intersection to get me there. Unfortunately, the place was closed.

Fortunately for us, however, digital audio is part of this advancement, and for better or worse, it's still open. Capitalism has split audio development into two entirely divergent, if not seemingly opposite, paths: more for less, and less for more.

MORE FOR LESS
This is where the megabucks really are. It seems that when the typical fried teen or young, misguided adult cruises into Circuit City, he is somehow totally relieved of his ability to make independent decisions. He is stripped of all judgment, all elective reasoning, all control. He is overpowered with some sort of trance or hormonal shift, and he blindly wanders to the loudest, brightest area of the store. He then leans directly into the boom boxes with the most lights, most speakers, most controls, most moving image displays, most knobs and smallest price tag. Ah, yes. More for Less.

More for less bucks. These things play ten CDs, have more DSP than Industrial Light & Magic, more speakers than the house and more watts than Aerosmith. The plasma displays show you EQ curves, spectral analysis, time, date, temperature and barometric pressure, the names of each of those CDs and where you bought them, and at least one of the ones I saw—this part is no joke—actually allows you to program in your name so when you turn it on it says “hello, your name here,” and “good-bye, your name,” when your mother makes you turn it off.

Of course, they sound like hell. They offer specs at 10% distortion and never even meet that, and they blow up later in the summer. But they sell so well that they are beginning to appear in high-end audio stores. Sad but true. I must be getting old after all. I sound like my father.

More for less indeed. The man-
The CDR-18 is an inexpensive device for writing CDs from virtually any analog or digital source.

Universal recordable CD media is utilized and is readily available at a fraction of the price of other forms of storage.

The CDR-18 has all the familiar controls you would expect to find on a consumer CD recorder but has been designed with the rigor of professional recording environments in mind.

**OTARI CDR-18 Compact Disc Recorder**

DAT, CD and MD IDs can be copied along with audio for easy copying functions.

Balanced analog inputs with selectable input level.

Comprehensive digital interface with AES/EBU input and SPDIF input and output.

Digital Synchro Record Mode.

Digital Fader function providing natural automatic fade-in, fade-out.

Rack-Mount kit and infrared remote supplied standard.

Input monitoring without display.

Built in sample rate converter.

Ultra stable transport with downward firing laser.

Specifications are subject to change without notice or obligation.
Inspiration can strike at the strangest places. And when you've been dreaming of the ideal digital A/V mixer for as long as we have, you jot it down on the nearest piece of paper. Well, the end results of that inspiration have come to pass... Panasonic introduces the RAMSA WR-DA7 digital mixer, and sets an entirely new standard in quality, flexibility, affordability, ease-of-use and value.

TAKE COMMAND... NOW

32 inputs and 6 auxiliary sends/returns (for a total of 38 inputs), 8 buses, 24 bit converters, moving faders, instantaneous recall of all settings, surround sound... you'd think nothing this fully featured could be this easy to use or this affordable... but it is!

GREAT SOUND

32-bit internal processing combined with 24 bit A to D and D to A converters yield an incredible 110 dB dynamic range, putting the DA7's sonic quality in a class by itself.

MAXIMUM FLEXIBILITY

Packed into the DA7 are sixteen analog mic/line inputs and individual access to channels 17-32 through channel flip buttons located above each fader. Twenty faders do triple-duty as level controls for channels 1-16, 17-32, or Aux sends 1-6, Aux returns 1-6, and buses 1-8. We've even added an additional fourth layer, which includes MIDI faders.

EASY-TO-USE

The DA7 features automated, logical layout and intelligent design. Access a channel by pushing its select button, and all parameters for the channel: EQ, bus and aux assignments, and dynamic/delay settings come up on the large backlit LCD screen. To access individual parameters, just touch the appropriate knob in the console's master section. This calls up the sub-menu on the LCD screen and zooms in on the appropriate function. No digging through menus or getting lost in functions; just select... and you're there.

THE POWER TO CONTROL

The EQ section offers four true parametric bands active on every channel, with the top and bottom bands selectable from peaking or shelving, or they can be high and low pass filters, respectively. The frequency bands are overlapping, with the top two bands ranging from 50 Hz to 20 kHz, and the bottom two bands ranging from 20 Hz to 20 kHz. Boost or cut for these bands are adjustable in 1/2 dB steps to + or - 15 dB. The bandwidth is adjustable from 0.1 octave to 10 octaves. The DA7 is so full featured, even the Aux returns feature a 2 band parametric equalizer. The dynamics section offers a choice of a Gate/Compressor/Limiter or an Expander on every channel with variable attack and release times and levels for threshold and ratio. A Delay of up to 300ms is available on every channel. In addition, 50 EQ and 50 Dynamics memories can store your favorite settings for instant recall.
SURROUND SOUND AT YOUR FINGERTIPS

The DA7 is equipped to mix 5.1 channel surround through its buses, so you don't have to tie up auxes, controllable by three modes for any channel or combination of channels. All modes provide full dynamic control of panning, and can be copied, stored, and transferred to any other channel. An optional MIDI joystick gives yet a fourth method.

MORE FEATURES THAN WE HAVE ROOM TO TELL YOU ABOUT!

The DA7 features four up/down/left/right cursor keys that are switchable to output MIDI Machine Control commands to DMXs, sequencers, or workstations. Data entry is done through the parameter dial or alphanumeric keypad. There's an undo button, solo mode set, and built-in talkback mic. Honestly, the DA7 is so feature-rich, it's still easy to use that we don't have room to describe it all here. You'll have to test drive it in person!

TAKING YOUR WORLD

The rear panel has 16 analog mic/line inputs (8 XLR with individual software-switched phantom power, and 8 with 1/4"): 16 channel inserts (preVC); and 6 auxiliary send return jacks (use S/PDIF: the rest, 1 in 1/4 inch connectors). Ailing outputs include 4dB balanced master outs with XLRs; 4dB balanced record outs on TRS 1/4 inch jacks and two +4dB monitor outs on TRS balanced jacks. Digital I/O, via XLR connectors is switchable between AES/EBU and S/PDIF. The rear panel also offers MIDI In and Out, word clock I/O, plus both a 9-pin SS-422/485 serial port and 100 port for Mac/Windows with software support for both, a 1/4 inch footswitch jack for controlling talkback on/off or automatic punch in/out for automation, and a D-15 subconnector for the optional meter bridge.

TAKE IT EVEN FURTHER

3 expansion-card slots allow connection of recorders with MADI Lightpipe, TASCAM DLR, and AES/EBU switchable to S/PDIF interfaces, with any of the audio cards fitting into any slot. A fourth card provides 8 more analog inputs/outputs via a D-25 subconnector. The third expansion card slot can be used 3 ways:

- Connect 2 DA7s together with true bi-directionality
- Replace analog inputs 9-16 with digital inputs
- Digital inserts across the 8 buses, six Auxes, and 1/4 stereo out An option card provides SMPTE and Video Sync input.

WHEW!

Panasonic worked overtime to provide so much creative power and flexibility in such an affordable package. We can't possibly show all you can do with the DA7 in paper, so experience it yourself at your Panasonic RAMSA dealer.

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Broadcast & Digital Systems Company

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IN SEARCH OF A GRACEFUL DEATH
TODAY'S GEAR MEANS ALL OR NOTHING

There's nothing like having a bunch of students around to help you find the weaknesses in your gear. Those of us who have worked with audio hardware and software for many years develop an instinct about what we can or cannot do with our tools. We know, for instance, that on a tape deck built before the days of transport logic, if you quickly press all the transport buttons in succession, the result will be several yards of tape spilling all over the floor, or wrapped around the capstan, or both. We know that when a software program gives us a "You're running out of memory..." message, we don't just save what we're doing, we save everything we have been doing and get the hell out, because we know a system crash could be lurking around the next mouse click.

So we're careful. But students and other newcomers to our field don't necessarily know what they're not supposed to do—the air is fresher around them—and so they find ways to screw things up that we older, wiser, more cautious, oft-stung old farts would never stumble across. They figure, in their naivety, that things are supposed to work the way their makers say they do—and so they are constantly breaking stuff.

And there's nothing like the last week of a semester to bring this point home. This past semester, on the Saturday evening preceding the week my students were to present their big term projects, as they labored frantically around the clock to finish them, I got one of those phone calls I am constantly dreading: A tape deck had eaten a student's master tape. Of course, I won't mention any brand names, but it was a modular digital multitrack deck that uses a transport originally designed for video.

So now her project was in danger. Not only did she fear that all of the music on the tape would have to be redone, but she was even more upset about something else: No one else in the class could work on their projects either until the masticated cassette was removed from the deck. I doubt the problem was caused by incompetence: She is among the small, elite group of students who are trained to assist our facilities director in maintaining all the studios. But while she can be counted on to find an errant normal in a patchbay or isolate a noisy fader in a console, pulling apart an MDM was not part of her training. It wasn't part of mine, either, so I couldn't be of much help. Our facilities director lives 30 miles away,

BY PAUL D. LEHRMAN
Way back then it was cool to play the blues
When hip-hop was b-e-hop you know, straight ahead.
When a young musician had visions of Oscar an' McCoy settin' it out so smoothly-
kind of like Jordan taking flight, but in the key of B flat.
Dreaming of being a student in the Miles Davis "turn my back to you"
original school of funk
Having knowledge of the old keeps you prepared for the new.
Get ready for the DA-38

TASCAM
CHANGES EVERYTHING

DA-38 The Digital Multitrack built with the musician in mind
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and even if his wife hadn’t been in labor, it’s doubtful we could have convinced him to come in on a Saturday night and fix the thing; nor would he have felt comfortable walking her through the job over the phone.

As it happens, we have one of the area’s top technicians on our payroll, so I told the student to call him. He was very sympathetic over the phone, but we don’t pay him enough to come in on a Saturday night either—he lives 30 miles the other way, and all of his time at school that week was dedicated to hearing his students’ term projects. All he could do was suggest she take an identical deck out of another studio, where it was also in round-the-clock use by a different group of students, and patch it into the studio where she was working. And, oh yes, forget about the original tape—it’s toast.

So for the next five days, until the technician could get the thing into his shop, extricate the tape and figure out what the hell went wrong, we had hot and cold running students plugging and unplugging audio, timecode, MIDI and control connectors from one overused multitrack and running it back and forth between two studios, while frantically rearranging their schedules to make sure that the same deck didn’t need to be used in both studios at the same time.

The next day, Sunday, and I’m not making this up, an audio editing program the students were using stopped working in one of the studios (not the one with the dead tape deck). No error messages, no crashes. All of a sudden it would just freeze halfway through the boot-up process. I came in the day after it started happening and spent two hours reconfiguring system extensions and prefs files, running disk analysis programs and reinstalling the program—everything short of initializing the hard disk and starting over. Nothing worked. They’d have to do without. There was no way they could use the software in another studio, since that would have meant disconnecting the various hard disks and dragging them around, and I wasn’t going to go there. So I put up a little sign next to the computer: “Sound Patootie [not its real name] has stopped working. Deal with it.”

They did, and in the next couple of days, they were somehow all able to finish their projects, and they were all good, despite the insane obstacles that were thrown their way at the last minute. They all managed to get time with the multitrack without forcing deprivation on other students. They all found ways to accomplish what they needed in terms of sound design without the software—either they found other software that could do the job, or they just shrugged and made what use they could of what they already had.

So I was proud of them, but I was still mad as hell. And what made me the most mad was realizing that there is no "graceful failure" built into our tools anymore.

Today’s gear, when it goes bad, doesn’t do anything halfway: It’s dead, Jim.

...
**The 16 I/O DAW for PC**

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- 4 Inputs, 4 Outputs

**MasterPort**

- powerful 256 Track DAW software
- a suite of DSP effects (non-realtime)
- analog and digital I/O
- 4 Inputs, 4 Outputs

CreamWare is committed to the finest quality in our line of digital audio solutions. Your investment is protected by our product support group and by a variety of upgrade paths and options to suit your changing and growing demands. CreamWare's motivation is your satisfaction with our products of today and, by listening to your ideas and suggestions, our products of tomorrow. It is important when evaluating digital audio systems to be able to distinguish between the hobbyist, multimedia, MIDI sequencer and the professional audio production markets. While the applications and requirements may overlap in some areas, the stringent requirements for precise and accurate control and excellent audio results are clearly dictated by the professional's needs.

Another amazing suite of DSP Plug-Ins.

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Options for MasterPort, TripleDAT and TDAT16 add another selection of sophisticated DSP modules:
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The latest technology in removal of clicks, pops, hum and noise.

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- FFT Analysis Tool

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World Radio History
“graceful failure” built into our tools anymore. Just the way digital is all ones and zeroes with nothing in between, today’s gear, when it goes bad, doesn’t do anything halfway: It’s dead, Jim.

Return with me now to another time, say, 20 years ago, and another place: a new studio in a far-away country with a brand-new console, brand-new 24-track tape deck and brand-new stereo plate reverb. The studio was in a very hot climate, and the air conditioning had been installed by people whose ineptitude was exceeded only by their dishonesty, so the equipment broke down a lot. We were on the phone constantly to the dealer, who, not eager to send someone several thousand miles on a service call, was working just as hard as we were to solve the problems.

One of the output preamps on the reverb failed. First, we patched around it, then we managed to wire the two transducers on the plate to the single working output, so it ended up sounding pretty good, although it was in mono. Another day, the monitor section on the board started to get noisy. While we waited for a new op amp, we borrowed a cue bus that we weren’t using much and ran that to the monitor amps. The multitrack Dolby rack started to give out, one channel at a time; we patched around the dead channels and recorded without noise reduction if we had to. The 24-track mysteriously stopped erasing when we were overdubbing on certain tracks; we went to other tracks and finally traced the problem to faulty relays on the channel boards. We pulled the boards out and put the good ones in the channels that we needed to overdub on. In other words, as things deteriorated around us, though we weren’t very happy about it, we were quite capable of carrying on, and the clients barely noticed.

Imagine that happening today. Your digital reverb freaks out and garbage starts spewing from the left speaker. What are the chances you’ll be able to still get signal through the right channel? How about a multichannel A-to-D converter? If one channel fails, will you be able to patch around it and use the others? If an effects bus on your all-in-one digital mixer goes haywire, do you think the other five buses will continue to work just fine? And what happens when a channel goes down on a modular digital multitrack? Can you still record and play on the others?

The answer to all of these questions is a resounding “No!” When today’s equipment craps out, it does so spectacularly and with great finality. There’s no such thing as a “workaround” any more. If you need to make sure that something is going to work all the time, you buy two of them. One studio I know advertises itself as “24-track,” despite the fact that it owns four of the previously mentioned MDMs. The owner knows that at any given time, it’s almost certain that one of his decks will be in the shop.

Why has this happened? It’s a sacrifice we’ve made in the interests of economy. Manufacturers are under constant pressure to come out with gear that packs more punch into the same amount of physical and financial space, and redundancy, field-repairability and user-oriented troubleshooting and diagnostic procedures just aren’t part of the equation.

Audio manufacturers are becoming increasingly dependent on custom VLSIs, which, as time goes on, get continuously more sophisticated and include more functionality. That brings costs down but makes it impossible for a unit to fail partially or gracefully. Putting eight D-to-As on a single chip means that the manufacturer only has to
What is Music Technology Direct?

In 1990, Sweetwater Sound created a new way to serve musicians and studios: We combined the convenience of gracious, direct mail service with an exclusive focus on music technology.

Like L.L. Bean®, Dell®, and other specialty direct marketing leaders, Sweetwater is fortunate to have grown by leaps and bounds, while offering greater and greater value. Our exclusive "Music Technology Direct" approach has helped over 100,000 artists and engineers make their musical dreams come true!

HOW DOES SWEETWATER DELIVER THE BEST VALUE — GUARANTEED?

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3 SERVICE: You get expert technical support, free of charge!

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CALL NOW FOR YOUR FREE EQUIPMENT DIRECTORY: Filled with useful information on all the coolest new gear!
Sometime in the late '80s, Teddy Riley decided it was time to leave New York. He had been engineering professionally since the age of 14, working his first session behind the SSL E Series at Soundworks, then moving over to Axis, Soundtracks and Hit Factory. The success of his band, Guy, and the popularity of New Jack Swing, brought with it the trappings of fame, including all the distractions that are part of daily life in the world's media capital. So he decided to pack up and move to Virginia Beach.

In 1991, Riley opened Future Recording Studios in this resort town, under the umbrella of his parent company, Life of Riley (which also runs Lil' Man Records, Funky Mama Productions and New Jack Swing Productions). Last year, he installed an 80-input SSL 9000J, pictured on this month's cover.

Future Recording is not for hire; Life of Riley keeps the two pre-production suites (soon to be renovated into full mix stages) and mix room busy with in-house projects for the likes of Janet Jackson, Blackstreet, Soul Foo and Whitney Houston. In addition to his work at Future, Riley blockbooks at least a week a month at Hit Factory and has been consulting on the construction of a new facility in Los Angeles for Interscope Records, so that he'll have a home on the West Coast, as well. Business has been very good. He is all of 31 years old.

Future Recording was designed by studio bau:ton with an emphasis on "true, flat" sound, a phrase that pops up regularly in conversation with Riley. Main monitors are a custom Augspurger design (he has another pair at Hit Factory, made specifically for sessions with Michael Jackson) with double 15-inch horns. When traveling, he carries ProAx Studio 100s (“You get the true low end and the true highs and mids—everything at the same time”), and he regularly checks mixes out on Radio Shack Optimus 7s, which he says are his “favorites”—his dirty little secret.

He records directly into 32 tracks of 24-bit Pro Tools (Glyph Technologies 9-gigabyte hard drive), which is wired directly into the 9000, as are his keyboards. “All of this comes up on the board without patching,” Riley says. “I like to walk into my room, push a few buttons and have my keyboards come up.” Riley also works regularly on a Digital Design AudioLogic system, which the company updated specifically for him when he outgrew the previous version in mid-1997. He endorses Digital Design, as well as Emagic.

He also has two Studer A827 24-tracks, 48 channels of Dolby SR and a slew of Tascam DA-88s.

He has a wealth of Pro Tools plug-ins, including a favorite called Autotune (“tight, smooth vocals”), and is enamored of all that can be done within the Pro Tools environment. But hardware units hold a special place in his heart and his checkbook, and he’s a self-described outboard nut. He has, he says, one of the largest collections of outboard processing in the music industry, and he buys four to five of each unit—not to guard against down time, “but just so we have extra dynamics if we really want to get an impact on any sound we want.” He mentions units from Yamaha, Avalon, Neve EQs, Drawmer and dbx, but he holds his outboard cards close to his vest: “That’s just my secret to having a sound on drums, percussion and things like that.”

If Riley had his way, he would be mixing three to four projects at once, so plans call for the other two mix suites to be up and running by midsummer. Right now, it’s all that he can do to keep up with the demands on his time and talents—as songwriter, arranger, producer, engineer and musician. He recently finished a Janet Jackson remix and some dates with MJ and Whitney, and he just put the finishing touches on two songs for the movie Bullworth, starring Warren Beatty.

To keep operations running smoothly at Life of Riley, he is assisted by his brother Markell Riley, CEO VP of LOR Entertainment, Madeline Nelson, general manager and vice president; and Tom Talaferro, chief executive of Future Recording Studios. Staff engineers are Jean Marie Horvat and George “Junior” Mayers.
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As the principal songwriter and creative guiding light for The Band, Canadian-born Robbie Robertson spent years reshaping American roots music into something altogether new—music that hearkened back to simpler times, yet was also unmistakably contemporary. Many of the songs he wrote for The Band surely rank with the best of the rock ’n’ roll era.

For the past few years, however, Robertson has been musically exploring a side of himself that he had ignored most of his life: his own Indian heritage. His mother was a Mohawk horn and raised on the Six Nations Reservation in Ontario, Canada, and growing up, Robbie spent most of his summers there. Rock ’n’ roll, R&B and life on the road playing music took him away from his Native roots during his teenage years, and then it wasn’t until 1993, when he wrote and recorded music for the six-hour TBS mini-series The Native Americans, that he began to integrate elements of Native American music and culture into his music.

Now he has released an album on Capitol Records called Contact From the Underworld of Red Boy, which moves far beyond his work on The Native Americans and paints some fascinating pictures of the Native American community through songs, chants and stories. Robertson the skilled song craftsman is still much in evidence here, but his palette has broadened on this record. There’s a peyote song sung by members of the controversial Native American Church and a moving narrative by the jailed Indian leader Leonard Peltier. There’s a song about the Native view of UFOs and a retelling of an ageless story from the Mohawk oral tradition. There are textures and beats that are from that world juxtaposed with music manipulated by the likes of the London DJ/techno wizard Howie B, Marius de Vries and others. The disc was recorded in L.A., New Mexico, London and the Six Nations Reservation, using numerous Native American and other musicians. All in all, it’s quite a melting pot.

I caught up with Robertson at the Village Recorder in L.A., where he has his own studio space, the night after he’d received a Lifetime Achievement Award from the National Academy of Songwriters.

So what did you say in your acceptance speech?
I was a little under the weather, but I told them a bunch of songwriting stories.

Can you share one?
Sure. I told them about when I was 15 years old and I first met Ronnie Hawkins & The Hawks. I heard Ronnie saying that he was looking for some new songs for his next record, so I went off and I wrote two new songs, and then I was trying to get him to listen to them, and finally he did, and he declared on the spot that he was going to record both of them when he went to New York in a couple of weeks!

Of course, I was ecstatic about this. Then the next time I saw him he brought me the completed album, and I’m thinking, “Wow! I’ve got songs on an album!” I’m really cherishing the moment. I open the record slowly and I’m savoring the scent of the vinyl and I look on the label and I see the song titles and I see my songs there, and under the songs it says, “Robbie Robertson and Morris Levy.” And so I say to Ronnie, “Who the hell is Morris Levy and what is his name doing on these songs that I wrote?” And Ronnie says in his southern accent, “Well, son, there are certain things in this business we just don’t question and it’s better for all concerned to just accept.”

A couple of days later, I was in a record store and out of curiosity I looked at some other recordings on Roulette Records, and I see Morris Levy’s name on a lot of songs. And I think, “Man, this guy’s a songwriting fool!” [Laughs]

Then, a few months later, Ronnie took me to New York because he was looking to get a head start on his next record, and he figured that since I could write songs he liked, maybe I could also help find material for him to record, as well. So we went to the Brill Building [the famous New York songwriters’ den], and I met Doc Pomus and Mort Schuman, who went on to become friends of mine for years; Lieber & Stoller, who I’ve also now
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known forever; Otis Blackwell, who wrote “Don’t Be Cruel”; Henry Glover, who wrote “Drown in My Own Tears.” I’d go into these different little rooms where they were working and they’d play me these songs, and I’m saying, “That’s great! Have you got any more?” “More! who is this kid?” [Laughs]

Then Ronnie took me up to Roulette Records to meet my “songwriting partner,” Morris Levy. We go into his office and Ronnie introduces me as this young guitar player and songwriter who he thinks has great “potential,” as he calls it. And Morris Levy looks at me and says, “Yeah, he’s a cute kid. I bet you don’t know whether to hire him or fire him.” And I’m thinking, “Whaaaat? What is with this guy?” And I look around his office and he’s got these guys in there with these tight dark suits on; they’re packing heat or something. Two things became apparent to me immediately. One was that the Cosa Nostra was not a myth. And number two, that I would forego my comments about the songwriting credit dispute. [Laughs]

Let’s talk a bit about the new album.

How did your previous album, Music for The Native Americans, lead to this one? It seems like a continuation in a certain sense...

When I started making the record, people in the Native community were saying to me, “Use your strengths. Don’t try to be traditional; you’re not traditional. Your strength is in speaking a language of today.”

Well, that album definitely opened the door for me on this, and when I got inside I felt very comfortable. Of course I did Music for The Native Americans in conjunction with the six-hour documentary, so what I did had to fit with that. I didn’t have a blank canvas, as they say. There were boundaries and stipulations.

After I did that record, I thought, “Okay, what different thing am I going to do now?” and I was starting to work on some music and ideas in other directions. Some people from the Native American community that I really respect asked me what I was going to do next, and I told them these ideas I had, and they said, “Oh, you’ve opened the door and now you’re going to walk away?” And I said, “Uh, no I’m not.” [Laughs] That’s all the invitation I needed.

At the end of The Native Americans project I definitely felt fulfilled, but on another level I knew I had only scratched the surface. So when I got to thinking more seriously about what I wanted to do next, I decided to really explore those Native American roots the way I wanted to do next, I decided to really explore these roots. I thought, “I’m going to do this now with what’s in my imagination; lay out my interpretation of this is in this day and age.”

I’m interested in your use of the word “interpretation” there. Obviously, these
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songs aren't strictly biographical, but you surely have a soul connection with the material. Does it feel personally revealing?

It's personally revealing in that this is stuff I've been carrying around with me my whole life. These are song ideas, stories, sounds, chants, rhythms that I've been trying to figure out how to get them from inside me outside me. So that's why it's really personal to me. Like "The Code of Handsome Lake"—this is a story I grew up with all my life. The first song on the album "The Sound Is Fading" has a tape of this young girl singing. I've been carrying this around with me for years. It touches something inside me. And sometimes those kind of emotions can be even more personal than saying "Well, here's a story about the time when I..." Because they're really from inside, and not just experiences.

Isn't it fair to say that even in your days with The Band you tended to not write autobiographically, but were more interested in presenting snapshots of the soul through storytelling?

That's true, and because of the ensemble nature of The Band, I was trying to write songs that represented our sound and not just, "Here's another little song about me." [Laughs]

How did you hook up with Howie B? He's everywhere these days—on U2's last album, on his own record...

I've known about Howie for several years. A couple of years ago, Björk and I were talking about him, and there's also this whole connection to some music people over there in England through some friends of mine—the Massive Attack people, who I've known for a while. So he's part of a musical world I've been connected to. But also, there were certain things he'd done over the years that I really liked. I heard a mix he did for Everything But the Girl, and there was a thing he did on the Passengers' record and various things of his own where he went under another name on some compilations. Then I got to know what his abilities are in the studio, and I thought he was somebody I could bring my stuff to and he might know how to help me sort something out. He's really good at that—"Oh, I see where you're trying to go with this."

What's an example of the sort of things be brought to the project? Well, on "Makin' a Noise," I had this song which was mostly a beat and some guitar and a vocal, and then I brought in Howie and we started just messing around with that and things started to take shape. He's a real good engineer and he has these two other guys he works with—Johnny Rockstar and Jeremy Shaw; they're like a little music team. The rhythms fell into place, and I just kept feeding him sounds and playing him rhythms and ideas and he would take guitar stuff of mine and manipulate it. It was almost like making a painting. Is this something that would take place over days, weeks?

It was very quick with him. It used to be that you would write a whole album and then you would go in and record it. But nowadays a lot of the writing is the recording, so it's a different process. It's funny, all of this equipment that's supposed to make things go quicker gives you a lot more options, and it ends up taking a lot longer sometimes. [Laughs]

How savvy are you when it comes to sequencing and computer-generated music?

I don't write on a computer or anything, but it's not foreign territory for me at all. This record is really using the tools of today. When I first started making the record, what people in the Native community were saying to me was "Use your strengths. Don't try to be tradition-
al; you’re not traditional. Your strength is in speaking a language of today, so use that.” And that was wonderful for me to hear: to not be afraid of that.

Who is Marius de Vries, who co-produced a number of tracks on the record?

He’s a great programmer and a great musical talent. He was somebody I talked to in the early stages of the record who I felt might be good at helping me bring some of my imagination to life. So I would give him ideas, sounds, rhythms, chants, and told him how I imagined using them, and then he helped me put them together.

When you’re making music like this that’s highly layered and has all these textural elements, how do you know when a song is done?

That’s an interesting question. A couple of years ago I was meeting with this old friend of mine, this painter named Bryce Marden, who’s a famous New York artist, and I was looking at some of his paintings and saying that same thing: “How do you know when it’s finished?” And the truth is there’s no real answer for that. “It’s done when you stop painting.” I guess the same is true here. You just know when you know it’s done. You stop and move on to something else.

It seems that you must have been quite affected by your first solo album experience with Daniel Lanois. That textural painting that he does has been an undercurrent of your solo work since then.

It’s just part of my taste, really. Daniel and I are both from the same part of the world. He’s a French Canadian, but he grew up in Hamilton, Ontario, which is just over the hill from the Six Nations Indian reservation, which is where I’m from.

But I’d have to say that as much as anything I was influenced by the years of working with [film director] Martin Scorsese [who directed the concert film The Last Waltz, featuring The Band, and King of Comedy. For which Robertson served as music supervisor]. You get to a point where you’re almost scoring the songs as opposed to finding little cute riffs. I just started finding other ways of approaching songwriting and production. And when you see a film and you say, “God, this film is haunting” or “That was so emotional...” I try to get those things out of my records.

Do you think in visual terms for your songs?

Somewhat. I do think cinematically, but for me a big part of it is to work on these without my eyes, and to feel my way along and to use my other senses. That way it becomes a little more purely emotional, and it kind of saves me from getting too heady, too clever.

How did the songs on the new album fall together as a group?

As I worked on them they kept drastically changing faces. A lot of times I’d have something in mind, but making this record the way I did this time, a lot of the excitement was in the discovery of new things. I’d go in and have some focus point, but as I discovered more, it would change drastically.

What’s an example?

There’s the song on there called “Sacrifice,” which has Leonard Peltier on it. [Peltier is an Indian activist who has been in prison—some believe unjustly—since 1976 for killing two federal agents.] Originally it was a soundscape I was working on with various people in the desert in New Mexico, and I was going in a certain direction and imagining something. And as I started putting things together I was having these conversations with Leonard Peltier, who called me from Leavenworth Penitentiary. I’d talk to him every couple of weeks. He’s a friend of mine and somebody I really care about and have great respect for. And it struck me as I was working on this piece of music what he was saying on the phone was connected to the music. And so I said, “Leonard, I have this idea. I want to go back and have you tell me your story, and I’ll tape it.” So we did that and that became that song. And after him telling me that, I wrote the refrain for it.

Did you feel as though you had to make any concessions to commerciality on this record?

When I was making it, I was trying to keep in the back of my mind that the object was for people to share it, and so I was trying not to do anything that was too “outside.” I had other tracks that were perhaps more foreign to most people’s ears than what’s on there. I was trying to make something that spoke a universal language. I don’t know if that’s “commerciality.” I was just trying to say what’s on my mind.

You worked in a number of studios in various instrumental configurations. Did the music come in on different recording formats?

Well, Howie is a 15 ips SR guy. He swears by that. We did some of the work here in Los Angeles, and I went to London and we did some of the stuff at Mili Studios, which is a place he really likes. And then there’s another studio there called Whitfield, where he loves to mix. Then I did some more at the Townhouse Studio in London with Marius. Then I did some other work with this guy Tim Gordine, who has a little studio in a bedroom in his apartment. On “In the Blood” and “Unbound...” I just brought all the samples and the music with me, and we made those two songs in that little bedroom. There were also times when I was sending sounds back and forth through the mail. I’d be in New Mexico working and I’d send something over to Howie or Marius or Tim. I’d say, “I have this idea. Listen to this rhythm...”

What is your setup at the Village? I know you’ve been working there for a number of years.
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I have a studio within the studio. The room I’m in is the original studio that was here. The music that was made here before I got here is amazing. This is where Sly & the Family Stone did a lot of There’s a Riot Goin’ On, all sorts of great stuff. It’s a very musical little room. I just found that it’s smart to have a studio within a studio because if anything breaks, they can come and fix it. Or if I need something, I just call downstairs.

I have an old 16-track Neve board—it’s that old—and a Sony digital 24-track, and a whole bunch of guitars and gizmos. A thing I used a lot on the guitar on this album is these pedals made by this company in London called Lovetone. They’re fantastic! They have names like Meatball and Big Cheese and Brown Source, and I used them on almost all the guitar on this record. They make great noises.

That’s interesting, because I think for many years you were known for the pristine quality of your tone. Hmm. Yeah. That could be. [laughs]

Do you ever miss playing kick-out-the-jams rock ’n’ roll?

I think in terms of jam sessions. I don’t think in terms of jam sessions. On this record, I got to do some really fun things with the guitar. On the song “Rattlebone,” the guitar was just bowling through the building here. I had the Lovetone pedal on full effect.

Last year the big Band box set came out. How does that sound to you now in terms of the recordings?

I don’t know, to be quite honest. I haven’t really studied it. I haven’t actually heard it. I have a little trouble these days going back. While they were making it, they were sending me some stuff, but I was kind of distracted with what I was doing at that time. I did all that so long ago, and they’d have to catch me at a different time for me to get really involved in something like that.

Have you heard that someone is trying to set up a studio in Big Pink (the famous house in Woodstock, New York, where The Band recorded, alone and with Bob Dylan, in the late ’60s)?

Yeah, somebody told me that. That’s fine. I don’t know...

That was the beginning of this whole clubhouse recording concept of mine. It was my idea to put this thing in the basement, and it was my idea to create an atmosphere outside of the recording studio atmosphere, where you could really do stuff that you would never dream of doing when you went into a studio. We were thinking nobody was going to hear it anyway, so we had a freedom that you don’t have when you’re in a big recording studio. It was all very carefree. Of course this is common now, but it wasn’t then. Then it was like a big lesson. The Band was on the frontier of saying, “You know what, instead of me coming into your environment to make my music, you’re going to have to come to my environment, because that’s where my character shines through.” And we did that on a lot of records, from the Basement Tapes to the work we did out at Shangri-La where we had our own environment.

Years later I preached that to the guys in U2, and I preached that to the Counting Crows when they made their first record. And I think it’s a real valid point.

Have you read Greil Marcus’ book about the Basement Tapes, Invisible Republic?

Not yet. He sent it to me, but I haven’t had a chance to read it. It’s heavy sledding; pretty deep.

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[Laughs] I've been in Indian Country for the last few months and reading literature from that world. But I'm about to come up for air pretty soon.

Who do you feel taught you the most about record-making? The Band's second album [popularly called the Brown Album] is such a great-sounding record still...

Yeah, that's the epitome of what I'm talking about [the clubhouse studio, etc.]. We did it on Stage Fright, as well. But on the Brown Album, that's the only time I ever really did it hands-on myself. I engineered that record.

But who did you learn that from?

There's nothing to learn.

Don't tell that to Mix readers!

[Laughs] I mean, boards look really complicated, but really they're just a whole bunch of the same thing, you know? The only thing I wasn't really interested in is big patchbays. I always wanted somebody else to get down on their knees and figure out what hole to plug those things in.

Was the Brown Album 16-track?

Yes. Uh, let me take that back. It was 8-track.

So you were actually running the sessions?

Pretty much. I also set up the studio. I said, "This goes here, that goes there, put this up in front of that. No baffles. These are the kind of microphones which I think suit our music best." We used a combination of different mics; some Neumann tube microphones, but mostly cheesy little Sennheiser 421s and Electro-Voice RE15s. Sometimes you need to use microphones where the leakage sounds good.

So were you turning on the tape machine and then running in with your guitar and playing with the group?

Yeah, except I didn't have to run anywhere. The board and my setup were side-by-side right there. I'd get a sound and levels on everything, hit record and start playing. It was all very homemade.

A lot of what's on the new record I did myself. I don't bother to mention it anymore, but I do a lot of the engineering on my records.

As a budding record maker growing up, how inspired were you by the records you heard as a kid, whether it could have been if we were really going after trying to get at those kind of sounds.

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with Allen Toussaint for The Band's Cahoots and Rock of Ages?

Well, he was from that world of Cosimo's studio in New Orleans, which was another one of those places that had a sound. Those Lee Dorsey records he made there are killer. And Allen had very specific taste in the sound and the music and the way he would treat the instruments. He liked to hear the piano and the drums a certain way. When we worked with him that became evident fairly quickly because we did this recording together in New York City and people were trying to set things up a certain way, and he'd say, "No, no, no. I want it set up this way." And we're saying, "But we get this great sound doing it this way!" And he'd say, "I'm only going to say this one more time. I want it set up this way. I want them to sit over here. Him to sit there..." [Laughs]

But in the nicest possible way. I'm sure. He's such a gentleman.

[Laughs] Of course! He is such an elegant gentleman. But he is quite specific in what he does, and he didn't want to get pushed around by that New York attitude.

Are you the kind of artist who constantly hears things you wish you had done differently on your past records: "If only I'd spent more time on that solo. If only I hadn't used that reverb"?

No. When I let go of the project I really let go of it. And when you let go of it, it's no longer yours. It's everybody's.

I'm always most interested in what I'm working on right now. Like I've been working on some club remixes with Howie B on a few songs from the new album—"Making the Noise," "The Lights" and another song we didn't use on this record called "Weeding." That one's coming out on Pussyfoot Records, which is Howie's label in London. It's an underground label. He did these monster remixes. If you've ever seen him spin at a club, he tears the place down. He is really, really good at this.

I like the club thing. I like this world you go into and it's all about music, sweat, smoke and beats and the way it just pounds up your spine. I think it's a tribal experience that is very powerful. I thought there has to be a meeting place between the underground that Howie is from and the underground the Indians are from. And that's why I did what I did; that's part of what this new record is about.

Blair Jackson is executive editor of Mix.
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If you recall the classic popular vocal recordings that have endured over the decades, the primary element that has helped get the magic across was not a cleverly gated, million-dollar drum sound, but rather a vocal performance that communicated something essential and touched countless listeners. A top-notch vocal performance often contains qualities that transcend mere technique, and the best engineers and producers are those who are able to capture those sometimes fleeting moments when vocal genius is realized.

To talk about recording vocals, Mix enlisted four engineer/producers whose credits run the gamut from Gloria Estefan, Iggy Pop and the Rolling Stones to Metallica, Willie Nelson and John Michael Montgomery. We also invited a highly regarded vocal coach and producer to offer extra input.

While this applications piece addresses microphone, mic preamp and outboard gear technique, each of these contributors underscored the importance of providing the right emotional support to the singer or singers. After all, great mic technique can't salvage a bad recording climate, while some of the most powerfully immediate vocal performances have been caught in the most primitive of recording situations, where everyone felt in sync with the truth of the moment.

BY RICK CLARK
ED CHERNEY

Ed Cherney is one of the recording world's most highly regarded figures. Cherney's engineering, mixing and/or producing credits include Jann Arden, Bonnie Raitt, the Rolling Stones, Little Feat, Iggy Pop and Ritchie Sambora, among many, many others.

To me, a vocal is the hardest thing to record. It's harder than a hundred-piece orchestra or a three-piece rock 'n' roll band. That's probably because it is a very literal instrument. Typically, on a recording, a voice sounds like what a voice sounds like, unless you are filtering it or doing other things to it to make it fit into the music. It is also the most dynamic instrument there is. It goes from being really soft to being really loud, and you need a microphone that can deal with that.

After about a dozen records, the Audio-Technica 4050 is the first mic I put up for most singers. I used it on Jann Arden and Ritchie Sambora, as well as a lot of the Rolling Stones record I just did. The Audio-Technica is smooth, very clear and open-sounding, and it has a lot of headroom. It is also a very consistent-sounding mic.

That said, mic selection changes for every vocalist and situation, and sometimes I may get stuck with a microphone, not necessarily because of the way it sounds, but as a result of the way the music is tracked. I might have an artist who may like to be out in the room singing live vocals with the musicians playing for whatever spark of energy they can get out there and the groove. In that kind of situation, I have to consider the mic's rear rejection capabilities and how tight the mic is when you put the singer into the room.

I also may not be familiar with the singer's voice, and I'll put up a microphone and get a really great take where 75 percent of that vocal performance may be a keeper. I'll then have to go back and match it up, punching in the lines that I need. As a result, I'm stuck using that microphone and that particular setup to get the vocal to match. Then later, in mixing, I'll try to get it sounding the way it probably should.

I rarely use mic pres that are on the newer consoles. I have a rack of old Neve 1073s I carry around with me. I really love the way the old mic pre's sound. They have plenty of headroom, and they are typically really rich and open at the same time.

To get singers to sing great is mostly psychological. A great performance will always transcend a less than great sound on a vocal. I think that everything that you do has to be designed around making the singer feel comfortable, and for me that means getting it quick. The first time that singer is sitting in front of a microphone, I hit "record" and get everything they do. Part of it, too, is letting them sing and staying off of the talkback. I let them sing the song five, six or seven times. That may entail building a slave reel, so you have plenty of tracks to comp and do your vocals.

It's all about creating that environment, making sure that the temperature is nice in the studio. If the lights are right, the headphone balance is perfect and the singer feels that you're working with them, then they sing better. I also always try to have the singer's principal instrument in their hand when they are singing.

Also as a producer, you have to understand that it may not be a great day for the singer, and you go on to something else. Of course, you try to plan out the session, like you are going to have vocals recorded on this day, but "vocal" day is like putting all of your eggs in one basket. It is the added pressure of, "Well, I have to do it now. It's now or never." I never want to create that situation. You should have the option of singing a song anytime you want. If you feel it now, well the mic is open so go get it. I even do that when we're mixing a song. If I feel there is something that can be phrased better or a line or verse or something that can be phrased better and you are looking for that thing, I just want to be sure that everyone is free enough to go do it, when the moment happens. I want to make sure that I have tape on the machine, and I have the tools ready to go in and get it. I want to be there to document these great moments, because you never know when they are going to come.

RENE GRANT-WILLIAMS

Since the mid-'70s, Nashville-based vocal coach and producer Rene Grant-Williams has helped numerous singers develop artistically through her teaching methodology. Her clients over the years have included Huey Lewis, Bob Weir (of the Grateful Dead), Linda Ronstadt,
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One of the things that is important to keep in mind is that the singer is a living organism, and the quality of the vocal will depend on how healthy and resilient and well-prepared that organism is. One of the things to take into consideration is scheduling. Sometimes the singer will wear out the voice singing rough vocals with the tracks two or three days in a row, and then the next day final vocals may be scheduled and there is nothing left. It's important to remember that, while the voice is a very resilient thing, it can get too thin and lose its elasticity.

It is important to give the singer time to re-warm up and re-establish their technique and be aware that it's like a runner running short sprints. It's very important that the runner limbers up and not just run hard and then get cold and then run hard again. You always have to take waiting around time into consideration.

I very highly favor a microphone position that is fairly low. There is a tendency for some engineers to hang a microphone high, but if you have to stretch your head up or hold your chin up, it puts tremendous strain on the voice. The best position is right at lips level or slightly below, so you can kind of contract into your body support with your head tilted slightly forward. Think about the classic Elvis position—the way he cocked his head over the microphone that kind of looked up from underneath. That allowed all of that sound to resonate up in his head, instead of putting a strain on his neck and shoulders. Support, which is the way the body powers the sound, is very important.

People tend to creep up on the mic as time goes by. That's why you need to put some kind of tape marker on the floor.

Give the singer a choice of headphones to listen through, so they can find what helps them the most. If the vocal is too high in a headphone mix, the vocal will tend to go flat. If the vocal is too low in the headphone mix, then the singer will often tend to push things and go sharp.

I have a problem when I hear people telling a singer to "relax." It's the one statement that I find makes a singer...
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It can be terribly intimidating to hear—nobody wants to think that they are not relaxed. (There was a studio in Canada that had a sign that stated: "Try to relax or we will find someone who can")

Often, singers have trouble figuring out what they did well during a vocal performance while they are out on the floor singing with their headphones on. I think it's important for a production team to be specific. I've been in sessions where the production team is making a singer do something over and over again and only offering statements like, "That's not getting it. Let's do it again." If the singer doesn't specifically know what aspect of the performance needs addressing, it can be very frustrating. Again, encouragement has more to do with getting a good performance than anything.

Eric Paul has made a career out of recording country giants like Willie Nelson, Waylon Jennings, Johnny Cash and many others, including numerous modern country radio artists. Though Paul loves working with great vintage gear, he is quick to point out gear that offers quality while being affordable for most studios.

We are taught to be purists in one sense when recording voices, but the right compression while recording is great. Compressors work better off of live signals than off of tape, because a reproduced signal is never as strong and pure, and it doesn't have the same kind of transients as when it is coming off of a live microphone preamp. I'm very careful not to overcompress. I never use more than a couple of dB of compression when I'm recording a vocal.

If I'm in a studio where I don't have access to a good LA-2A, my favorite low-end compressor is the Composer by Behringer. The mass public has access to those, and they are in a lot of demo studios across the country. The reason that I like it is that it's transparent—it will hold back the vocals from getting out of control, but you can't "hear" it. (While I prefer the LA-2As, it depends upon the tubes. My favorite tubes are the old GE tubes, if you can find them. You take any piece of tube gear—compressors, microphones—and you put a good old GE tube in there, and it will sound so much better than anything else. I've done many comparisons.)

I have a Sony C-37A that is the sweetest vocal microphone on a female voice that you have ever heard. Daniel Lanois used my C-37A on Emmylou Harris for the Wrecking Ball album. (Again, the trick to the whole deal is old GE tubes.) For male voices, I generally like the U47, but my favorite overall microphone for voices is the Shure SM-57.

For mic pre's, the API 312 is my favorite, bar none. Peavey makes a dual tube microphone preamp that sounds great. The Peavey tube preamp and the Behringer Composer make an affordable combination for most people that is great. If they can't get a Shure SM-5, they can get Shure SM-7s, which are still available.

With analog tape, you have to be really careful not to hit the tape too hard with the vocal, because it can really do
terrible things to it. In the same manner, it's important not to get too low of a level. I usually like to have my vocal peaking out at zero on a VU meter. It depends on what tape you are using and how you have it set, but in this case referring to 499 set at +5 over 250; it's what most everyone uses now on 499 and the new BASF 900, which I personally like better because it's quieter and has more energy to it.

**CSABA PETOCZ**

Csaba Petocz is one of Nashville's hottest producer/engineers: he produced John Michael Montgomery's most recent, Platinum-selling project, which generated three Number One country hits. Petocz's credits are also wide-ranging, including artists like Stevie Nicks, Metallica and Concrete Blonde.

I don't think there is any such thing as the perfect vocal mic. It's just different mics for different people. You should just understand what each different mic sounds like and how it changes the sound of the human voice, and then obviously select the mic that enhances the sound of the voice.

You should go out on the floor and hear the person sing, hear what it is that they do and what part of their voice is really special. Obviously, if the person is worth recording, there is a uniqueness there, and you should really try to highlight that aspect of the vocal. Over the years, I have gotten to where I can hear a singer and know within one or two mics which should work.

If you've tried out three very expensive tube mics and you aren't happy with any of them, then the next step should immediately be something at the other end of the scale, like a [Shure] SM-7. I will almost always guarantee you that if the expensive mic doesn't work, an SM-7 will. You have to screw with EQ a little bit, but for some reason some people sound better on them.

I think that 80 percent of getting a good vocal is in giving the singer a good headphone mix. If you can make a singer enjoy singing and really hear what is going on with the small nuances in the voice by giving them a great headphone mix, you can get the artist to do 90 percent of your work. This is especially true if you can get them to be attuned to what it is that you would really like to hear. Most singers get challenged by it. Artists really get into the fact that you care enough to make it that two percent better.

More than anything that you record, the human voice is the thing that reacts most to small changes. You can really make a vocal sound significantly better by changing variables minutely. Having been in country music for about five years, I've learned that you can take a lot of liberties, but taking liberties with the vocal isn't one of them. Country is not the genre to do that in. It just doesn't work. The most hi-fi aspect of country has to be the vocals.

I went through so many years of doing "alternative" rock records that it is kind of nice to record something really well. I know it may be un-hip to say that, but I get off on the purity of it. Also, without any disrespect to any of the other musical forms, I think country and R&B have some of the most accomplished singers, and it is a lot more
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ERIC SCHILLING
Miami-based engineer/producer Eric Schilling has worked with Platinum-selling recording artist Gloria Estefan throughout her long career. He has also recorded Jon Secada, Cachao and others.

When you work with someone who is singing, it tends to be a one-on-one process. The whole key to me is to keep a rhythm so the singer never loses the flow. If you are working and they say, "Let's go back to the verse and do lines two and three," you want to be fast enough so that it happens in a seamless way. The moment you start going, "Oh no, I've got to figure out where I am, and I've got to fix some EQs," they start drifting. Recording voices is one of the most fun things for me to do, and I love it when that "flow" is going.

When you're working with someone who has a really "pure" voice, it can be harder for them when it comes to the issue of pitch, because there are fewer harmonics in their voice. You easily hear it when things fall from pitch. Just to cite a crude example, Karen Carpenter had to be really in tune, because she had a very pure voice, but you take a Bob Dylan, who has a kind of gruff voice, and he can move the pitch around a whole lot, because his voice has a very wide spread of overtones. It's funny how you can find an album of someone like Dylan, who has that kind of voice, and though you hear some
pitch problems, you don't really mind it. On the other hand, if the voice is really pure, it can be very grating if it isn't really in tune.

Concerning pitch correction tools, I think they have a use, but it is my preference that it gets used as the last thing that you do, and not the first thing that you do. I still like to see a person who is going to come in and work on the voice and not sing it through twice and say, "Well, you can fix it." I don't believe in that. I'll use it to fix some minor things on a vocal performance that may have a great overall vibe, where the singer feels that he or she can't top that level of performance again. Utilizing pitch correction at that point is probably fine. It is funny, but sometimes when you pull it too far in tune, it doesn't feel right and it takes away the character of the performance.

I don't believe that music is meant to be a perfect thing. When you sing, you don't always sing exactly on the beat, or exactly in pitch all the time, just like if you were playing a fretless bass or anything else where you have some room to move. You have to be careful when you tamper with the recorded performance.

Generally, I am a big fan of the John Hardy mic pre's, which I think are real neutral-sounding. I also like the Millennia and API. My first choice of compressor is a good LA-2A, if I can get my hands on one. Another compressor I really like a lot, which you don't find that much anymore, is a Compex. It is a British-made compressor that used to be called a Vocal Stressor. I always cut flat, mainly because if they are going to come back and change a part or we recorded a month earlier and they want to re-cut some lines, I find that it isn't as hard to match the sound if I cut it flat.

With many older mics, you have to be very careful about the room you're in, because if you're in too small of a booth, you'll actually start to hear the sound of that booth, especially in the lower frequencies. They essentially behave like omnis in the lower range. So if I have somebody who is working on a tube mic and they are in a small room, I'm going to have them about one hand width (or five inches) away from the mic. I generally use a pop screen instead of a windscrew to keep the spit off of the microphone, and it keeps people from getting too close. I can always tell when they can't hear enough in the 'phones, because they start to push the pop screen in closer to the mic.

Concerning singing with large groups, I guess I came from the school of putting up one microphone. When I came down to Florida, my old boss was doing The Eagles records. He would put up an omni, and they would stand around it and work until they got the balance.

I am not a huge fan of flying vocals in and that kind of stuff, but some people I've worked with will say, "Great, I'll sing it once and you can fly it all in." Nevertheless, if I can get them to sing the whole song through, that is my preference. I like doing it this way because the emotion changes. I just think there is a kind of stride that you hit as a background singer that is also playing into the song from an emotional point of view. If you listen to a background track that is sung the whole way next to a sampled track with the vocals flown in, the sampled track will sound static. As a result, the music will tend to feel more static, too. I see why people fly vocals in, but there is an emotional side to this that they are missing.

Contributing editor Rick Clark is a writer, songwriter and producer based in Nashville.

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twenty years after the first digital reverbberation units appeared, they are ubiquitous. Digital reverbs are found in every studio—from bedroom personal studios to the world’s best-appointed facilities—in musicians’ performing rigs, and in theaters and clubs the world over. Yet, despite the versatility of most digital reverbs, many are used in only a few basic ways, a reflection of the complexity of many digital reverb devices and the thickness of their user manuals. This article suggests that it is relatively easy to achieve a wider range of digital reverb effects than is generally supposed and offers tips on getting great sounds in a time-efficient manner.

It doesn’t take endless hours of experimentation to put features commonly found on digital reverbs to greater use, just a functional understanding of them and some imagination (often triggered, as with other things, by necessity).

The effect of time-based effects like reverb and delay is to smear things in time. Think of it as softening the focus of a lens, and it immediately becomes clear that this is of great use when trying to blend sounds together, but can be troublesome when definition is paramount.

The second important overall point about reverb is that it is used to achieve one of two goals: to enhance the source material in some fashion, or to transform it into something substantially, or entirely, different from the original sound.

**NATURAL BLENDS**

The most common type of enhancement application for reverb is to blend sounds together. Close-miked and overdubbed instruments, or an ensemble recorded in a particularly acoustically dead space, may sound distinctly separate from each other when mixed. Running the mix through an overall reverb adds the needed unifying element, making it sound like all the tracks or instruments were recorded at the same time in the same room, fusing the individual elements into a cohesive sound. The result feels much more natural.

Synthesizers and samplers benefit from reverb for the same reason. Reverb softens the strident sharpness of some electronic instruments. As with ensembles, a sound made of several layered sounds can be blended more smoothly with the addition of reverb.

More than a mere tonic, though, reverb can actually heal some afflicted sounds. For example, samples sometimes have ambiances that are abruptly chopped off. Running the sound through a reverb (after enveloping the sample’s end to take off the transient edge) can remove the harsh artificiality by restoring a natural tail to the decay.
In some cases, the chopped ambience may be so prominent that it can’t be glossed over with a reverb sheen. A more difficult alternative involves ambience matching and a “cut and paste” approach. Dial up a reverb with fairly fast attack and high diffusion and decay time to taste. Now comes the hard part: Match the timbre and predelay as closely as possible to the tone and duration of the chopped ambience. It doesn’t have to be an exact match to work. If the tonal and volume match are reasonable, there will be a setting of the predelay where the transition from chopped to “restored” ambience becomes pretty seamless. (Can you say “ear training”? I thought you could.)

An advantage to this second technique is that the chopped ambience will often be acoustically generated early reflections in the room in which the recording was done. The early part of the sound is the most critical to the perceptions the ear draws from reverb. It is also the most complex, meaning that it is the hardest to approximate digitally. In short, as the song says, “ain’t nothin’ like the real thing.” When push comes to shove, no digital reverb can compete with a decent room for good early reflection sound.

I make room for acoustical early reflections whenever they’re available. (Hey, if you got it, flaunt it.) This can mean a long predelay or attack time on a reverb I’m using in a live performance situation, or inserting a real, acoustical room in-line with the digital reverb send.

If you can’t use a real room, consider using a second reverb just for the early sound, to add complexity. The purpose here is not greater density, per se (though there are times when that is desirable, too), so the second reverb can sometimes be set to pretty low diffusion values.

Diffusion—the speed and character of early reflections building into reverb—is key to smearing: the higher the diffusion, the more smeared the sound. Percussion wants high diffusion because it is often impulsive and needs a smooth-as-silk smear rather than the confusing pattern of clicks that low diffusion would produce. This is one instance where greater definition is achieved through more smearing, rather than less. On the other hand, vocals, wind instruments and bowed strings often enjoy greater openness and clarity with lower diffusion settings.

Maintaining clarity is also an issue when using very long or somehow unusual reverbs. Aside from the obvious and ever-present wet/dry balance, there are a number of techniques to try. Sometimes simply lengthening the predelay can separate the reverb from the source enough to keep it from drowning in its own reverb.

DUCK!

Ducking is a great method of getting long reverb or effect tails out of the way, especially on vocals or solos. Most any reasonable compressor can be made to do ducking if there’s access to the sidechain. Just patch the source into the sidechain, the effects into the compressor, adjust threshold and compression ratio (to adjust ducking depth), and away you go!

Some effects processors have envelope followers for the audio inputs. This could save you having to use up compressors for ducking. Configure the envelope follower to negatively affect the effects output level and you have your basic ducker. If the processor has onboard envelope generators that can be triggered by input level, these will generally produce even better results for ducking, as the attack and release rates of the ducking effect can be lengthened to mitigate pumping. Be forewarned: Settings usually require some tweaking before you can get any subtlety in the ducking action, but it’s very useful once it’s set up.

One other very simple gambit is to roll off high frequencies on the reverb. This can be accomplished with console or outboard EQ, of course, but there is usually a reverb parameter called something like Reverb Bandwidth or HF Roll-Off that can do the job. Setting bandwidth somewhere between 2 and 6 kHz will leave more room in the high frequencies for the source.

Used on shorter reverbs, HF roll-off can result in the source sounding less distinctly “reverbed,” but generally fuller. For best effect, undermix the reverb. This is a spot where subtlety can pay off.

Pitch shifting reverb down by up to a whole step can also add fullness to a sound, especially snare drums. A fullness technique that works well for vocals is to prominently mix in discrete pre-echoes (use either the ones avail-
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able in the reverb program or a separate delay) that occur after the onset of reverb. The pre-echo delay times could range anywhere from 50 milliseconds down to a few hundred microseconds, depending on the context, while the reverb predelay should generally be set shorter than the longest pre-echo.

**ABUSE REASONABLE CONCEPTS**

But the beauty of digital reverberation is that it need not be thought of only in such utilitarian terms. A respectable digital reverb is a synthesis engine fully capable of turning a single sound into a glittering sonic mandala. And often all that is necessary is to abuse the reverb designer's concept of what are reasonable settings.

Earlier, optimal settings of diffusion were discussed for several sources. That's not what we're after now. Try setting the diffusion very high, like 95 out of 100. You'll get a metallic ringing in the reverb, particularly in plate programs. Futz with the crossover and decay times, and the tones in the ringing change. Now set the decay time REAL long, like 30 seconds. Whatever something sounded like on the way in, it will scarcely be recognizable now. Especially if your wet/dry mix is 100% wet.

In fact, extremely long decay times are useful for a variety of transformations. If the diffusion is set extremely low and the sound has a smooth attack, like a flute, the result is rippling sheets of sound. A fine shimmer can be obtained by setting a very short LF decay time, a long HF decay time, and a fairly high (>1 kHz) crossover. Long tone sounds or sounds with long attacks work quite well with long decay times.

A lot of current pop albums use very short reverbs, and sometimes none at all. But contrast, especially between ambiances, is one of today's most favored pop production techniques. Throwing a long delay on a sound for a very short time (something between one note and four bars) can have the reverse of reverb's usual smearing effect and can, instead, cast the sound with greater definition because of the contrast between its reverb and the rest of the reverbs. When only a few effects processors are available for a mix, MIDI is an effective tool for switching a single processor between long and short decays. Similarly, MIDI can be used to turn effects return channels on and off as needed.

Flanging reverb is an old trick that still works well in the same ways it always did. But there are wrinkles newer processors let you add. One interesting variation is to set up a multiband delay program such that there are several delay voices with overlapping frequencies. Set the delays to flanging length (up to 8 or 10 milliseconds), place them spaced through the stereo sound stage, and add some chorousing or LFO sweep. What you'll get is a flange that seems to float around the room. Modulating the panning of one or more of the delays creates more intense variations. This flange produces a very different sound in mono, so check it if you are concerned with compatibility.

**BREVER SDRAWKCAB**

Another "moldy oldie but woody goodie" effect is backwards reverb, especially leading up to a sound; "preverb," as it were. In the "old days," this was...
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achieved by flipping over the multitrack tape, playing the tape and recording the reverb, then flipping it back. Today, there are better ways.

For a start, update the old-fashioned method with new technology: Put the source you want to reverb into a hard disk system. Make a copy of the source file, open the copy and reverse the contents. Then import the reversed file into a multitrack editor, route it to an effects processor and record the return. Now open the reverb file and reverse it and, finally, import the reverse reverb and the original source file into the multitrack editor and position them as desired. It sounds much more laborious on paper than it really is.

Another DAW variation is to route the original source through an inverse reverb preset, record the return, then slip the return forward in time as desired.

MORE NEAT TRICKS
Even once you've achieved your basic enhancement or transformation, getting the most out of reverb may still require some help from EQ and/or compression. Most reverbs have some form of EQ built in, whether it is in the form of a reverb bandwidth control, an HF roll-off parameter, or the decay and crossover settings. These can be very powerful tools in achieving exactly what you want. Use them to accentuate or play down certain spectral regions. Sometimes it is more effective to use console or outboard EQ, especially for the greater flexibility sweepable or parametric EQ offers. And don't think you can only EQ reverb returns; EQ'ing reverb sends can sometimes be useful for avoiding "hot spot" problems (undesirable emphasis at certain frequencies) before they happen, or simply to produce an effect. Try putting a "telephone" EQ on a snare drum reverb send sometime.

Compression is also handy at either end of the chain. On the reverb send, it can make it easier to set an optimal input level by smoothing out peaks. On a reverb return it can bring the reverb decay out more, useful in low dynamic range applications like games and much other multimedia.

Finally, consider when to use overall reverb as the "sauce," and when to use reverb only on individual instruments or sounds. Overall reverb is most effective when the goal is to blend or place several sounds into the same space. Individual reverb is helpful when enhancing a sound or for a modern, "layered" production sound (e.g. snare, kick, vocal and guitars each have a very different reverb sound).

Digital reverberation is an incredibly powerful tool and can have major impact at any level of application. From the most natural, straightforward applications to the sick and twisted things I've done to otherwise perfectly good tracks, it takes little more than a sound in the mind's ear and a willingness to fiddle around with a small handful of parameters in a preset to get truly interesting results. For those willing to dig in with both hands and tweak up a storm, there is no need for sameness to ever be found in your mixes.

Larry the O uses snippets of runaway digital reverb feedback in some of the game sound design he does at Lucas Arts Entertainment.

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CIRCLE #045 ON PRODUCT INFO CARD
It's been a rough couple of years for fans of Apple's Macintosh computer. The roots of the Mac's problems go back a decade or more: a stubborn refusal to shed the self-defined maverick outsider image (which won Apple no friends in the critical business sector) and an unwillingness to compete on price/performance ratio until the opposition had already swept the field. Despite years of wrongheaded leadership and lax management, however, Apple was actually doing pretty well until 1995, when Microsoft finally figured out how to make a reasonably usable operating system.

By offering a credible alternative, Microsoft undermined the Mac's very reason for being. We don't need ads with pictures of Ghandi or Einstein to convince us that the Mac is different; the question is whether it is still better. Taken as a whole, the general computer market seems to have formed a pretty strong opinion on that issue; the market share of all Mac OS systems (including clones) has fallen steadily since Windows 95 was introduced. Apple users still have good reason to believe that the Mac is ultimately the more productive platform, but apparently it's tough to keep the faith when you're swimming against the tide.

With Apple's quixotic hopes of conquering the consumer market dashed forever, the company's last, best chance for the Mac is to concentrate on market sectors where the Mac has traditionally been a leader. Desktop publishing, education and multimedia are the areas most frequently mentioned in the press, but desktop audio production has long been dominated by the Mac, as well. The success of Apple's strategy in this market depends on the continuing faith of tools providers in the long-term viability of the platform. To gauge that faith, and to see how the leaders in desktop audio are responding to Apple's troubles, Mix spoke with representatives of four companies whose products span the range of Mac-based audio production: Digidesign, Opcode Systems, Sonic Solutions and Waves.

Give a brief overview of your company's involvement with the Mac as a platform for audio related products, both historically and currently. What are your main Mac-
based audio products? How important is the Mac market to your overall audio software business?

Alon Zacai, general manager, Waves: Waves initially entered the audio market with DSP solutions targeted toward the Mac platform. At the time, most of the professional audio market Waves was targeting was based on the Mac platform. Although it is not the only platform available, a great percentage of the high-end and professional studios still work with Mac-based solutions. Waves views the Mac market as a very important one for its products.

The complete line of Waves plug-ins, effects and applications is available for Mac, running in both Digidesign TDM and “native” settings. Waves’ Mac-based products include the Q10 10-band paragraphic EQ, the Cl compressor, the L1 Ultramaximizer, the S1 Stereo Imager, TrueVerb, the Renaissance compressor, AudioTrack, WaveConvert Pro and EZVerb.

Bob Doris, president and CEO, Sonic Solutions: Since the introduction of the Sonic System in 1989, Sonic has delivered all of its audio work-
APPLE TALK

station products on the Macintosh. Today, we deliver all members of the SonicStudio workstation line on the Macintosh. We continued this tradition when in 1996 we introduced DVD Creator, which is today the leading system for premastering DVD-Video discs.

Our users buy a complete system, which they use for a dedicated function: audio processing or DVD production. For the most part, the "state of the Macintosh market" is irrelevant to these users, who buy an application-specific solution. To them, the Macintosh is simply the engine used to deliver our application.

Sonic's main Mac-based audio line is SonicStudio, a family of PCI-based digital audio workstations customized for specific applications: CD mastering, audio-for-video post-production, radio broadcast, sound for picture and audio for DVD. SonicStudio systems deliver up to 96 channels of I/O and 144 channels...

Bob Doris, president and CEO of Sonic Solutions, and a screen capture of SonicStudio 5.3

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Paul de Benedictis, VP of marketing communications, Opcode Systems: Opcode created the first commercially available MIDI sequencer in 1985, and then in 1990 we invented the integrated audio and MIDI sequencer with Studio Vision. At the high end, we still sell a lot of Mac products, but the PC is definitely taking over the middle market. As soon as the industry accepts some kind of “Pro Tools-like” hardware on the PC, we’ll see things change faster.

Currently, the Mac-based Studio Vision Pro is our main pro audio software. We also have the Studio 5LX MIDI interface, the Studio XTC synchronizer and our new fusion: EFFECTS plug-ins like fusion: VOCODE and fusion: VINYL, which are cross-platform.

Dave Froker, general manager, Digidesign: Digi’s products have been on the Mac since the company’s inception, starting with the original SoundMIR - 90 MOTOR & IDLER MODIFICATION

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Tools and moving on through to the newly released Pro Tools 24. We offer a range of digital audio workstations for the Mac, ranging from Pro Tools PowerMix, which uses only the Mac's own built-in audio (version 3.4 is available free), to Pro Tools 24, our high-end 24-bit, 32-plus-track workstation. We also work with a number of third-party development partners that are Mac-based.

To what extent has your company moved to embrace Windows as a platform for audio products? In terms of upgrades and new product developments in the audio area, has there been or will there be a shift in emphasis toward Windows?

Zacai: As a company that is responsive to its users' needs, Waves makes it a goal to provide and fulfill its users' needs for both the Mac and the PC platforms. Through the years, the definition of the audio market has broadened to include users from the semiprofessional and nonprofessional markets. These markets tend to find more solutions on the PC platform, and to suit their demands, Waves now offers the same high-end capabilities to both the PC and Mac platforms.

Doris: All of Sonic's products today run on the Macintosh. We are aware of what it will take to migrate our applications to Windows, but would only expect to do so when customer demand requires. To date, our users have preferred the functionality we are able to provide using Macintosh. Should we decide to pursue a cross-platform strategy in the future, any new audio technologies under development at Sonic would first be available on the Macintosh.

de Benedictis: We are making all our new products cross-platform. For example, our fusion: EFFECTS plug-ins ship on a single CD with PC and Mac versions. I think you'll see a general shift with every manufacturer toward the PC. We are definitely moving to support both Mac and PC.

Froker: Digi embraced Windows early on as an alternative to our low-end to middle markets, first with Session 8 and later with Session software, with AudioMedia III, which is a PCI card running on both Mac and Windows, and also with SampleCell. We understand Windows well. At the lower end of our market, it is common for customers to already own their computer. If it's a PC,
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Geno Porfido, Boulevard Recording Co. New Milford, NJ

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Garth Webber, Red Rooster Studio, Berkeley, CA

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ey want a PC-based audio product. So Digi’s strategy has been and will remain one of offering cross-platform solutions. How would you compare the strengths and weaknesses of the Mac OS and Windows 95/NT as platforms to build audio production tools around? Does the Mac still have some unique features that make it a preferred platform for audio production, or have the Mac’s early advantages been pretty much addressed in Windows 95 and/or NT?

Zacai: Windows 95/NT makes Windows much more open for sound playback/recording and sound compression, and it supports multitasking, which is very important for real-time DSP/native processing. However, there are still a few advantages for the Mac. One is an advanced sound file format that uses resource-forks. Second, the PowerPC processor is efficient for DSP applications. Although Windows running on MMX processors closes that gap, very few applications really use the MMX capabilities. Third, video editing usually involves QuickTime, and if sound needs to go with video, this is still a Mac world. And fourth, the Mac comes with a very powerful basic configuration for audio. To get the same quality on the PC involves a dealer-integration package that is not as reliable.

Doris: The Mac is still easier to get up and running and seems to have the best software/hardware combination. Pro Tools is a great hardware platform. As I understand it, there is still some DOS lurking in NT, and until people can find the files they save and not end up somewhere other than where they want to be, the Mac OS is superior. There are also some timing issues; MIDI, at least, seems to work better on the
The Yamaha 02R Version 2 adds a powerful new suite of mixing tools to the digital mixer that has radically changed the way that professionals work. With its unique capabilities, 02R ushered in a new era in creativity and productivity. 02R Version 2 proves that the revolution is still going strong. In fact, there are far too many new features to mention here. For the full manifesto, call (800) 937-7171 ext. 656. Viva la revolución!

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CIRCLE #053 ON PRODUCT INFO CARD
Atlanta’s audio post-production market is experiencing many of the trends common to other regions, including an increased turn toward content as a revenue source, and a careful balance of physical and technological expansion. Several new facilities have opened in recent years, as have a new generation of project studio-type post outlets. At the same time, Atlanta remains unique in that, even as it grows in terms of capacity, it remains tied to a core of a few massive clients, most notably Tribune Broadcasting and Turner, which last year merged with the largest media company in the world, Time Warner. Atlanta continues to grow even as its more established facilities continue to work—and work very successfully—with a slew of older workstation platforms.

Crawford Audio, a division of Crawford Communications, is the doyen of the Atlanta audio post community. Six audio suites support not only the company’s regular array of clients, including Turner and Tribune, but also the highly advanced Crawford Digital, a video subsidiary that opened late last year in the office park campus that houses the rest of Craw-

All sweetening and mixing of the popular Cartoon Network cartoon “Space Ghost” was done at Synchronized Sound with engineer Roy Clements (seated) and producer Andy Merrill.
ford's enterprises (including a satellite farm that Crawford has been trying to use as a conduit for offline audio and video overflow work from the extremely busy post houses of Europe). In addition, two of the six audio suites have been given over to a new venture within Crawford Audio: M&E, an in-house creative audio division that develops content such as scoring, music beds, sound design and effects.

"We're definitely moving toward content as opposed to simply for-hire facility rental," observes Steve Davis, director of Crawford Audio. "There's enough client demand for it, and it not only creates a new revenue source from the work but also from intellectual property royalty participation in the cases in which Crawford retains the copyrights. And it helps us build up libraries, so it's a very synergistic thing."

Although Crawford is still heavily reliant on and satisfied with its six NED Post Pro workstations—one for each audio suite—it recently upgraded, adding a Fairlight MFX-3 and a dual-operator Euphonix CS2000 80-input console.

"Our biggest problem is capacity at this point," says Davis, adding that Crawford is considering adding a seventh suite later this year, with possibly an Avid or a second Euphonix and a second MFX-3 system.

Steve Davis of Crawford Audio
“We’ve been seeing a lot of growth in the last two years, and we have to respond to it,” says Davis. “But we have to manage that growth, too. That’s why a discussion of the issue of rates is a deep one, because the scope of services and technology here has been changing a lot in that time.” Davis says Crawford’s policy is to charge a basic rate for the facility and charge virtually everything else a la carte—such as ISDN lines and creative services. “That means the client is only paying for what they’re using, and we get a better rate of return on our technology investments.”

Doppler Studios is another established, large audio post facility in Atlanta, and its seven rooms continue to handle both music and post-production clients, the former at night, the latter during the day. “The only real problems we get are the few occasions where the music clients stay really late and the post clients come in early and wonder why they smell something like herb cooking,” laughs Bill Quinn, co-owner and manager of the facility started by Pete Caldwell more than two decades ago. Music recording still accounts for as much as 30% to 40% of Doppler’s annual revenues.

For post work, Doppler’s client base is mainly ad agencies, although the Turner networks are a big customer, as are movie promos and Latin American network projects. However, Quinn notes, since the merger with Time Warner, there has, predictably, been pressure to keep rates from rising; keeping volume work from Turner requires reciprocal rate discounts, as well. “That’s part of being an approved vendor for Turner,” he says. “But a lot of the companies in town have seen some of their Turner work diminish since the merger, so keeping a good working relationship is important.” And, say Quinn and other facility managers, Turner is hardly monolithic; it has so many semi-autonomous divisions that, for all intents and purposes, it’s like dealing with seven or eight clients.

Doppler remains set on the seven Waveframe workstations it’s been using for years. But while some Atlanta post facilities are building suites and purchasing technology around their technical talent, Quinn believes that uniformity is his best ally. He keeps the rooms consistent and maintains a staff that can move from one project to the next seamlessly.

Being able to manage and produce all types of audio projects is central to operations in most second-tier markets, but Quinn says there is a limit. Doppler has resisted entering the video arena, for example, although it has toyed with the idea of putting in an Avid video-editing suite several times over the years and has had several customers encourage it. “But every time we consider it, we then realize that we’re audio experts. And we come back to our core competencies,” he says, adding that he still has to make sure services such as libraries are larger and ISDN lines are always available.

The larger facilities in Atlanta are aware of the rise in the number of smaller post facilities that have sprung up in recent years. In many cases, they are former audio post engineers who purchase a Sonic Solutions or Pro Tools system and market themselves for specific tasks such as editing and sound design. One of Quinn’s own former engineers did exactly that with an Avid system. But major facility owners are not rattled by this development; as Quinn points out, Atlanta post clients are used to full service. “We’re becoming like the classic mothership, interacting with them and assembling the pieces of projects that come in from all over. So it works to our advantage, too,” he says.

The Wolff brothers found themselves in that position once—an independent audio post company that acted as the audio arm of the former Editworks video post house in Atlanta. When Todd-AO bought out Editworks several years ago, the brothers stayed independent but chose not to ally

—CONTINUED ON PAGE 205

Crosstown Audio’s chief engineer Nick Ketter
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Highway 72 works its way across the kudzu-ridden hills of northern Mississippi and Alabama. Shortly after you cross the state line, going into Alabama, you encounter a group of four sleepy towns—Sheffield, Tuscaloosa, Florence and Muscle Shoals—gathered near the beautiful, lazy Tennessee River. This area isn’t a tourist mecca, but pop and R&B music-lovers know that this region has produced some of the most influential sounds of the past 30 years.

During the ’60s, ’70s and ’80s, the Quad-Cities area (as it is called locally) was a hotbed of studios and players. Key to all of this activity was a handful of hometown musicians who initially worked as a session band for Rick Hall’s Fame Studios in Muscle Shoals. This group of gifted and soulful musicians, which comprised Roger Hawkins (drums), Jimmie Johnson (guitar), Barry Beckett (piano) and David Hood (bass), were the epitome of a brilliant Southern R&B-influenced rhythm section. They became known as the Muscle Shoals Rhythm Section, and their command of the groove and economical arrangement touched helped make songs like Wilson Pickett’s “Land of a Thousand Dances” and “Mustang Sally,” or Aretha Franklin’s “Chain of Fools” and “Respect” utterly perfect. This wasn’t Motown or Memphis; it was something different and unquestionably its own thing.

BY RICK CLARK
In 1969, the Muscle Shoals Rhythm Section set up shop in a modest building at 3614 Jackson Highway. The studio was called Muscle Shoals Sound, and from the late '60s to the early '80s, an astounding string of hit singles and albums came out of that facility. Many of them now widely regarded as classics. Among the seemingly endless parade of stars who worked there were Aretha Franklin, the Rolling Stones, Wilson Pickett, Boz Scaggs, Bob Dylan, Traffic, Paul Simon, Bob Seger, Dire Straits, Lynyrd Skynyrd, Leon Russell, Linda Ronstadt, Joe Cocker, Laura Nyro, Alabama, Carlos Santana, Glenn Frey, Ahmad Jamal, Jimmy Cliff, Rod Stewart, Cat Stevens, James Brown, Melissa Etheridge and Eric Clapton.

By the late 70s, business was so hot that it was time for Muscle Shoals Sound to make a move into larger quarters. The City of Sheffield, Ala., offered to sell the studio a huge Naval Reserve Armory, with more than 32,000 square feet for a dollar a square foot. Even though it would cost MSS a small fortune to convert it into a world-class studio, it was a deal too good to pass up.

So in 1978, the new facility—situated right on the banks of the Tennessee River—opened its doors with superstar Arif Mardin coming down here and producing records on a consistent basis. We loved them; they were great. They were music people. They didn’t come in to take over and be weird and tell everybody what to do. It was a real team situation that everyone was involved in, and everybody knew that something unique was happening here. There was something intangible, something about the players and the studios. It was a homegrown thing, kind of like a family. You hear people talking about a ‘sister blend’—there’s a blend you can’t get anywhere else, even if you try to add other components.

"The town wasn’t even that aware of what was going on," she continues. "We would have Bob Dylan, the Rolling Stones, all these people running around town and nobody knew who they were. Most people were not even aware that there was a music industry there. A while later that changed, of course, and eventually it became something the people were proud of. Now there’s an Alabama Music Hall of Fame here."

Donna Jean had the opportunity to work with a number of top artists in the late '60s, including Solomon Burke, by Blair Jackson

She is best known in the pop music world as Donna Jean Godchaux, a singer with the Grateful Dead from 1972 to 1979. But before she moved to California in the early '70s and married pianist Keith Godchaux (who also joined the Dead), she was Donna Thatcher of Florence, Ala., and part of the vital Muscle Shoals recording scene of the late '60s. Now she's come full circle: Three years ago, after nearly 25 years in Northern California, she moved back to Florence with her husband—musician and songwriter David MacKay—and their teenage son, Kinsman. And last year she recorded her fine debut solo album, Donna Jean, at Muscle Shoals Sound on Muscle Shoals Records using local players who are her friends and musical colleagues.

"The area is a lot different than it was 25 years ago," she says, "but it's still a place where there are a lot of great musicians and a lot of great music is being made. A lot of the people who are still the staples in the music business were playing at my sock hops when I was in high school—Barry Beckett, David Hood, Roger Hawkins, Jimmy Johnson. Barry is more in Nashville now, but the rest of them are still here and playing music. Obviously, things have changed a lot in the music scene since the '60s. A lot of musicians have home studios now. We have a studio, too, but we wanted to go back and record at Muscle Shoals Sound. That was real thrilling for me and for David—in fact when I first met David in the early '80s, he was as impressed with what I had done in Muscle Shoals as anything else. Still, for me, making this record didn't feel like taking a step back; it was more like moving forward."

Donna Jean was still a student at Sheffield High School when Rick Hall started his modest little studio operation, which would become a world-renowned center of recording for some of popular music's best-known acts. "I was a cheerleader, and I had always sung from when I was a little girl. I got in with some people who were involved in the studios, and eventually they started calling me to sing in background groups on various little demos and things that were happening. From there I kind of grew into the music scene that was happening," Donna Jean recalls. "So I would go from cheerleader practice in my little cheerleader outfit, to the studio. And if I had a session on Saturday and I had to be a cheerleader at the game on Friday night, I would have to mouth the cheers so I wouldn't be hoarse for the session."

Arthur Alexander and Tommy Roe were the first artists to break out hits from Fame Studios, but it was local favorite Percy Sledge who really put Muscle Shoals on the map. "He was an intern at the local hospital," Donna Jean says. "He had a little band on the side, and my best friend Jeanie Greene, who sang with me in a vocal group called Southern Comfort, had a husband, Marlin, who produced Percy's first big hit, 'When a Man Loves a Woman.' Us girls were the background singers for his first records. I remember the day it hit Number One on the charts. Percy was in the hospital with a kidney problem, and Jeanie and I took him the copy of Billboard to show him.

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CIRCLE # 057 ON PRODUCT INFO CARD

---CONTINUED ON PAGE 201---
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Lynyrd Skynyrd video shoot at Muscle Shoals Sound

Depending on a client's point of view, getting to Muscle Shoals can provide a desirable distance from the industry, or it can be an inconvenience. Though there isn’t a major airport in the immediate area, there is one in Huntsville, Ala., which is an hour’s drive from the studio. Memphis and Nashville are two-and-a-half hours away, and Atlanta is a four-hour drive. Harris says that the studio gets a lot of business from New York and Los Angeles (though little business comes from Nashville). Besides being a great environment to get away to, Muscle Shoals Sound is heaven for lovers of meticulously maintained analog equipment: It boasts two vintage Neve consoles (a 32-channel 8068 and a 44-channel 8088 with seven subgroups equipped with GML Series 2000 automation); Studer A820 multitracks; loads of classic outboard gear (LA-2As, 1176LNs, Drawmer gates, etc.); monitors by Westlake, Meyer, Tannoy, Yamaha, Auratone and Genelec; and a large collection of instruments—including guitars, a 9-foot concert grand piano, a couple of Hammond B-3 organs, half a dozen old Wurlitzer tube electric pianos, vibraphones, kettle drums and other assorted items to hang on—guitar effects pedals and amps.

“If a client is coming looking for splendor in accommodations at some five-star hotel, they are out of luck,” says Stephenson. “There are plenty of places to eat, but there isn’t a whole lot of elegance involved in most places. If you like barbecue, it is a wonderful place. There are plenty of places to go. You won’t die of boredom, but if you are someone who is wanting to be ‘seen,’ then big deal—you can go down to the co-op and watch the farmers buy cotton poison or something! It isn’t as big of a hick town as I might be making it out to seem. There are movies and shopping centers and all of that kind of stuff. It is a pretty good-sized area, but it’s still a country town.”

In today’s highly competitive studio business climate, the Muscle Shoals Sound owners know that having a glorious past isn’t enough to ensure a rosy future. That’s why the studio has put so much energy into keeping the facility in top shape and employing many of the area’s finest musicians. Still, the legacy and vibe of the studio are intangibles that are certainly worth a lot. And so is the sense of calm that pervades the studio’s setting. “When you walk out the front door, you have a fishing pier and boat dock on the Tennessee River right in front of the studio building,” Stephenson says. “There is a big park, next door and walking trail for a couple of miles up and down the river. It is a very comfortable place to be.”
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CIRCLE NO.90 ON PRODUCT INFO CARD
MIX MASTERS

Mick Guzauski

MIXING SECRETS FROM THE TOP OF THE CHARTS

He's the master mixer of smooth and soulful pop, with a list of Number One singles that's longer than many engineers' entire discography. Hit artists from Mariah Carey, Toni Braxton to Barbra Streisand, Boyz II Men, All 4 One and LeAnn Rimes seek him out to help craft the sound that keeps them out front and on top, and he always delivers. Success hasn't gone to his head, though; Mick Guzauski is a genial, unassuming fellow. The polar opposite of jaded, with almost 30 years spent in the music recording business, he still evinces a sincere and almost childlike fascination with the various technical and artistic elements that comprise his chosen field.

These days, Guzauski mixes primarily at his own Barking Doctor Studios about an hour out of Manhattan, where recently he's been locked in with new projects for Eric Clapton, Lionel Richie and Monica.

Let's take it from the top—how'd you get started in the business?

I was always interested in music and electronics, and although as a kid I had music lessons, I never believed that I'd be a very good player. But I was pretty good with electronics, so...

Did you build from electronics kits?

Kits, and I built a lot of my own stuff. I started recording as a hobby in the late '60s, so of course there was no semipro gear—nothing affordable for a kid. Then, when I was 15, I got my first job repairing turntables and tape recorders for a local hi-fi store, and I started buying used and broken equipment and fixing it up. Then I built a mixer and started a studio in my parents' basement; I was recording demos for local bands by the time I was a senior in high school.

You had a studio in your house even back then?

It was tiny, but in Rochester, New York, there were very few studios, and they were mostly in people's basements. I did that for a couple of years after high school, then I went in with some other guys who had a commercial studio because my parents didn't want bands in the house all the time. I was doing jingles, as well as those band demos, and I'd been doing it on weekends. But it got to the point, when I had a Scully 4-track machine, that we'd do tracking on weekends when my parents weren't home, then do overdubbing and mixing on weeknights. So you went into business with those other guys...

They did mostly industrial work, and I kept up the music end—more bands and jingles. There really wasn't that much work in Rochester, so I did P.A. work, as well. I did P.A. for Chuck Mangione and ended up recording him in the studio and also live in the early '70s. Then, in '75, he signed with A&M and was getting ready to do the album that became Chase the Clouds Away, with a live rhythm section and a 44-piece orchestra. He asked me, "Do you think you can handle it?" Of course, I'd never been in a real professional studio, and of course I didn't think I could do it, but I said, "Yeah, sure."

So I went out to L.A. with him and did the album; it came out good, and everybody was happy. After that, I went back and forth to L.A. for three years, in the studio with Chuck and also doing road...
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work. I finally moved to L.A. in 1978. Now, 20 years later, I'm back in New York!

Your client base grew from Chuck's albums—people heard your work and liked it.

One of the last records I did for Chuck was a pretty big hit called Feels So Good, so people had heard of me as an engineer, at least in instrumental jazz. I started getting a lot of calls to do that kind of album—you know how you get sort of pigeonholed. Meanwhile, I'd also gotten my first real job in L.A. as a tech at Larrabee. A friend who worked at Westlake called me up one day, and I went over to see the place—I ended up doing a Chuck Mangione project there, and I became close to the staff. One night, a band was in with James Newton Howard producing and Andy Johns engineering. Andy had double-booked himself, so Jim Fitzpatrick, Westlake's head tech, needed an engineer and called me. The label's chief engineer happened to be George Massenburg. I did a rough mix that he liked, and that's how I got into working a lot in L.A. and went on to work for Earth Wind & Fire.

Things happened faster after that. I was working at Conway Studios with Average White Band, and I met Peter Bunetta and Rick Chudakoff. Through them I started working with Smokey Robinson, Michael Bolton, Kenny G and Walter Afanasieff—that's really the chain of events. David Foster, who I do a lot of work for now, actually met back in Rochester where I did a demo for him in '73 or '74 when he was in a band called Skylark, who were managed by someone who lived in Rochester.

You never went the runner/assistant route?

I never assisted; I came more from a technical aspect. I'm not a designer like Massenburg, but I built stuff for my home studio because I wanted to understand how it worked. I had time on my hands in the early years, and at one time or another, I designed and built every part of the analog chain. Not a whole console, but one channel each of record, tape and play, so I understood how everything worked from the mic pre to the power amp. Analog, of course. I started getting really busy before digital technology became prevalent, so I hadn't had time to learn as much as I should about it. I want to, though; I want to get a DSP development kit and see how it all works.

Your records always sound so warm that I was surprised to learn you work mostly with digital.

I do work pretty much all digitally—it just makes sense because we have the digital final product of a CD. While it's true that analog does tend to warm things up somewhat with tube gear and such, I believe there's no reason digital can't be warm. I never really have much

Usually I have a couple of automated channels on the console that are sends to different delays and reverbs, mainly for lead vocals and lead instruments.

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CIRCLE #063 ON PRODUCT INFO CARD
problem with that. I mix to a DA-88 through a Rane Paqrat. The Paqrat takes a 24-bit digital word and splits it onto two 16-bit tracks of an 8-track machine; you can record 24-bit stereo audio using four tracks of a DA-88, and it will reassemble the 24-bit word on playback.

The system I use now is the AT&T digital mixer core for my SSL console, with a Sony 3348 multitrack. I have an analog multitrack for when people send me analog tapes, but I usually transfer them to digital, then we stay in the digital domain all the way through. I also have a lot of digital outboard gear—TC5000, Valley Compressor, Weiss Equalizer, Eventide DSP4000 and H3000, Lexicon 300s and a Sony V77—a lot of gear that I can go in and out of and keep everything in the digital domain. I do also use analog—a GML EQ and compressor, and I have a couple of old Eventide SP2016s and an EMT140 plate that I use in combination a lot on vocals; I think that’s where some of the warmth in my sound comes from. The 2016 has a nice high-frequency sizzle and definition in the reverb, and the plate has that big, warm sound behind it, because, although the EMT is transistor, not tube, it’s still a mechanical device. The vocal ambiences on your records are always very clear; you may have a lot of reverb going on in a ballad but it doesn’t get in the way.

I always try to make sure that the low end of the echo isn’t in the way of anything. Often, I’ll EQ the reverb to attenuate lows, so that when it rings in the lower register of the voice, it doesn’t cloud any instruments. Usually, I’ll roll off some low-mids, around 200 or 300 Hz. I’m very careful that I don’t lose richness, but most of the main keyboards and pads will be right in that same area, and it can be a balancing act to keep the vocal clear. I also work very hard on the high-end detail in the vocal to make sure that it’s very present—not sibilant, but with enough diction so that you can hear the vocal in the track without putting it incredibly up front.

Are there particular compressors you like to use on vocals?

I’m using UREI LA22s a lot; they were only made for a couple of years. I like their flexibility. In addition to variable attack and release time, the detector is variable from peak to average. Also, you can use it as a frequency-selective compressor—not in the way that a sidechain is frequency-selective, but like a dynamic EQ that will dip a certain frequency. If you have a vocal that at certain levels and frequencies jumps out and gets harsh, you can use a channel of it and actually detect the threshold of that jump, then dip that frequency.

In general, do you vary the attack and release times a lot on compressors?

Actually, for vocals I’ll usually leave them set pretty much the same. What seems to work is about a 3-to-1 ratio, with a 20 to 40-millisecond attack time and a 100 to 300-millisecond release. I don’t just leave it set that way for every voice, of course, but I find for most applications, that range works. I usually adjust attack and release a lot more for instruments than on vocals—the envelope of the voice in general is usually close enough so that when a compressor is set this way, it will attack pretty well without pumping. With a slower attack time, you’ll hear the vocal attack and then you’ll hear the compressor grab—it will be audible. If the attack is faster, you sometimes don’t get the transient of a word that’s being emphasized. So in general these settings work. Once in a while, if something is sung very staccato, I’ll have to speed up the release.

It sounds like you ride reverbs and delays a lot during the mix.
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Visual Effects
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Stereo modules
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Mute, Switch and Fader Automation

Midi Machine Control (MMC)
SuperTrue provides complete SMPTE locked control over faders and mutes; up to 10 VCA groups can be configured
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"Yes, usually I have a couple of automated channels on the console that are sends to different delays and reverbs, mainly for lead vocals and lead instruments. Sometimes it's an effect to really make a word swim, but more often, the reverb that would sound plenty wet in a sparse part of the track will be too dry as the track builds dynamically. So, often I'll ride the reverb and delay as the track builds.

You've done a lot of group lead vocals like Boyz II Men and All 4 One. How do you deal with so many vocals?
You'll usually find when you place each individual vocal in the track that certain frequencies will pop out in certain areas, while in other areas they won't be loud enough. When they are soloed and un-EQ'd, they sound good, but there may be little spikes that stick out in relationship to the track. So I'll EQ each vocal individually to be smooth, generally with parametric equalizers with the bandwidth set pretty narrow. I'll boost a frequency a lot to tune it right to it, then cut it back to be smooth and in context with the rest of the spectrum. Sometimes I'll split a vocal on two channels and have a different EQ for verse and chorus. And sometimes frequency-selective compression will help. If you have a vocal EQ'd pretty bright that sounds nice when the vocalist is singing soft but which gets a little nasty when they sing harder, that kind of compressor can automatically ride those changes.

If I'm going to cut a frequency back that's sticking out in the mix, I'll tune it narrow and sharp to find the exact center frequency and boost it to find it, then broaden it up and cut it back as much as I need to. Most of the boosting I do is very high-shelf, broadband, so you don't hear one note jump out, unless, of course, something is deficient in one small area.

And with backgrounds?
With BGs, I'll EQ for smooth response; I don’t compress them that much. Usually, I get them in stereo pairs per part—one part that's a chord, and a counterpart to that. Sometimes the parts are individual. Then I’ll bus them to a pair of channels so that I can work on them as a whole. I’m always listening for the chords. They may sound perfectly balanced soloed, but something may get lost when it’s in the track. I have to say, though, most of the vocals I get are very high-quality, very well-recorded. Well-balanced within themselves and also with the track.

Do you use your console EQ primarily?
Yes, mostly the console EQ, except usually on lead vocals I use the GML parametric. My chain for that tends to be out of the converter to the GML EQ, then the compressor, the de-esser and the console EQ. That way, if I need to cut back on something, I use the GML, and the compressor is reacting to a fair-"

MICK GUZASKI SELECTED CREDITS

MIXING
Number One Singles
Toni Braxton "Unbreak My Heart"
Eric Clapton "Change The World"
Mariah Carey "Always Be My Baby," "Dream Lover," "Hero"
Boyz II Men "Water Runs Dry," "I'll Make Love to You"
All 4 One "I Can Love You Like That," "I Swear"
Whitney Houston "Run to You," "I Have Nothing"
Michael Bolton "Love Is a Wonderful Thing," "To Love Somebody"
Chuck Mangione "Feels So Good" (recorded and mixed)

Singles and Album Cuts
Barbra Streisand/Bryan Adams "I Finally Found Someone"
Vanessa Williams Star Bright
Kenny G The Moment
Babyface The Day
Celine Dion "Because You Loved Me"
Selena Dreaming of You
Quincy Jones Back on the Block
Talking Heads True Stories
IF IT'S THERE YOU'LL HEAR IT
MIX MASTERS

ly smooth signal. Boosting I’ll do on the console, post compression. So usually I have EQ both pre- and post-compression—cut before compression, boost after.

With the AT&T system, the console is switchable per channel between EQ that emulates both SSL E and G Series and Neve VR curves. Usually, I keep it on SSL E, but on acoustic guitars, strings and some high percussion, I’ll go to the Neve VR curve because the characteristic of the high shelf is very airy—it has a little dip before the shelf starts and then sort of comes up a little steeper and gives you air without getting harsh.

I think of you as a bass expert. Your bottom end is present and big but never loose and boomy. Well, with some projects I work on, the bass is in such a low register that there’s no attack with it, but it works musically. That’s where I’m very careful setting the attack time on the compressor. I’ll listen to the bass in the track and check the attack of each note. Then, if you slow down the attack of the compressor and compress the track a little, the compressor will actually add some attack because the attack transient of the bass is getting through before the compressor reduces the gain on it. That’s a trick I use a lot—to use a compressor with a slow attack and then to adjust the amount of compression so that there’s enough of the attack of the note that gets through to define where it is in the track. I also EQ it to make the whole register that the bass is playing in, the whole spectrum, sound smooth with the track. That doesn’t always mean that every note is perfectly even, because something else might be covering the bass notes in some areas. You want to tailor it so it sounds even in the track.

Being a mixer is a pretty new profession. We’re creating an ambience for a song, sort of like a photographer does for a picture.

The important thing is, I don’t listen to individual tracks alone too much. I’ll usually listen to a rough mix first if the client sends it, or else I’ll put up all the tracks to hear what the song is about. Then I’ll go through the tracks and EQ and set them pretty much where I think they’re going to go, and then I’ll put everything in and fine-tune.

Like mixing a live band.

It is probably a carryover from when I used to do live sound work.

What compressors do you like on bass?

Most of the time on bass I seem to use the Empirical Systems Distressor because it is so adjustable. I’ll also sometimes use an older limiter like the LA-2A or the clone made by DeMaria—it’s not very variable, but it has a very complementary attack and release time by itself. That’s another optical; I use a lot of the optical compressors. Even though they don’t have variable attack and release, their normal characteristics can work very well.

Do you have to do a lot of mixes for each song? Vocal up, down, etc

Not so much; a mix, then a vocal up, a vocal down, so if later a word or a phrase isn’t quite the right level, you can cut them in. I’m also mixing in

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CIRCLE #068 ON PRODUCT INFO CARD
sterns a lot now, where I'll turn the bus compressor off, because of course that compressor in the final bus reacts to everything, and I'll do on DA-88 a pair for the track, a pair for BGs, a pair for leads, a pair for orchestration—four different stereo elements of the mix with their effects. That can be combined and sent to a bus compressor if we need to change balances without redoing a whole mix.

I'm also using Pro Tools a lot for that. I should mention that's now one of the most important things in my studio. I have Pro Tools 24 with 24-bit resolution, so I can put a whole mix in it without really losing anything. I use it for editing mixes, for flying and moving stuff around. I also use the plug-ins with automated EQ. If a vocal comp needs different EQ dynamically as the song goes on, I'll put the vocal in Pro Tools and let it run in sync.

There's also an auto-tune, another plug-in which is the greatest thing. You tell it what key the song is in and how fast and critical you want it to be about pitch. I'll just copy the vocal track into Pro Tools. That's another thing I really like about working digitally: You can copy back and forth, and as long as the clocking of the system is stable, you don't really have any loss. That's a point that should be made about digital: Generation loss in digital is nonexistent only as long as the clocking of the system is stable, all the connections and the wiring are good, and you are not getting noise errors into the chain.

Your console is a 56-input SSL G Series. Yes, the AT&T digital mixer core has a little card that goes on each channel of the SSL, each multiplexer board, and it picks up the recall information there and sends it to a computer and the AT&T DSP, which is actually just modeling what the whole console does. So the SSL isn't passing any audio at all; the recall section is all that's running. When the AT&T is operating, it forces the recall circuitry on all the time, so that whenever you are turning a knob or pushing a button, it knows what you've done. And then, of course, it reads the automation for the faders and mutes.

You must use your ISDN lines a lot. Our system is a Dolby Fax through EDNet, and definitely ISDN lines are one of the reasons that I'm able to have a home studio and to do most of my work here. Being this far from the city, producers don't always want to come, and also I still have a lot of clients in L.A. For the most part, people don't have the time to get on a plane and
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Maureen Droney is Mix's Los Angeles editor.

come here. This way, I can do the mix and then the clients can either listen at home or at a studio and we just tweak it together for the last couple of hours. Then we're done.

Which other engineers' work do you like?

Off the top of my head? I love a lot of the stuff Bob Clearmountain does; I think he's a master at getting really interesting spatial things happening. I love Elliott Scheiner, the precision and fidelity of his work. There's a natural-ness to it, a natural ambience like everybody's right there in the room that's very good. I've always loved his Steely Dan records, and more recently, Fleetwood Mac's The Dance is just great. I love Swedien, Massenburg, Al Schmitt—there's too many excellent en- gineers to mention them all. There are a lot of great people in this business.

How about some thoughts on the philos- ophy of mixing?

Well, I think it really is a new profes- sion now, because it's only in the last few years that records have been made that are almost totally synthesized. So being a recording and mixing engineer are almost two different things now. There are still engineers who do both, guys like Al Schmitt and Elliott Scheiner, who are great engineers and great mix- ers, and there is the type of music that really needs somebody to do both and to follow a project through—those proj- ects with mostly live instruments, where so much of the mix is created in the recording.

But being a mixer, like me or Bob or Jon Gass, and all the guys that people send their tapes to, really is a pretty new profession. We're creating an am- bience for a song, sort of like a photog- rapher does for a picture, because a lot of pop music is mostly synthesized and not recorded with its own particular ambience. So, different mixers interpret the music differently. It really is a differ- ent set of responsibilities.

One last thing. Tell us your secret for getting all those Number One singles.

Honestly, I have no idea how it hap- pened, but I'm sure glad that it did! Seri- ously, though, as an engineer or mixer, there would be nothing at all to do without great artists and producers. So that's how it happened. I was lucky enough to hook up with great people, and I'm really thankful to all of them.

Maureen Droney is Mix's Los Angeles editor.
The Project Studio

Scrimshaw Sound Recording

Nathan DiGesare's Nashville Digs

After 15 years as a touring artist, 14 solo albums and two years in A&R, Nathan DiGesare is right where he wants to be—at home. His morning commute now takes him about 20 feet, to a project studio in the converted two-car garage adjacent to his Nashville home. Scrimshaw Sound Recording (a name that means "art on ivory," also the title of DiGe- sare's first solo instrumental album) is a well-equipped facility that sees a constant stream of sessions, from song demos to master productions. DiGesare has his fingers in every project as producer, engineer, writer, arranger, keyboard player, programmer or all of the above.

Recent projects to roll through Scrimshaw include a Boyz II Men tune, a collaboration with Steve Winwood on the theme for Steven Spielberg's Balto and an instrumental track for The Apostle (starring Robert Duvall and Farrah Fawcett). When he finds the time, DiGesare steals away to write and compose an Italian opera he plans to finish this year.

"Scrimshaw Sound isn't really a room for hire," DiGesare says. "It's for my own work. My friends know about the studio, and I'll charge them a nominal fee for using it. I don't advertise, but I stay busy year-round."

With Nashville being the hub of contemporary Christian music (CCM) as well as country, DiGesare has worked with a host of CCM artists, including Michael W. Smith, Wayne Watson, Sandy Patty, Phil Keaggy, Angelo and Veronica, and Michael Sweet. He also handled the production chores for a recent lullaby album featuring songs and performances by many top CCM artists. In the works is a debut album by new trio 3-N-1, a sophomore release from solo artist Charles Billingsley and a second lullaby album entitled A Parent's Prayer.

Scrimshaw includes a control room, tracking booth, office and lounge area. Computer analysis and acoustic treatment in the space were done by Dave Fry, and the result is a cozy, good-sounding room. Not one to fear tight spaces, DiGesare has tracked virtually every instrument imaginable in-house. For The Apostle piece, Dino Kartsonakis played acoustic piano in the house, then DiGesare cut steel guitar, fiddle, trumpet, even drums in Scrimshaw's tracking booth. "When we do a mix in here and go to mastering," says DiGe- sare, "it's right on the money."

DiGesare started buying gear piece-by-piece in 1989 and has amassed a healthy complement of equipment. Centerpieces of the studio include a 48-input Neotek Elan board with Optifile fader and mute automation, Otari MX-80 24-track recorder, 40 tracks of Fostex RD-8 MDMs, and Tannoy 12-DMT mid-field and Genelec 1031A near-field monitors. DiGesare regularly locks up the Otari and Fostex recorders, giving him 64 tracks with the best of both the analog and digital worlds.

Outboard gear includes Apogee A/D converters; Focusrite Red mic preamp, EQ and compressors; Tube-Tech compressor; Lexicon 300 reverb; and processors from Roland, Yamaha, dbx and BBE. Scrimshaw's mic selection includes a pair of Microtech-Gefell UM92S tubes, a Neumann U47, an AKG 414EB and other condenser and dynamic mics from AKG, Shure and Audio-Technica.

Scrimshaw Sound Recording's MIDI rig plays a key role in the production process, boasting four samplers and nearly 30 tone modules. "The keyboards draw a lot of peo- ple to Scrimshaw," DiGesare says. "We keep everything in-house as far as programming tracks." Scrimshaw also offers hard disk recording and digital editing on Pro Tools. A handmade, 9-foot Kawai grand piano (one of just two prototypes built) sits in the house, connected to the studio with tielines.

In the future, DiGesare would like to move Scrimshaw into a bigger facility, where he can track instruments comfortably, especially drums and piano. When asked about his personal plans, DiGesare shares his desire to continue produc- ing records, get into more film scoring and write "the next big hit."

Until tomorrow comes, howev- er, DiGesare is happy at home. "This project studio gives me the flexibil- ity as a producer to not worry about the clock ticking. I'm able to experiment, to try different things, to be creative, to get the most out of my production dollar. That's the beauty of having your own studio—you get to work until you get it right."
Steve Hackett
THE TERPSICHORE OF TWICKENHAM

Steve Hackett never intended to have a studio in his house. The former Genesis guitarist had originally planned to build or buy a commercial studio to use as a base for his own recordings, which have included 15 solo records, and collaborations with Yes guitarist Steve Howe, Queen’s Brian May and others. But after spending more than a year looking for suitable premises without success, Hackett and his manager, Billy Budis, began to consider the consequences of setting up a home studio.

“My fear was that it would start to take over my home life,” Hackett reflects, “you know, a kitchen full of roadies, and neighbors complaining about the noise. As it turned out, I’m extremely happy working at home.” Since the studio was built in 1990, Hackett has used it to record significant portions of five solo albums, including all of the basic tracks for A Midsummer Night’s Dream, which he assembled over a seven-year period. (The classical-guitar-with-orchestra suite spent several weeks on the UK classical charts and became one of the biggest hits of 1997 for EMI Classics.)

Hackett’s studio occupies a ground floor room in the elegant five-story house he shares with artist Kim Poor. The Victorian-era home is situated in the leafy London suburb of Twickenham, and the studio control room occupies a front-facing basement room that was probably once the servants’ parlor. The original fireplace remains, but the rest of the room has been rebuilt by studio consultants Recording Architecture. The walls have been covered with acoustic panels, and a suspended ceiling features an arresting arrangement of two-by-fours in a chevron pattern. Bass traps are concealed in the rear wall, which also features a window looking out onto the garden. Next to the control room door is an isolation booth, paneled in wood and equipped with several of Recording Architecture’s reversible baffles, each side offering a different absorption characteristic.

The doorway to a closet area in the rear corner of the room was widened in order to accommodate a Studer A80 24-track tape machine with Dolby, and this required the removal of several courses of brickwork. However, after Hackett and Budis switched the studio over to ADATs, the 24-track was sold and the tape machine bay now houses the ADATs, a tape library and part of Hackett’s extensive collection of weird and wonderful stomp boxes. “There’s even a Colorsound fuzz box named after me,” says Hackett, looking slightly bemused.

The console is a secondhand 36-input Amek Angela. “It’s not exactly state-of-the-art,” he concedes, “but it sounds good, so I see no point in changing it.” The control room monitors are UREI 813s, supplemented by Yamaha NS-10Ms. Final mixes are committed to Panasonic and Sony DAT machines.

The studio also recently acquired a 16-track Pro Tools 4.0 system. For recording his K. Yairi classical guitar, Hackett usually uses an AKG C-414 mic into a Focusrite Red 6 preamp and records straight to tape. The 414 is also pressed into service, occasionally in combination with a road-abused SM58, to record Hackett’s selection of electric guitars. A typical recording configuration would include a Peavey Classic 4x10 driven with a SansAmp preamp, with additional treatments provided by a Lexicon PCM 90, Roland SE70 and an Alesis Quadraverb. This configuration varies, even from take to take, as Hackett is constantly changing his rig and prefers to record immediately rather than attempt to re-create a sound later.

The outboard gear racks are in a constant state of rearrangement, since they get partially stripped for Hackett’s onstage rig when he tours. Mainstays include a Joemeek compressor, Lexicon PCM 90, Alesis Quadraverb and Quadraverb 2 reverbs, Drawmer gates and a Drawmer 1960 compressor. Particular favorites include a Klark Teknik D780, of which Hackett says “That’s a good one for drums—it ‘powerfulizes’ them.”

Though Hackett is not particularly interested in developing his chops as an engineer, he is quite capable of recording himself; Budis or Roger King simply sets him up and troubleshoots when necessary. When a larger room is called for, Budis books the studio time. But whenever Hackett enters a top-flight (and expensive) commercial recording studio as a paying customer, he can comfort himself with the thought that one of the best-selling and most popular classical records of recent years was recorded in his own front parlor.

By Chris Michie
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MACKIE DESIGNS DIGITAL 8-BUS
AUTOMATED 48-CHANNEL MIXER

At a packed press conference just over a year ago, Mackie unveiled its digital console and announced that it would arrive "in June." I asked the obvious question: "What year?" and was greeted by some sour looks from the company's marketing staff. Well it didn't arrive last summer (no digital console in history has ever shipped on time), but it starts shipping next month. I was first in line to take Serial #00001 for a test drive.

Priced at $9,999, the Mackie Digital 8-Bus (I'll call it D8B for brevity) is an 8-bus design with 48 input channels, 16 internal efx returns, 12 aux sends, 48 channels of automated dynamics/gating/4-band parametric EQ, onboard reverb/delay/chorusing effects, recall and moving fader automation. All console parameters may be displayed on any S-VGA monitor (up to 21-inch), and the 26-channel meter bridge features 24-segment ladders. There is also integrated transport control with a jog shuttle wheel and keys for 10 locator points. In addition, the D8B offers Apogee's UV-22 encoding technology to down-convert the console's 24-bit audio to the 16-bit CD standard for output to DAT or other low-res media.

But we're getting ahead of ourselves. I like to begin equipment tests from the inside out, with a thorough disassembly...

DON'T TRY THIS AT HOME!

With the console powered down, I began my probe of the subject's visera, which can be accessed by placing the console on its dorsal spine and removing the underside cover. The first thing you notice is the mixer's internal power supply—no wall warts or huge rackmount toroidals here. In fact, the power supply is a PC supply, which makes sense, as the heart of the console is a Pentium motherboard (with floppy drive and a mini-hard disk for storing the operating system and automation data). Connected to it are the I/O and audio boards, a central logic board that gets/sends/receives commands to/from the controller surface and a video controller card...

BY GEORGE PETERSEN

that drives your optional S-VGA monitor. Another console first is an onboard modem for logging onto Mackie Central to download new patches and operating system upgrades; long-distance auto diagnostics may also be possible via telco.

The most interesting thing about the console's innards is that a majority of the parts are standard: The PS, drives, modem, video card, etc., are all off-the-shelf items. So if you ever need service at some inopportune time (or want to expand the RAM for more automation storage by adding standard SIMMs), the solution may be as close as your nearest nerd shack. And the monitor, mouse and QWERTY keyboard are all readily available (and deeply discounted) worldwide.

The DSP and converter cards are mounted directly over the I/O cards, a design that makes for extremely short cable runs and keeps external gremlins such as noise and interference to a minimum. The moving faders are by Alps, the mic preamps are Mackie's well-known discrete, low-noise models, and the 24-bit, 64x oversampled A/D and 20-bit 64x oversampled D/A converters are by Crystal Semiconductor—good stuff.

PICK A CARD

An 8-slot card cage on the rear panel accommodates various standard and optional cards, which snap in with a reassuring click. Included with the mixer is one card with two sets of MIDI I/O (one for MIDI communication, the other for MMC commands) and a 2-channel digital I/O card with AES/EBU and S/PDIF ports.

Optional cards include a sync...
card with word clock, SMPTE in and ESAM-II ports and a digital effects expander card (IVL Technologies has announced a card that will provide pitch effects similar to those on DigiTech's world-class Studio Vocalist; a card in progress is from a major European reverb company). Also optional is an Alt I/O card with eight additional channels of digital I/O routing, and slots for adding up to three 8-channel, digital multitracks using Tascam TDIF or ADAT Lightpipe protocols (each card has connectors for both formats). It's interesting that the latter do not have to be matched—if you are doing a session with two ADATs and one DA-88, it's no problem, except you're on your own in terms of how to sync dissimilar MDMs. You can also use the console's I/O routing to digitally transfer material between a Tascam and an Alesis deck in order to make interformat tape copies or backups—a slick trick.

**INS AND OUTS**

The D813's rear panel looks surprisingly like any other console. A total of 24 analog inputs are standard; the first 12 channels have line/mic inputs, with individual phantom power switches and ¼-inch TRS insert jacks. The next 12 channels are ¼-inch TRS line input only. All audio ports (except the insert jacks) are electronically balanced and handle unbalanced TS inputs without a hitch. One cool thing about the inserts is that they operate in the analog domain (prior to the ADC), so patching a favorite tube compressor after the mic preamp is hassle-free.

On the output side, the analog main outs are on XLRs and ¼-inch. There are 12 ¼-inch aux sends, three sets of 2-track A/B/C inputs, a stereo studio foldback bus, two sets of headphone jacks and a top panel switch to select control room monitors. The outputs for the balanced bus 1-8 outputs connect to a patchbay or multitrack via a single D25 sub connector. Two ¼-inch footswitch jacks allow for remote punch-in/out and talkback on/off.

**OPERATIONS**

The D813's top surface is laid out a lot like a standard console, which reduces the learning curve considerably. Each input strip has a trim pot (for analog inputs only), 100mm long throw fader, mute and solo buttons. A centralized section—Mackie calls it the Fat Channel—is used to adjust aux levels, EQ, dynamics and effects. This way, all adjustments can be made from a center position, exactly in the sweet spot—no need to stretch for that tambourine EQ on track 48.

How the Fat Channel works is straightforward. If you want to adjust channel 43, you simply press the Select button above that fader. Press the EQ button on the Fat Channel and the EQ values are displayed on a 40-character, 2-line fluorescent display on the console. Simultaneously, an EQ window showing the EQ curve and all its parameters comes up on the video screen. The EQ is musical and allows glitchless tweaking in real time without clunks or funny shifts.

The console can certainly be used without a mouse, keyboard or monitor, but it's a lot faster and more fun with them. If the parameter window isn't large enough, click on the magnifying glass icon to enlarge it. Of course, if the window is too small, the icon is pretty hard to see, but eventually you'll figure out where it is.

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G E F E N
SYSTEMS

mSoft
The PowerLight 1.0HV use a high voltage power supply to deliver 300 watts/channel at 8 ohms and 500 watts per channel at 4 ohms. Employing an ultra-low distortion Class AB output circuit (0.01% THD typical), it is ideal for powering midrange and high frequency drivers, studio monitors, and other critical sound system applications.

Tailored for bi-amping your monitors or your mains, the PowerLight 1.5X and the PowerLight 1.6HVX offer a high-power channel with a high-efficiency Class H output circuit to power low frequencies, paired with medium-power channel with an ultra-low-distortion Class AB circuit to power high-frequencies channel. Built-in crossovers can also be added.

The PowerLight 2.4MB mono-block is a single channel amplifier that delivers 2,400 watts at 2 ohms while operating from a single 15 amp 120v AC circuit. It is ideal for driving multiple subwoofers (up to 600 watts each to four eight-ohm drivers) as well as allowing an odd number of amplifier channels to be configured in a system.

If all speakers were identical then maybe you would need only one type of amplifier. However, today's sound systems are comprised of complex multi-way speakers using high-power subwoofers, horn-loaded mid-ranges, and high-frequency compression drivers. Our four newest PowerLight™ amplifiers are designed to give each one of these speakers the right power for peak performance. So stop by a dealer near you for some ideas on how you might power your system, perfectly.

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Our worldwide force of Audio Precision representatives will be pleased to demonstrate the many advantages of the Portable One Dual Domain.
Three years ago, every conversation in the audio industry seemed to involve Yamaha's unveiling of its O2R mixer, a revolutionary, affordable (less than $10,000) digital console packed with flexible mixing functions and processing capability. Now Yamaha has combined that technology with its DSP expertise and has entered the digital audio workstation arena with the DSP Factory, an extension of Yamaha's digital mixer family of products, designed for computer-based recording.

Introduced in January at the Los Angeles NAMM show, the heart of the DSP Factory is the DS2416 PCI card, which offers the mixing power of the O2R, including 24 channels of mixing and onboard DSP, plus 16 tracks of hard disk recording/playback with up to 32-bit resolution—all for $999.

Many of the powerful features found on the O2R are available here, including the 24-channel/32-bit mixer with ten bus outputs and six aux sends, 104 bands of four-band parametric EQ, 26 dynamics processors, two effects processors (comparable to the REV500), channel delay on 20 channels, digital cross-patching for channel I/Os, plus a 2-channel 20-bit A/D converter. All of these functions are available simultaneously, because the DS2416 is independent of the host CPU for processing, relying on the horsepower of five internal proprietary DSP chips. (The card currently runs in Windows 95; a Mac version is in the works.) In addition, the mixer can be automated with control software.

Don't forget, the DS2416 is also a powerful recorder, featuring 8-track recording and 16-bit playback from disk, with up to 32-bit resolution. In addition, the card offers sample-accurate sync between tracks, and the recorder is "hard-wired" to the mixer in the digital domain. Through software, the recorder can be synchronized to external sources. The card features stereo analog and coaxial 20/24-bit digital inputs and outputs.

There's plenty of room for expansion: Multiple DS2416 units can be cascaded, and Yamaha is working on a series of components to provide multichannel expansion options and enhance system flexibility. Scheduled to ship this spring is the AX44 audio expansion unit, which offers easy access to additional I/Os by installing in a standard half-height 5.25-inch PC tower drive bay. The AX44 provides four unbalanced ¼-inch analog inputs (two are switchable mic/line), and four ¼-inch outputs—boasting 100dB dynamic range—plus a stereo headphone jack. Two AX44 units ($299) can be connected to one DS2416 card to provide eight analog I/Os. In addition, Yamaha is currently developing interfaces to multichannel gear such as signal processors and modular digital multitracks. Slated for summer release, the first interface is the optional AX16-AT Audio Expansion Card, providing 16 channels of ADAT-format I/O; retail will be $29.

A growing number of software companies are announcing support for the DSP Factory. At NAMM, that list included Cakewalk, Canam Computers, C-mexx, Emagic, IQS (Innovative Quality Software), Musicator, SEK'D, Sonic Foundry and Steinberg. These companies are developing control software for the DS2416 card or integrating the card into their software. Demonstrated at NAMM with the DS2416 was the C-Console from SEK'D, a software front-end that controls the DS2416's real-time effects and works in conjunction with the popular SEK'D's Samplitude software. In addition, leading software developers, such as Cakewalk, were demonstrating DSP Factory-compatible upgrades running with the card.

Expect the DS2416 and AX44 to begin shipping within a couple of months, and watch for more product rollouts in this line. Also, keep an eye out for a compatible upgrade of your favorite software. The only remaining question is which company will be first to drop a Pentium with three DS2416 cards into a sleek 7-foot, one-knob-per-function console control surface and deliver the world's first under-$20,000, 72-input digital mixer/48-track DAW combination?

Yamaha Corp. of America, 6600 Orangethorpe Drive, Buena Park, CA 90622; 714/522-9011; Web site: www.yamaha.com.

BY SARAH JONES
SPIRIT FOLIO FX16
The Folio FX16 mixer from Spirit by Soundcraft (Auburn, CA) is a multipurpose, 16-channel, 4-bus mixer that includes an onboard, 16-program Lexicon effects processor. The FX16 includes 16 mic/line inputs and four stereo line returns, and can route a total of 26 inputs to the mix buses, which include stereo and mono outs plus two subgroup outputs. Features include Spirit’s UltraMic” preamp, global phantom power, 5-band EQ with sweepable mids, 18dB/octave highpass filter, 100mm faders, pre/post-switchable direct outs for each channel, PFL, AFL and solo-in-place monitoring, and four auxiliary sends per channel (including a dedicated Lexicon send), two of which are pre/post switchable. Lexicon effects may be edited and stored. Output metering is via ten-segment, tri-color LEDs. Price: $1,199.95.

Circle 327 on Product Info Card

PRESONUS
MULTI-INPUT MIC PRE’S
PreSonus (Baton Rouge, LA) introduces two multi-input, rackmount mic preamps, both featuring Jensen low-noise, balanced-input transformers and Class A input amps followed by a twin servo gain stage. The M80 ($1,499) has eight individual mic preamps; the MP20 ($599) is a similar 2-channel unit. Features include polarity reverse, phantom power, 20dB pad, highpass filter and output metering. Both units contain an integral stereo mix bus and a Warmth control to emulate tape saturation and/or tube distortion. I/Os are balanced XLR and TRS (Neutrik Combo”), and each channel has separate insert and return jacks; stereo bus outputs are XLR balanced and phono. Both models feature internal power supplies.

Circle 330 on Product Info Card

ELECTRO-VOICE
N/DYM DYNAMIC MICS
Electro-Voice (Buchanan, MI) has added five models to the N/DYM” line of dynamic microphones, including one mic targeted at female vocalists. The cardioid N/D168 snare mic ($182) offers a frequency response of 25-15kHz; the N/D468 ($232) is a supercardioid instrument mic (freq.
response: 60-20k Hz); the N/D267 ($242) is a cardioid performer's mic (freq. response: 65-19k Hz); the N/D367 ($200) is a cardioid performer's mic designed specifically for women (freq. response: 60-17k Hz); the N/D767 ($242) is a supercardioid performer's mic (freq. response: 50-20k Hz). All mics in the N/DYM Series, including the previously introduced N/D868 and N/D967, feature high-output neodymium magnets, low S/N ratio and a dynamic range in excess of 140 dB.

Circle 331 on Product Info Card

**JOEMEEK ANALOG/DIGITAL COMPRESSOR**

Joemeek (distributed by PMI, Torrance, CA) offers the SC3, an analog stereo compressor with digital I/O capability. Featuring 20-bit ADGs, the unit automatically switches between 44.1 and 48kHz sampling rates and offers AES/EBU and S/PDIF I/Os. Word clock I/O is via rear panel BNC connectors. Compressor features include five selectable ratios ("slope"), input, output and threshold controls, variable attack time, fast or slow release time, VU metering and compressor sidechain in/out switch. Analog/digital switching is on the front panel, and the unit can output both formats simultaneously. Price is $2,799.

Circle 332 on Product Info Card

**MIDIMAN FLYING CALF D/A**

The Flying Calf D/A from MIDIMAN (Arcadia, CA) is a professional-quality external S/PDIF digital-to-analog converter. The tabletop unit automatically locks to the input signal sample rate and will convert any S/PDIF signal to stereo, line level audio; all rates under 50 kHz are supported. Features include 20-bit delta-sigma D/A converters with 128x oversampling for a 20 to 22k Hz (±0.5 dB) frequency response and 99dB (A-weighted) dynamic range. Outputs are ¼-inch unbalanced. Price is $149.95.

Circle 333 on Product Info Card

**STEDMAN C15 CONDENSER MIC**

Stedman (Richland, MI) is now shipping its C15 condenser mic, a large-diaphragm, 48VDC phantom-powered cardioid model designed for studio applications. Featuring a sputtered-gold, lightweight mylar diaphragm, low-noise electronics and a solid aluminum, precision-machined body, the C15 includes an integral screen and is supplied in a hard case with a stand clip; a suspension shockmount and washable pop filter are optional. Frequency response is 25-19k Hz; max SPL is 132 dB; weight is 8.5 oz. Price: $599.

Circle 334 on Product Info Card

**WEISS DS1 DIGITAL DE-ESSERCOMPRESSOR**

Daniel Weiss Engineering (distributed by G Prime, New York, NY) offers the DS1 De-esser/Compressor, a digital rackmount unit that offers a wide range of frequency-selective and full-band compression capabilities. Bandwidth and compression parameters are selected and adjusted via 12 dedicated front panel knobs; a large backlit LCD shows current status and I/O metering. Featuring 40-bit floating-point processing, the DS1 offers 24-bit AES/EBU I/O with switchable dithering, 128 snapshots with A/B comparison function, de-ess and limiting presets, "compressed band only" monitoring and auto gain makeup. Price: $4,950.

Circle 335 on Product Info Card
HOT OFF THE SHELF

Acoustic Sciences Corp. remodeled "The Studio Trap for improved HF response by placing the diffuser panel closer to the surface. The Studio Trap is a cylindrical bass trap with a mid/high diffuser in one side and is used alone or in groups to modulate the acoustic space around a vocal microphone, for instance. Call two M-1s, is now $750. A "Producer's Set" package (two M-1s and one FM 202 in a flight case) has been reduced to $7,980. Call 41/1/725-7777... The Drumtrax Library 3.0 CD-ROM includes more than 25,000 measures of Standard MIDI File drum set and percussion performances. A Drumtrax Librarian database management system searches, marks, loads and launches sequences. Price is $99.95. Call 508/977-0570 or e-mail sales@drumtrax.com... The MilesTek Catalog features 125 new items among an extensive inventory of products and tools for audio, video, networking, communications and wire management. Call 800/524-7444... Cirrus Logic announces the industry's lowest-cost delta-sigma 16-bit A/D converter (CS5529), available in 20-pin PDIP and 20-pin SSOP packages at $3.80 for 1,000-piece quantities. Call 510/486-1166 or visit www.meyersound.com... Clark Wire & Cable now offers Winsted modular console and rack product lines, which allow users to order stock items to build custom designs. Call 847/949-9944 or visit www.clarkwire.com... ETA Systems' PD11SP four-stage power up/down sequential conditioned power distribution unit offers four preset delays and an optional manual setting allowing for 240-second intervals. Call 800/321-6699 or visit www.etasys.com.
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**NEW PRODUCTS**

**COMPUTER HARDWARE/SOFTWARE FOR AUDIO**

**LEXICON**

**LEXIVERB PLUG-IN**

Lexicon (Bedford, MA) introduces LexiVerb, a reverb TDM plug-in for Pro Tools 4.0. LexiVerb can be used as either mono-to-stereo or stereo-to-stereo and features 24-bit processing, offering four algorithms (chamber, plate, inverse and gate) with 100 presets. The intuitive interface displays algorithms as 3-D wire diagrams with pop-up faders to customize parameters; a macro editor allows group parameter control. Pro Tools 4.0 automation functions are also supported.

**Circle 339 on Product Info Card**

**OPCODE FUSION: VINYL**

Opcode Systems (Palo Alto, CA) introduced fusion: VINYL, the latest in its fusion/EFFECTS line of cross-platform DSP plug-ins. fusion:VINYL emulates the "classic" sound of 78, 45 and 33 1/3 rpm vinyl records, and includes tools for adding compression or varying stereo width, in addition to custom Record Surface and Turntable System controls. Platforms supported include Pro Tools 4.0, Digital Performer, WaveLab, Sound Forge, Logic Audio, Deck II, Peak and Adobe formats, in addition to Opcode’s Vision and Studio Vision Pro. Retail is $999.95.

**Circle 340 on Product Info Card**

**LINE 6 AMP FARM**


**Circle 341 on Product Info Card**

**COPYPRO**

**CD DUPLICATORS**

CopyPro (Concord, CA) introduces new products in its family of CD duplicators. The CD Duplicator stand-alone tower and the CD-R SX rackmount series. The CD Duplicator copies up to 28 CDs or more per hour (drives are 4x), supports Track Editing and Disc at Once modes and features easy one-touch operation. Stand-alone units start at $2,995. The CD-R SX rackmount units record at 4x speed and feature Duplication or Instant Copy modes, track editing capability and simple keypad operation. Prices start at $4,195 for a two-drive, three-unit model.

**Circle 342 on Product Info Card**

**SYQUEST SYJET 1.5**

New from SyQuest (Fremont, CA) is Syjet 1.5, a 1.5GB removable-cartridge hard drive. Weighing less than 24 ounces, Syjet drives offer a portable storage solution for Macintosh and PC users; a 1.5GB cartridge holds two hours of audio and weighs less than three ounces. Internal and external versions are available.

**Circle 338 on Product Info Card**

**METALITHIC**

**DIGITAL WINGS ELITE**

Metalithic Systems (Sausalito, CA), creators of Digital Wings for Audio, introduces DWA Elite, a 128-track hard disk recording system for Windows 95. DWA Elite features 32-bit operation and 128-track capability, and includes DWA V.2.0 recording/mixing/editing software, plus Sytrilithic’s Way Cool Eult package, which provides 30 DSP plug-in effects. System hardware includes a PCI card and rackmount 10x10 breakout box featuring 8 analog in and outs (all with 20-bit conversion) and stereo S/PDIF I/O. An optional ADAT interface is in the works. Price: $1,248.

**Circle 337 on Product Info Card**

**UPGRADES AND UPDATES**

Second Wave (512/329-9283) introduces Xpanse P700R, a seven-slot PCI rackmount expansion chassis for the PCI-based Power Macintosh or PC. Xpanse can be slide-rail or tab rack-mounted, and includes a 250W power supply, cooling system and drive bays... Steinberg (618/993-4091) and Propellerheads released Version 1.5 of Rebirth 338, offering MIDI control and real-time sync mode. In addition, Steinberg offers Cubase VST 3.55 and WaveLab 2.0 updates for Windows...New from Metric Halo (914/298-0451) is the MLM-100 Master Level Meter, a high-resolution digital meter plus stereo balance meter, oscilloscopes and Lissajous phase scope, for Macintosh... Rerewratile CD drives are here: CDWriter from Optima Technology (800/411-4237) is a 6x read/4x CD-R write/2x CD-RW drive retailing for $899... Glyph Technologies (800/335-0345) offers a variety of rackmount and tabletop storage solutions for Pro Tools, featuring Seagate Cheetah drives... Tracer Technologies (717/843-5833) introduces Quartz Audio Pro 128-track digital audio software and Diamond Cut Audio Restoration Tools; free demos are available at www.tracertek.com... Power Technologies (415/467-7886) reduced the retail price of the DSP•FX Virtual Pack to $499.
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*Some options require additional hardware.*

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By now, everybody in audio is familiar with Drawmer, which is well-known for its top-quality dynamics processors. Although not overpriced, many Drawmer products have been out of the price range of most project studios and club installations. This may all change with Drawmer's MX30, a dual-mono (stereo linkable) compressor/limiter/gate that retails at a wallet-friendly $449.

Housed in a modest single-rack-space chassis, each of the MX30's channels has a minimal number of controls, due to its innovative program-dependent processing, which makes for fast operations.

The gating section combines a variable threshold control with a switch for selecting fast or slow release times. The actual gating action uses Ivor Drawmer's proprietary "Programme Adaptive" circuitry, which optimizes the attack, hold, ratio and release parameters to reduce "chatter" of signal fluctuating around the threshold point. I'm not exactly sure how this is accomplished, but it seems to incorporate an envelope follower circuit into the gate.

The compressor section has manual threshold and ratio knobs with automatic control of attack and release parameters. The compression section combines aspects of soft-knee processing (for subtle level control) and that of a traditional ratio-style compressor, for creative, in-your-face processing.

The output section has both a gain knob with a ±20dB range of gain makeup/attenuation and a variable threshold, "zero overshoot" peak limiter. The package is completed by two LED ladder meters for gain reduction and input/output levels, individual bypass switches for each channel and a stereo link switch that controls both channels via the left channel controls. One nice touch is the use of multiple LEDs indicating the status of the gate time, gate threshold, peak limiter, and bypass and link switches at a glance.

Hookup is flexible, as both -10dB unbalanced 1/4-inch and +4dB (pin 2 hot) XLR I/O are provided. And as an extra feature, a user can feed a signal to the -10 or +4dB input and take a feed from both the -10 and +4 outputs simultaneously, allowing, for example, the -10 out from a keyboard submixer to feed an onstage amp, while the +4 feed is routed to the house mixer, thus eliminating a need for a direct box or splitter. The power supply is internal, and a jumper inside the case converts the unit from 115 to 230 VAC use.

As fate would have it, the day the MX30 arrived, I was mixing a live concert CD. I didn't really plan to check out the unit that day, but as I was setting up to mix, I had a problem with the miked acoustic bass track, which sounded fine but needed a touch of compression to level it out. The problem with standard compressors was that they also brought up the level of the background audience noise. Gate a stand-up bass? I wasn't too sure about that, but I gave the MX30 a try.

After a minute or so of twiddling and setup, I was amazed by the results—there was no choppyness at all! The unit effectively gated the background without cutting off notes or decays. Here's where Drawmer's Programme Adaptive circuit really shines: As the onset of gating is progressive, low-level signals are handled at an expander-like low gating ratio, while the background audience noise during pauses has a higher expansion ratio. But however it worked, it worked extremely well, and I got the effect I wanted, fast.

This brings up another point. After the session I still hadn't read the (actually very good) manual. The unit is simple to use, although most users probably won't need to refer to the somewhat silly front panel graphics that illustrate what compression and limiting are.

The compression is smooth and free of artifacts, except at extreme settings. Over the next month, I also used the MX30 on kick and snare, toms, vocals, electric bass, guitar and program material—all with great sounds. The audio quality is whisper-clean, and the output peak limiter section is a useful addition, whether as overload protection to optimize the dynamic range of a digital recorder, or for driver overload protection in a live sound application.

The MX30 is one versatile compressor/limiter/gate that not only handles everyday studio chores but adds a few slick tricks of its own. At $449, anyone wanting to step up to Drawmer-level performance should check out the MX30.


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By George Petersen
Avalon Design VT-737

Vacuum Tube Direct Signal Path

The latest addition to Avalon Design's high-quality line of preamps, equalizers and compressors is the VT-737 Vacuum Tube Direct Signal Path, a complete single-channel recording pathway for processing any audio source, regardless of signal level or source impedance. When I think of all the individual pieces of equipment I might have to patch together to simply record a vocal, the VT-737 seems like a godsend; it combines all the functions of a mic tube preamp, tube opto-compressor and a discrete Class A transistor 4-band equalizer with sidechain routing ability, all followed by a tube line level-balanced output stage.

I reviewed the new SP (Special Performance) version that upgrades the original VT-737's purple knobs and faceplate. In addition to the standard Avalon metal knobs and a more detailed faceplate, the SP has a new, higher-level mic input transformer.

The Avalon VT-737 is housed in a two-rackspace, aluminum and steel cabinet and is styled like the rest of the Avalon line, with backlit push-button switches and an oval VU meter. At first glance, the front panel may seem busy, but all four processes are grouped in an ordered, logical way.

**MIC PREAMP FRONT END**

A front panel switch selects three possible input sources: a rear XLR-balanced line input to the equalizer and/or compressor sections; a front ¼-inch unbalanced high-impedance (1-megohm) mic input for directly recording instruments; and a rear transformer-balanced XLR input for studio mics. With three input paths, you can immediately switch from recording a direct guitar to recording a vocal to processing an already recorded track with the EQ and compressor. There are also switches for 48 VDC phantom power and (output) phase flip. Another switch selects a bass cut filter operating between the preamp tubes; it's a -6dB/octave passive design with a variable corner frequency of 30 to 140 Hz.

One continuously variable gain control trims the level for all three inputs via a ganged-pot that sets input level and gain of both dual triode stages together in the cascaded tube mic amplifier. The VT-737 uses four Sovtek 6922 tubes: two for the mic preamp, one for the compressor and the fourth for the line output amp. For more mic gain, a front panel switch called High Gain zeroes out the negative feedback in the mic preamp circuit, resulting in an open loop gain increase of 18 dB (for a max total of 58 dB). In operation, I used the unit at the upper end of the gain range, where I found a more "linear" feel when setting level. I also used High Gain for a hotter mic sound but found the adjustment of an exact, working level touchy. In any case, getting a starting level is easy with the smooth, noiseless controls.

In/out switching for each section is via sealed silver contact bypass relays, so if the compressor is switched out, the signal bypasses that stage. Using the mic preamp section only (without EQ or Compressor switched in), I compared the VT-737 to some of the other mic preamps I use. I found the sound very clear, open and flattering on everything I recorded. With a tube U47, the VT-737 was a tinge brighter than some of the other mic pre's. (Or, I could say, the others were a tinge duller...whatever). One small change I would like is a dedicated mic preamp output, so that the mic pre and the EQ/compressor sections could be used on different signals simultaneously.

**OPTO-COMPRESSOR**

The opto-compressor features two Class A triode tube sections. The optical attenuator acts as a passive level controller. The Threshold control sets threshold level from -30 to +20 dB with a center detent position of 0 dB. Preamp input gain and threshold settings are totally interactive; shaping the nature of the compressed sound becomes something of a juggling act between the controls.

The Compression control adjusts the ratio and the "knee" of the slope; a continuously variable pot selects compression ratios from 1:1 to 20:1. The Attack control adjusts attack time from 2 ms to 200 ms. Release time is adjustable from 100 ms to five seconds. There is also a compressor in/out switch, a meter switch that toggles the VU between output and gain reduction and a very cool EQ to Comp Pre button that inserts the equalizer section either pre- or post-compressor. The compressor is very smooth, and I found it nearly impossible to make anything sound bad through it. The compressor is comparable to Avalon's AD2044 Opto-Compressor in operation and sound.

**EQUALIZER AND SIDECHAIN**

The VT-737 uses an all-discrete, Class A transistor circuit in the 4-hand equalizer. The equalizer is divided into two separate equalizers: a Treble/Bass EQ and a dual mid-band circuit. The Treble/Bass equalizer is a passive, shelf-response design with ±24 dB of gain. The Bass frequency selection points are 15/30/60/150 Hz; Treble frequency...
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times. I'd like to see these sections fully parametric with a little higher Q, but this may not be possible within this price/performance envelope. The equalization was smooth and perfect for vocals but not quite as cranky as I sometimes want when recording instruments such as percussion or drums.

An "EQ to SC" switch routes the two mid sections to the sidechain input of the compressor. (In this mode, the Treble and Bass sections remain in the final signal path, and the ability to switch them in/out and pre/post is unaffected.) Using the two overlapping EQ sections of the dual mid-band equalizer, it is a simple matter to zero in on problem frequency peaks and make the compressor clamp more. Note that you must find new settings for Threshold, Attack and Release to effect the desired sidechain modulation at the same time as proper main-chain compressor operation. In practice, the sidechain feature worked well on certain synth patches having sizable level jumps when a filter rolled through resonance or a chorus effect caused giant, in-phase level build-ups. I also used this feature on a difficult bass guitar; the instrument had uneven output level from one string to the next, and the G string was really loud when an open G was played.

My results on de-essing were mixed, as I found it hard to arrive at optimum settings that squashed sibilance sufficiently yet didn't overcompress the signal. If you have a singer with sibilance problems, you may need to rely on an external de-esser.

The output tube stage—where you "make up" or "take away" level to achieve your final recording level to tape—has a trim range of -40 to +10 dB. The tube amplifier is followed by a transformerless, high-voltage, discrete, transistor-balanced output amp circuit.

I got big, fat and impressive results on acoustic guitars, vocals and direct bass. I recommend the VT-737 for any recording task requiring a big, open and natural sound.

**DETAILS**

The internal toroidal power supply can be powered by any AC source in the 100 to 240-volts range. An integrated "soft start," 40-second power-up routine is said to enhance tube life, and Avalon recommends following this with 30 minutes of warm-up time for optimum performance. Maximum gain is 58 dB using the balanced mic input; maximum input level is +10 dB at 25 Hz from the balanced mic input; maximum output level is +30 dB into 600 ohms; EIN noise 20kHz unweighted is -92 dB; THD is 0.5%.

Current retail price is $2,495 for the VT-737SP, while the original purple-knobbed VT-737 is $2,195.

Thanks to Lex Marasek and Dan Vacari at LAFX Rentals in L.A., Constantine Psorakis at EVIA Systems and Wynton Morro at Avalon Designs.

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He was also impressed by the expanse and depth of the stereo image they create. Elliot says, “I don’t know how they do it, only that they seem to do it better than anyone else. Very, very clear. Everything is distinctly audible and natural. It’s pretty amazing how they open up a mix.”

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CIRCLE #083 ON PRODUCT INFO CARD
AMS Neve VX/VXS
ANALOG RECORDING AND PRODUCTION CONSOLE

While digital rapidly eclipses analog as the technology of choice in an increasing number of facilities, manufacturers are carefully looking at their existing product lines and making difficult decisions: upgrade, update or replace? With a large installed base of AMS Neve VR and Legend consoles around the world (close to 350, according to company sources) and continued interest in a design that, for many users, offers a number of outstanding features and superb sonic performance, conclusions reached at the firm's UK headquarters must have been easy. Add some features that users have been asking for, spruce up the front-panel layout, adopt a revised color scheme and, presto: the new VX Music Recording and VXS MultiFormat Production console.

As I discovered during a hands-on session at Skywalker Sound's new scoring stage, featuring a 72-input VXS with Flying Faders, this revitalized console series represents a significant improvement over its predecessors. In essence, AMS Neve has taken the basic VR/Legend topology and added the following capabilities:

- Improved Metering: To maximize headroom, it is now possible to meter signal levels at the critical post-input trim point via the console's high-resolution bar graph meters. (Dynamics metering is now also a standard feature.)
- A Direct-to-Fader Input Module: This option bypasses the module's front-end/EQ section and provides, for example, direct-from-tape-machine-to-fader connections during remix, eliminating unwanted electronics from the signal path.
- Encore: AMS Neve's cross-platform moving-fader automation system—which enables mix data to be transferred between various consoles—can be supplied on the VX and VXS. Encore also provides optional automation of channel switches and accommodates the new Recall system.
- Automation Data: This is now displayed on a color TFT screen built into the meter bridge, eliminating the need for an external monitor.

The VXS MultiFormat version adds features for surround sound mixing and music scoring, plus an independent mono or stereo dialog input. The VXS also provides:
- Up to eight discrete output buses; the enhanced flexibility handles SDDS and similar eight-way film formats. (The VR panel for VR consoles offered access to only six buses.)
- PEC/Direct paddle switches for monitor select and arming record modes for external audio/video transports.
- Optional assignable joystick panners and dual-track faders for music and dialog returns.

During extended listening tests, the VX/VXS outshines its predecessor, particularly in such areas as sonic openness, high-frequency response and general "punch" in lower frequency and midrange. Neve designers are said to have also further reduced crosstalk, noise and errant RF signals. Overall signal-to-noise ratios are now said to be 8 dB quieter than the VR; 6 dB better than the VR Legend. Major signal-path enhancements have been focused on a substantial re-engineering of input racking and module interconnects. On the VR, twisted-pair cables up to two feet long were used for line-level signals in the input module, bundled together and terminated with wire-wrapped connections. On the VX, connections are formed by short, interleaved signal and ground tracks that are hard-soldered onto a multilayer PCB.

Mic signals are now physically separated from the line-level signals of other channels, and external connections to this section are grouped by channel, not function. Power busing within the VR Series was achieved via bus bars; this function has been retained in the VX Series, but with supply rails formed from strips of wider, 10-gauge conductors. The resultant DC impedance is reduced to 20% of that of the older model. (Though I had no way of physically checking these mods, the end result was clear during listening tests."

IN-LINE/DUAL-SIGNAL PATH DESIGN
Given its direct lineage from the popular VR Series, the new VX/S
One musician plays acoustic guitar and sings into microphones less than 20 feet below a loudspeaker array reproducing those sounds at over 140 dB (@ 1m). 600 feet away, listeners hear the guitar pick on the steel strings, the string scraping across the steel fret as the string is bent. There’s no feedback. The musician doesn’t even use a foldback monitor.

Except where the upper tier shadows the lower, just 25 enclosures cover the entire 80,000 seat stadium. A successful world championship track meet at the facility helps the city reclaim its Olympic heritage, securing the 2008 Summer Olympic Games.

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features an in-line monitor modular layout, with two distinct signal paths—an input source during recording/overdubs and tape playback during remix—with separate faders on each path. The dedicated monitor path is used primarily for monitoring multitrack sends and playback during tracking, as effects sends/returns during remix, or to provide additional tape replay inputs for large mixdown dates. By swapping small and large faders (along with companion solo/cut functions) either individually or globally, the engineer can use whatever fader is more comfortable or offers the more comprehensive automation functions.

Versatile channel-input selection and output routing on the VX/S can be modified either by master status controls located within the center section, or on a channel-by-channel basis. Master switching allows the user to configure the console quickly using status selectors, mic/line switching, fader swapping, track-laying/mixdown status and broadcast selection. Consoles can be set to one of three primary operational modes: Track Laying, Mixdown and Broadcast. Master switching operates over the entire console, or on the left- or right-hand sections. In this way, conventional in-line topologies can be set up in the VX/S, or a split configuration, with an input bank and a separate monitor section on either the left right or the center section. (Stereo input channel strips can also be supplied for video post applications, etc.)

As will be appreciated, such freedom of front panel layout greatly enhances the VX/S design's flexibility. The front panel layout is very clean and easy to follow, with colored knob caps to aid in recognizing module sections, plus clear labeling of even the smallest buttons. In contrast to the gray color scheme used on the VR/Legend, the VX/S now features a high-contrast black background color, which makes it easier to read button and knob nomenclature.

During multitrack recording, mic or line signals are fed via the channel path and large fader to the routing matrix of 48 group buses, arranged in doubled pairs (1 and/or 25, 2 and/or 26, etc.). Panning is selectable between odd and even track sends. Inputs can be processed using a highpass and lowpass filter, equalizer and dynamics unit. The channel path can be routed directly to the track send of the same number or designated as part of an audio subgroup; a useful trim control provides...
level adjustment for the track send. Simultaneous monitoring of either the multitrack sends/returns is possible globally or from each channel.

A new mic amp design is said to offer low noise and low distortion at all signal levels; during listening tests, it was hard to detect any trace of overload or clipping, and noise seemed to be more a function of the mic/line source than the preamp. EQ and dynamics sections can be laid into the monitor path; similarly, aux sends can be fed from the monitor path, either pre-fade/precut for foldback cue sends and post-fade for reverb sends. Although the small channel fader is normally configured for setting control room levels, this can be reversed with the large fader either globally or individually. Monitor signals can then be panned and bused via a 4-track routing matrix to one of the two stereo main outputs.

EQ, FILTER AND DYNAMICS CONTROL
As with the majority of AMS Neve consoles, the VX/S's equalization is a marvel. Smooth and clean in operation, it is possible to reach for outrageous amounts of cut/boost without running into clipping or other strangeness. A pair of 12dB/octave highpass and lowpass filters are provided, running from 31.5 Hz to 315 Hz and 7.5 kHz to 18 kHz, respectively. Filters can be switched into the channel path independently. Neve's Formant Spectrum Equalizer section provides four bands of parametric EQ, with overlapping frequency ranges. The two mid-frequency bands feature center frequencies from 190 to 2.0k Hz, and 800 to 8.7k Hz. The high- and low-frequency controls provide ±18 dB of cut/boost, switchable Q (0.7 or 1.2) and peak/shelf; ranges are 1.5 to 17 kHz, and 33 to 370 Hz.

In addition, a limiter/compressor and gate/expander are available on each channel, with flexible side chain control. Gate/expander controls include a 50dB gate range, 70dB threshold (expansion ratio is 2:1), release time from 30 ms to 3 seconds, with switchable attack time (1 ms or 100 microseconds) and variable hysteresis. (Hysteresis adjusts the threshold level for signals that are rising or falling in level and enables precise triggering on the targeted signal while still allowing the correct amount of signal "tail" through the section. Very useful.) External key input and invert (for ducking) are also provided.

The limiter/compressor features

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30ms to 3-sec release times, 50dB threshold, ratios from 1:1 to limiting, plus 30dB makeup gain. Attack time is program-dependent, with a switch for fast impulse response. Release can be set to follow automatic program-dependent release. The EQ section can also be inserted into the sidechain for de-essing, etc. All in all, the dynamics section is easy to set up and use and provides an outstanding range of system control; sections can be linked for stereo operation. My only complaint is that the knobs are a little too close together for my prehensile digits. But, given the limited amount of real estate available on the surface, it's a minor hardship.

Eight aux sends feature individual On/Off and Pre-Fade/Post-Fade switches and can be configured as eight mono buses, with either the channel or monitor path as source. Pairs of sends can operate as a stereo aux with level/pan controls. Inserts also can be linked to either the channel or monitor path independently of the EQ section; pre-EQ/pre-dynamics topologies are also possible. Direct outputs are provided, bypassing the multitrack matrix.

Fader automation on the VX/S is nothing less than comprehensive. Again, Touch Record/Lock Record modes are available for the fader. Match and Auto Match LEDs indicate which direction the fader needs to be moved to return to the Play Pass position in Group and Link modes. Global master fader controls are also provided for linking channel functions. While, for many users, Flying Faders represents the current paradigm for easy-to-use, intuitive yet comprehensive automation, the new Encore system adds enhanced functions such as Replace, Relative and Auto Match Modes.

The Meter Bridge provides multitrack meters for each channel and displays signal levels via VU or PPM scales. (A handy 6dB Dump facility for the VUs decreases the sensitivity to allow metering of signals that peak above +3 dB.) Two small dynamics meters below the main bar graphs display the settings within the dynamics module. A Signal LED, with user-selectable threshold, lets you see if there is a signal present. Dedicated 2-track meters follow selection of Mix 1-2, Mix 3-4 or an external monitor source.

STEREO AND FADER DIRECT INPUT MODULES

The optional Stereo Module fully utilizes both line-level signal paths and

—CONTINUED ON PAGE 206
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RØDE NT1
STUDIO CONDENSER MICROPHONE

When I received the mic, the crystals were well-balanced. The grille has two layers: a fabric outside layer and a fine steel mesh inside layer. The first layer is made of a fine steel fabric. This assembly forms a rugged transducer cover that is acoustically transparent but physically strong.

The mic comes in a rugged plastic case with foam lining and a packet of silica crystals for moisture absorption. The manual warns that the diaphragm (as with most condenser mics) dislikes moisture. When I received the mic, the crystals were pink, indicating that they were full of moisture. I dried the packet to a nice blue color, but when they were returned to the mic case, they turned pink within an hour. Perhaps my Seattle studio is ultra-damp, or maybe the mic itself had a fair amount of moisture in it. The mystery remains...

My first opportunity to use the NT1 was on a CD editing session with Eyvind Kang. As an old Kimball piano had been delivered to the studio just days before, Eyvind suggested adding a piano track to the project. Six seconds after phantom power was applied, the NT1 stabilized and I was hit with amazing accuracy. The sound was so stunning that I ran out to the studio to see if the piano actually sounded that way of its own design or if the mic was able to make an old, beaten instrument sound more beautiful. Fortunately, the Kimball actually sounded good of its own accord.

The manual suggests the use of an external pop filter, stating that plosives might bottom out the capsule. Indeed, I found that just a steady blowing toward the capsule bottomed it out. The ol’ pencil trick reduced the plosive effect, but an external wind screen would probably be required on an up-close and personal vocal.

Accuracy is the operative word here, so I subsequently tested the NT1 on cello, contrabass, vocals, violin, trumpet, acoustic guitar, hand percussion, electric guitar, various odd sound makers and drum kit, and was impressed with the mic’s ability to capture what I was hearing. On each instrument tested, the musician was asked to evaluate the sound of the test recording, and in each case the artists were pleased with the sound of their instruments—so much so that several commented that their instruments had never sounded better.

The cello and acoustic guitar tests were particularly stunning. I felt that a single NT1 produced threedimensional recordings. The cello recording possessed extreme depth, and the acoustic guitar seemed to jump out of the speakers. I was curious about using the NT1 for stereo. During this test, I discovered a key to its sound: The NT1 is a true large-diaphragm condenser mic with a single 1-inch, gold-sputtered diaphragm. This single diaphragm creates a semi-cardioid pickup pattern that resembles a deranged figure-8. It picks up beautifully in front, to a lesser degree on the sides and quite well in the back.

As a stereo pair, two NT1’s work well together. I’ve found that a pronounced stereo recording can be made with the capsules forming a 90-degree angle with the front facing out. It works well because of the “blind” spot on the sides of the mic. If you face the capsules toward each other, the image is not as wide (obviously), but the “blind” spots on the mic’s sides punch holes in the stereo image.

Although the mic boasts a 135dB maximum SPL spec, the NT1 failed to capture the sound of a Super Deluxe and Telecaster combo without overload. Too loud, I guess. Nor does it like to be an overhead on a drum kit (although it sounds great at 20 feet away). Use the pad switch on your preamp for the loud stuff, but I think I’ll reserve these mics for the quieter instruments and vocal passages.

Overall, the RØDE NT1 is a real workhorse, sounds good on just about everything, and is relatively inexpensive. Personally, I could use ten of them!

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Scott Colburn is secretly producing some of the best music the Seattle area has to offer; check out www.sent.net/~gravel for more info.

BY SCOTT COLBURN
sound that shares many aspects of production and post-production work: sound effects recording. It's like production recording in that historically it has involved a Nagra or a DAT over the shoulder, battling the elements, removed from the cocoon-like atmosphere of post. In spite of these out-in-the-real-world similarities, it's actually closer in spirit to post-production sound, because it relates directly to sound effects editing and does not go through picture editing as production recordings do.

This is the first of four columns dealing with all of the issues concerning recording sound effects in the field: equipment choices, how to work in conjunction with the production, editing field tapes to prepare them for library entry and organizing your sound library. This month, I'll discuss why you need to do effects recordings in the first place.

Simply put, original sound effects recordings are the foundation of a top-notch sound editorial company. While I think that commercial sound effects libraries are great tools, the fact of the matter is that most sound editors have many of the same libraries, so you have to look elsewhere to make a distinction. And while I will always place people first in any artistic endeavor, I humbly submit that the quality of the company-specific sound effects are almost as important to an overall sound job as commercial CD sound effects libraries. Of course you can, especially since the quality and variety of commercial libraries is increasing every day. That said, a custom-recorded effect not only de facto has a better chance to work with the image, you have to work less if you recorded it originally.

I'm not just referring to obvious see a dog, hear a dog issues (an example being a car maneuver that you can mimic exactly if you are recording the effect custom for a film). Such literal effects do indeed make for easy editing. I'm mainly referring to the ease with which one can be creative and a steady diet of field recording will expose your recorder to all sorts of serendipity. Thus, the first rule of this month's missive on sound effects recording:

- Record any interesting sound any chance you get. In recent months, I've been doing a lot of traveling to do effects recording and have come across a few bizarre hotel TV sets. I'll leave it up to you, faithful reader, as to what comment on my life it is that I will be up at 5:30 a.m. in a hotel in Eunice, La., recording the funny buzz of the TV set in the Quality Inn on Highway 190.

The same held true in Miami, where my hotel room was next to the elevator shaft, which produced all sorts of neat tonal Doppler-bys just aching to be used in a sci-fi film. And in Detroit, on my

—CONTINUED ON PAGE 136
by David John Farinella

There's a garage in Los Angeles where Wendy Melvoin and Lisa Coleman, formerly members of Prince's band The Revolution, regularly drop by with suitcases and videotapes. It's an unassuming place with an unofficial name of Punker Pad West. No signs, no lobbies, no atriums. Even the neighbors wouldn't be aware that it's where they scored the hit film Soul Food.

Home to Andrew Scheps' Cor Productions, the 1930s-era two-car garage boasts 32 tracks of Pro Tools and 32 tracks of Tascam DA-88s. "It's basically a mini-commercial recording studio, and I mostly engineer," Scheps says. "So it's built around something to record on and something to mix it with, which is the Mackie 8-bus with the Ultra-mix automation." And, depending on the session, the room is stocked with a bevy of synthesizers (Roland JV-1080 and JD-990), samplers (Roland S-760, an Akai S-3200 and a Kurzweil K2000R), a Minimoog and a Synclavier. He runs Pro Tools III and Studio Vision Pro with a Power Tower Pro 22 (he used a Power Macintosh during the scoring of Soul Food).

"It's sort of like a big ring looking for something to do," Scheps says.

With Wendy and Lisa, there never seems to be a shortage of work. In addition to their bevy of side session and production gigs for such acts as Doyle Bramhall, Victoria Williams, Seal and Tricky, the duo have been hard at work developing their scoring reel. "Our budding business is the score thing right now," says Lisa. "We just got new agents, so we've been having..."—CONTINUED ON PAGE 139
ROCKIN' CHAIR
CREATIVE SOUNDS
NOT SITTING STILL IN MIAMI

by David John Farinella
As part of one of the hottest video post houses in Florida, you’d hardly expect Rockin’ Chair Creative Sounds to be a stationary partner. In fact, the division of Broadcast Video Inc. has been at a virtual sprint since opening its doors last September. Not only has the company been adding audio post rooms in its Coconut Grove facility, but it has been upgrading and improving systems at the original North Miami facility and planning for a new 10,000-square-foot space in South Beach’s Sony Building.

The company’s principals, executive producer Marcelo Gandola and senior sound designer Scott Pringle, split their time between the two current facilities. Gandola, who handles everything from creative oversight to bidding, calls the North Miami location home. And 25 minutes down I-95, the Coconut Grove studio is Pringle’s domain, although the two can be found at either location on any given day. There are two audio post rooms at each facility, and they are basically carbon copies of each other, technologically speaking.

"This was a natural progression from Broadcast Video Audio Post," explains Gandola. "We became a division where we do creative sound services, sound design, music composition, as well as your usual post session where you pull sound effects off CDs. I came here six years ago, and we had one audio suite. Now we have four with a music room and another on the way."

The North Miami locale features two rooms, both stocked with SSL Screen-Sounds and AMs Neve Logic 3s. MOTU Digital Performer is run from a Macintosh, and the team makes heavy use of the E-mu E-IV-X Turbo Digital Sampling System and Roland VGA Guitar System for sounds. Outboard gear is kept to a minimum, with an Eventide H3500 and DSP4000, as well as a Lexicon PCM 70 digital effects processor. As the audio division has grown, the company has done all it can to ensure that a true plug-and-play atmosphere exists, including the installation of digital patchbays that connect to each other room. They made the choice to go with the SSL system after Gandola arrived because, "How much bigger are you going to get than SSL?" he asks rhetorically. "Then we got some AudioFiles and some Neves, and now we're leaning toward Pro Tools."

"We got the SSLs a few years ago," Pringle adds. "Time for an engineer isn't much of a concept. I spend three hours on a 15-second spot, so five years is like 15 for me. When we went from analog to digital, we looked at everything, and since we're heavily video, ScreenSound really caught our eye because of the interface with the video and the synchronizer. That is huge because when you've got a submaster with this on it, a film transfer with this on it and a DAT that has this ...I just plug in all three machines and I don't have to change tapes; I can control all three machines either simultaneously or one at a time. I can import all the sound I need, and if the client comes in with a 3/4-inch offline that has total arbitrary timecode, I can just punch in the numbers and roll it as though it was at the even minute. For me, no one has done it like SSL has for the serial page, where you can have so many machines lock up in two seconds."

And while Pringle’s allegiance is still to SSL, he added Pro Tools 4 to one of the two rooms at Coconut Grove and added reverb and surround sound plug-ins. Although the facility has only dedicated one room to surround sound, with Meyer HD-1 monitors, both Pringle and Gandola see a future in multichannel playback. "Our room is just brand-new, so we just got it together," Pringle says. "This market is pretty untested when it comes to surround sound. We're trying to push a new room, a new guy and new things. You gotta do it one at a time so no one gets flipped out."

Gandola concurs: "Surround is becoming more and more popular. It's funny, because this market has really blossomed. I don't think Miami was considered a huge market, but there's so much happening down here right now. As far as surround sound, we're still teaching people what it is, but the minute they see it and hear what it is, they're all excited and want to get involved."

Although Gandola is sold on the economic benefits of Pro Tools—"It's easier to buy a $900 piece of software instead of a $3,000 box"—he isn't completely sold on the Avid-Pro Tools OMF connection. "On a long project, we go back to the traditional way and take their tape and dump all the audio in, in real time," he says. "We have the AudioFile and Logic 3 consoles, and we're updating, so the OMF still will be happening for us. It's funny how at one time it was, 'Here's your video, there's your audio. Keep them completely separate.' It's not like that now; everybody's got to talk to everybody else now."

That philosophy extends nationally as well as between rooms and facilities. "As soon as we finish a mix in the Grove," Pringle explains, "we go upstairs and we can phone it Beta-quality to a client using Drums," which is a graphical interface program supplied by Sprint that enables houses like BVI to offer clients real-time presentation and revisions via an ISDN line. "We do that a lot for McDonald's, where all
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of a sudden they'll have a change where they want this new campaign and they need it in two days," Pringle explains. "As soon as we're done, we run it into Drums and the client is seeing it two minutes later." The company also has 3D2 and Zephyr connections between each facility.

Although the bulk of the work that comes out of BVI is video, Rockin' Chair is well-versed in radio. Rather than dubbing a spot hundreds of times, they dump a DAT master into a computer and send it to DG Systems in San Francisco, along with routing instructions. DG then sends the spots to radio stations around the nation via ISDN. DG has just come online with video delivery, so Rockin' Chair will be turning to them for national video delivery, as well.

In addition to spots for the Southeast Toyota Dealers, Sea Doo personal watercraft and State Farm Insurance, Pringle and crew have been putting together promos for Nickelodeon's Hora Nick program, an ID package for MTV's game show and Pepsi's Generation Next campaign, all for Latin America.

The only change Pringle makes before he delivers tracks to Latin America is to split his mixes on a DAT, "in case they have to have their own announcer, because of accents or something like that. They come to the U.S. for a high quality of work, I keep the level really high, and that keeps 'em coming back." —FROM PAGE 132, GATHERING EFFECTS

way out of the hotel to record the famous Kronk Gym, I opened up my 15th-floor window to record sirens and police whistles as the funeral motorcade of former Mayor Coleman Young was proceeding down Jefferson Avenue.

While the latter recording is so specific that it's doubtful I would ever have the chance to use it literally, there is also the point that such recordings are hard to come by, and certainly cannot be staged. So get it while the getting's good. And one day, the neat blend of sirens and whistles might be a good starting point for an abstract design sound.

So, you end up recording for your library, not for a specific film. Yes, I acknowledge that you have a laundry list of effects that you need and only so much time to get them, but you should always try to keep your ears on the big picture. Let's say you get the keys to a gymnasium to go in at night to record some dribbles. Since you won't often have such a good opportunity, you should stock up on any gym effect you can get your mics on: net swishes, squeaky sneaker movement, gym doors, footsteps on bleachers, even the scoreboard buzzer if you can get it to work.

Of course, always try to get not only variations of performance but also of perspective. Because film sound is not a subtle medium, don't record your distant door slamming in the gym 20 feet away; do it 50 feet away. And maybe even off-screen (read: in the next room), if you have the time and patience.

The "get it while you can" approach is classically taken with a car series. While the film at hand only calls for a VW Beetle doing an in and stop, you should make sure that you also get other takes with a variety of ins, idle lengths and types of turn-offs. You also want to get a similar series of starts and outs, pass-bys and constants (i.e., riding inside the car).

And last but not least, get the always-handly door closes and horn beeps. Some neat sounds will present themselves when you least expect it, and not

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When you're already locked and loaded and ready to roll, as was the case with the funeral procession. Thus, effects recording rule Number 2:

- Always be ready to record. Your recorder at home should always have fresh tape and batteries, with mics and headphones plugged in. This way, you're ready when a cool thunderstorm rolls in. Or when a group of chattering schoolchildren is being led down the street by their teacher. Or when the old guy with a vegetable cart yells some neat-sounding but unintelligible sales pitch. Or when you miraculously find a picnic in the park across the street from your house that has great walla but no music. All of the above have happened to me at my home in New Orleans when I was not ready.

If you're really serious about your effects recording, you'll always have something with you, even if it's not the best mic and best recorder. An okay recording of a great sound is a damn good sound, and certainly better than no recording of a great sound.

I should come clean that not even I, a fool for sound, carry a recorder around with me. But you should. You will not always be able to go out and literally record what you want, or be lucky enough to stumble upon something. This is both the toughest challenge of sound effects recording and its greatest tool. So... rule Number 3:

- Free association is your best friend. I remember when I first came to Los Angeles in 1979 to write about film sound and was fascinated to hear Frank Warn- er, one of the great sound effects editors in the industry, say that he would begin a film by randomly listening to sounds in his library that might bear some relationship to what he was looking for. He'd play the tapes at various speeds, forward and reverse, all the while recording the output on another A-1/2-inch deck. If he came across something neat and magical, it was there— recorded and ready to use. The current modus operandi of pulling effects from DATs or CDs does not lend itself to such serendipity, although one can certainly mimic this with a keyboard attached to a sampler, albeit with much less charm.

Insofar as effects recording is concerned, you have to keep your mind open to all possible variations of what you need, again, not only for the film you're working on but for what your library will make good use of in the long run. If you need whooshes, don't just record the standard twirled mic cable or fan blade, but try swinging dowels of differ-
ent sizes.

Creaks and squeaks are other multi-use, all-purpose sounds that you should record in every which way possible. If you can find an old metal dumpster, do everything to it but blow it up. (Then again...) Bang it, inside and out, do a complete set of creaks with the hopefully rusty lid, roll it down the street, drop it off the top of a building. Use your imagination, knowing that your library will reap the benefits for years to come.

This column has focused on approaches to take when you’re out recording effects on your own. Next month, I’ll be talking about an area that is not frequently talked about: recording effects on location with the main production crew. But for now, let me go home, where I’ll be reminded that I need to record the bizarre pings that the elevator makes as it goes past each floor.

Larry Blake is a sound editor/re-recording mixer who lives in New Orleans for reasons too numerous to mention, although one of them would have to be that when he’s working on a film in Los Angeles, be knows that he’ll eventually make it home, across the street from the live oaks.

—FROM PAGE 133, WENDY AND LISA

150,000 meetings a week, getting introduced to everybody. We’ll just see.” While their names have surfaced for a number of upcoming major motion picture scores, Wendy and Lisa have already contributed to the films Dangerous Minds and Toys (title track), in addition to Soul Food.

After the standard spotting meetings with Soul Food’s directors and producers (including Kenneth “Babyface” Edmonds), the team hunkered down at Scheps’ place, as Wendy explains. “We refer back to the spotting session to find out where all of the emotional arcs are within the scene and, especially within this last film, Lisa would say, ‘Pull up the cellos.’ We look at the scene, and Lisa starts playing melody lines over certain cue points until we start building on that. On some of the traditional jazz cues, I’d hook the stand-up bass and Lisa and I would play together through a scene with an acoustic piano and a bass. We’d just watch the monitor, find the moments in the scenes and go for it. It’s really instinctive. It doesn’t have as much arithmetic as most composers probably have.”

In Lisa’s eyes, she’s able to play from a purely emotional vantage point because Wendy is nearby. “I feel really lucky having a partner to do this with,” she says. “I watch the screen while I play, trying to find it, and it’s great to have Wendy listening while I’m cutting through all of these notes, trying to find the right range. It’s helpful when Wendy’s there saying, ‘That’s just a little too sad...You’re going way too far into the dark...That scene doesn’t need a huge crash cymbal...You have to be a
little more subtle. 'We're an extra set of ears for each other.'

And while they bounce things off each other musically, Scheps is busy keeping things in order sonically. During one intensely emotional scene in the Soul Food score, Lisa was playing away without thought of structure, and when she was done, the music was completely free-form. "It was going to be really hard to go back and put a string arrangement to it," Lisa explains. However, with the use of Pro Tools, Scheps was able to put a click map together. When the team then went to Ironwood Studios in Seattle to track a 30-piece orchestra, they were able to play along with the original composition. That two-day session was tracked by Clark Germaine.

In addition to Wendy and Lisa's innate musical ability and Scheps' engineering prowess, what made this score a bit easier to work on was the first-class loan they received from Hans Zimmer. The composer lent the team eight E-mu E-IVs, seven of them filled with his sample library of the London Symphony Orchestra. The loan wasn't surprising, considering Wendy and Lisa worked with Zimmer on both Toy Story and Dangerous Minds. As they say, he has taken them under his wing. The eighth E-IV was used, Scheps explains, for any additional instrument voicings. Zimmer also loaned them a Yamaha 02R for mixing the E-IVs, which was a godsend in Scheps' eyes. "We had a snapshot on the 02R for each cue, which would be recalled as part of the sequence. That kept us from having to start documenting on the Mackie, which would have been a nightmare," he says.

Wendy and Lisa knew from the outset that they would be blending a live orchestra with Zimmer's samples, but that didn't mean that they composed in a temp score vacuum. "Until the film is out, everything is temporary I guess," Lisa says with a laugh. "But we do temp scores with the intent to use everything that we have. We're lucky that the gear we are using is good enough to keep everything that we do. We ended up keeping some things that we thought were rough, but they ended up having that magical sound even though it might not have been the exact thing we envisioned. It just ended up having the right magic. We used everything we did in the garage."

While they relied heavily on the symphony samples, Lisa also played a Yamaha piano and Wendy played an upright bass. Scheps added a trumpet or two throughout the score, and Wendy and Lisa added an oboe to track the main character. For the trumpet and oboe, Scheps relied heavily on the Autotune Pro Tools plug-in. "That allowed us to keep quite a few takes of the oboe, which were beautiful performances but because of the piano and all of the strings, if the tuning was out at all it was a nightmare. I would say that was the star of the show while tracking."

And, he adds, other than the Nuverb reverb, the sessions were pretty straightforward as far as electronics. Their microphone selection was relatively simple, with Scheps using a pair of AKG C-414s, a Shure SM57 and an AKG D112 for the drum kit. On piano, he used two AKG tube microphones that are so old they don't have numbers on them, although he suggests they were the precursor to the C-12. The most interesting microphone trick he pulled was while Wendy was playing the upright bass, he stuck a 414 in the bridge about an eighth of an inch from the body of the instrument. "It sounded huge," he says. "My one last recording secret gone. It was very present and very large."

Their variety of songwriting and production styles gives them a tremendous leg up as they begin to make a name for themselves in the scoring world. "With Soul Food, we were presented with this 'black' film, and we thought we should take the score into a traditional-sounding score with strings, piano and oboe representing the lead character," Lisa explains. "I think we were probably hired because we were Wendy and Lisa, and the association of having come from Prince & The Revolution and having worked a lot in black music, but that's not what we ended up offering. One of the films we are up for right now is actually a white, suburban-type, hard-luck story, which we think would do well with a really funky score. So, we have this ability to straddle two worlds, if you will."

It's a point that strikes a chord with Wendy: "Not only that but a lot of young directors right now are trying to find young composers who can take movie motifs a bit differently. All the directors we're meeting with are trying to connect with a composer who will be their voice through their films. We have a window of opportunity at this point, and that's why we've been lucky enough to have 5 trillion meetings, and we're just on the verge of having two films. We're lucky to be in a climate right now where directors are looking
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for this new thing, so there’s a lot more openness to exploring other ways of creating motif and emotional arcs in films with composing. It’s a great time for a lot of people in pop music to cross over into film."

— FROM PAGE 133, LITTLE DIETER NEEDS TO FLY

The entire film and audio post-production were handled at the Outpost Film Center, a San Francisco facility that specializes in medium-budget, story-based projects. Joe Bini, Outpost co-owner, edited the film upstairs on an Avid system with Glenn Scintelbury, while Josh Rosen, co-owner of Outpost, edited audio downstairs on a Pro Tools system. Dave Nelson, former owner of Poolside Studios in San Francisco and now co-owner of Outpost, mixed the film to ADAT (for television, Nelson created four 2-track stems—VO, effects, stereo music, composite—transferred to timecode DAT for the online session) on the Euphonix console (Serial No. 001), manufactured and hand-wired by Scott Silvfast in his garage in the mid-1980s.

"[Werner] liked the idea that he could be upstairs editing his film and then come downstairs and do a voice-over, then take a Jaz cartridge back upstairs, plug it in and say, ‘Oh, let’s make this a little shorter,’ and go back down to redo his voice,” says Nelson. “We have that experience a lot with experienced filmmakers, who have never really cut voice to picture with all the other audio elements in place.”

Obviously, voice was paramount, and according to Nelson, Dieter has a hypnotic, compelling storytelling style, full of expression and self-confidence. And Herzog lends an earnest narrative. But Herzog will never be described as a conventional filmmaker, and his foray into documentaries brings with it an interesting approach to music. There is minimal sound design, and in many cases, the juxtaposition of music and image adds a touch that is at once impressionistic and extremely emotional.

“We have a lot of really old music in this film,” says Nelson, “some old, scratchy opera recordings where you can tell they’re from 78s—very crackly and poppy. So it lends a very impressionistic, surreal vision to this archival footage. Very Herzogian. Then we have some Tuvan throat singers—monkish-sounding stuff. And we have some pieces from Madagascar that we got through Henry Kaiser. And even though the music in most cases has nothing to do with the historical perspective of the film, it seems completely appropriate. My instincts would have been sound design—you know, you see an airplane dropping napalm, what do you do? I get the feeling from viewing it and mixing it that Werner just made some connection in his mind between the emotion of the music and the emotion of the images that completed the picture for him.”
Xwire Corporation announces a breakthrough in wireless design: the X905 Digital Wireless System. It's the world's only wireless that's 100% free from the compromises of high-capacitance cables and analog wireless systems, assuring audio and musical professionals that what goes in is what comes out. Period.

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Crystal-clear audio is just the beginning: the X905 is free from drop-outs, interference and multipathing. Four omni-polar patch antennas and two complete receivers are hidden behind the front panel of the XR905 receiver creating Quadiversity—two completely separate diversity systems working in tandem. A unique digital key identifies the transmitter's signal to the receiver, locking out all other sources of possible RF interference. The X905 system provides a minimum range of 100 feet under adverse conditions, 300 feet with clear line of sight.

Visit your authorized Xwire dealer and free yourself from excess cable without compromising your audio quality.

Xwire Corporation
4630 Belwit Drive, Suite 20, Sacramento, CA 95838
Voice (916) 929-9473  Fax (916) 924-8065  Internet www.xwire.com

- State of the art, 20 bit AD/DA converters
- Greater than 120db of dynamic range
- 10hz to 20Khz frequency response
- No compander IC's or squelch circuit
- Unique digital key locks out interference
- Five user-selectable channels, up to five systems in simultaneous operation
- 100 – 150 foot operating range under adverse conditions, 300 feet line of sight
- Receiver LCD shows operating channel, audio level, data percentages and battery life (in one-hour increments, 11 hours typical)
- Instrument and microphone systems available
- FCC approved, no license required
- Made in the USA
- Five year limited warranty

Visit our website at www.xwire.com
**EUPHONIX HYPER-SURROUND**

Euphonix (Palo Alto, CA) has introduced Hyper-Surround, a set of surround sound mixing tools for the company's CS3000 digital-control mixing console. When equipped with Hyper-Surround hardware and MixView 3.1 software, the CS3000 may be used to create surround mixes in all current formats, including LCRS, 5.1 and 7.1, and will output to custom formats up to 16 buses wide. Features include automated surround panning with an integrated GUI, a "focus" pan control that controls audio localization and diffusion and an optional track-ball pan control. Hyper-Surround is also available for CS2000 consoles.

Circle 301 on Product Info Card

**SONIC SOLUTIONS SONICSTUDIO DVD**

Sonic Solutions (Novato, CA) has announced SonicStudio DVD, a next-generation DVD authoring and formatting system that outputs audio in PCM streams, Dolby Digital, MPEG-2 surround and other DVD-related formats. SonicStudio DVD includes integrated project planning assistants, a storyboarding/layout editor, Bit Budget management and direct integration with video and audio capture and formatting tools. Features include 24-bit, 96kHz multi-track recording, NoNOISE, extended frequency range 48-bit filters and an interactive DVD preview facility. Sonic also announced Direct Stream Digital (DSD), a digital recording format developed in association with Sony Corporation. DSD uses an oversampled delta sigma modulated A-to-D converter to generate a 64fs 1-bit signal at the 2.8224MHz sampling rate, a multiple of the 44.1kHz standard. Audio recorded in DSD format offers frequency response beyond 100kHz, and DSD signals may be down-converted to other digital formats.

Circle 302 on Product Info Card

**TECNEC CAMCORDER INTERFACES**

TecNec (Saugerties, NY) has introduced the iMIDC-2 Interface for Sony VX-1000 and Panasonic AG-455, 456 and EZ-1 camcorders, enabling professional mics to be used with these consumer devices. The beltpack-style iMIX-2 accepts two XLR mic inputs, has a 3.5mm mini unbalanced aux input and outputs to a stereo 3.5mm mini connector. Inputs may be recorded direct in stereo or mixed to mono. The iMDC-1 Belt Pack Audio Mixer allows the camera operator to mix two mics to one output; a Mix knob controls the balance of the two mics. Both units cost $175.

Cords 303 on Product Info Card

**PUBLISON TOTALSTATION**

Publison (Bagnelet, France) introduces Totalstation, a 32-track audio DAW capable of up to 280 hours of recording (80 hours standard). Running under Windows NT, the Totalstation offers 20-bit A/D and D/A (24-bit optional); internal DSP is 32-bit. The system offers fast backup in the background, and network capabilities allow for fast file exchange and multiple users on one machine. Integrated broadcast-quality video eliminates a conventional VTR, and the system includes moving waveforms, jog and shuttle, reverse play, cross-fade and overlap capabilities. Seventy graphic editing functions are accessed via a dedicated control surface, and the system includes a 32-track graphic mixing console; an automated physical console is optional. Additional features include OMF interchange, digital effects, 10-band parametric EQ on every track, and 32 I/Os in both analog and AES/EBU formats.

Circle 304 on Product Info Card

**GALLERY CONTROL KEYBOARD FOR PRO TOOLS**

Gallery Software (distributed by Cameo International, Los Gatos, CA) offers the Production Palette PX-10 macro control surface for Digidesign Pro Tools 4.0. A 128-key device specifically tailored for post applications, the PX-10 provides Pro Tools users with an editing control surface that logically groups Pro Tools functions; dedicated keys are color-coded and identified by icons. The included Macro Engine comes preprogrammed with more than 200 functions, including immediate access to "hidden" functions typically known only to experienced users; keys may be reassigned and new macros loaded via software. The PX-10, which connects via the ADB port, can issue MIDI messages via OMS and will interface with the Mackie HUI mixing surface. Price is $999.

Circle 305 on Product Info Card
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CIRCLE #104 ON PRODUCT INFO CARD
Mix Checks Out All the Angles

Today's wedge monitors are little different from those designed in the early 70s. Now, as then, a professional-quality wedge must be capable of delivering clean and accurate sound over a wide frequency range, despite the compromises of physical size and shape. Of course, a wedge's uncolored frequency response is often less of a priority than in a studio monitor, but, generally, a flatter response provides more gain before feedback. As always, a wedge monitor must be robust, should present at least one useful front tuffle angle, and be at least as loud as the guitarist and drummer.

The accompanying chart lists most of the professional-quality wedge monitors readily available in the U.S. To keep the chart under 400 pages in length, we've limited it to bi-ampable designs with an HF compression driver having a 1.4-inch (or greater) throat diameter, along with some coaxial models and systems featuring ribbon HF units. The frequency response, HF horn type and coverage pattern, connector type, dimensions and weight are listed when known, but manufacturers often change specifications. Transducer measurements are notoriously controversial, and no attempt has been made to compare sensitivity, maximum power handling and SPL figures; readers are encouraged to make real-world comparisons.

Chris Miche is Mix's technical editor.

---

table:

<table>
<thead>
<tr>
<th>Company name and product</th>
<th>Frequency response</th>
<th>Woofer size (model no.)</th>
<th>HF driver throat size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Analyzers 12FR</td>
<td>65Hz-1kHz</td>
<td>12&quot; (JBL)</td>
<td>1.5&quot; (JBL)</td>
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<tr>
<td>(Colorado Springs, CO) 719/632-8655 Circle 200 on Product Info Card</td>
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<tr>
<td>Audio Composite Engineering Inc. Model 1250</td>
<td>65Hz-1kHz</td>
<td>12&quot; (modified JBL 2260)</td>
<td>1.5&quot; (modified JBL 2450)</td>
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<td>(Escondido, CA) 619/434-9190 Circle 201 on Product Info Card</td>
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<tr>
<td>Apogee Sound AE-88</td>
<td>45Hz-1kHz</td>
<td>15&quot;</td>
<td>2&quot;</td>
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<tr>
<td>(Petaluma, CA) 707/777-1887 Circle 202 on Product Info Card</td>
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<tr>
<td>Clair Bros. Audio CBA 12AM</td>
<td>46Hz-1kHz</td>
<td>15&quot;</td>
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<tr>
<td>(Utica, PA) 717-826-4000 Circle 203 on Product Info Card</td>
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<tr>
<td>D.A.S. Audio ST-32</td>
<td>1.4&quot; (CX-32)</td>
<td>2&quot;</td>
<td>2&quot;</td>
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<td>(Old Lyme, CT) 860/430-9190 Circle 204 on Product Info Card</td>
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<tr>
<td>EAW (Eastern Acoustic Works) SM400H (LB/L)</td>
<td>75Hz-1kHz</td>
<td>12&quot;</td>
<td>2&quot;</td>
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<tr>
<td>(Whinstown, MA) 508/234-6156 Circle 205 on Product Info Card</td>
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<tr>
<td>EAW SM400H</td>
<td>60Hz-1kHz</td>
<td>2 x 12&quot;</td>
<td>2&quot;</td>
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<td>Circle 206 on Product Info Card</td>
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<tr>
<td>EAW SM260V</td>
<td>70Hz-1kHz</td>
<td>12&quot;</td>
<td>2&quot;</td>
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<tr>
<td>Circle 207 on Product Info Card</td>
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<tr>
<td>EAW SM500V</td>
<td>65Hz-1kHz</td>
<td>15&quot;</td>
<td>2&quot;</td>
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<td>Circle 208 on Product Info Card</td>
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<tr>
<td>Electro-Voice XW12</td>
<td>65Hz-1kHz</td>
<td>12&quot; (DL-type)</td>
<td>1.4&quot; (DH6)</td>
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<tr>
<td>(Buckingham, MI) 818/865-8381 Circle 209 on Product Info Card</td>
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<tr>
<td>Firehouse Productions F15</td>
<td>N/A</td>
<td>15&quot; (TAD TL9100B)</td>
<td>2&quot; (TAD 4002)</td>
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<tr>
<td>(Red Hook, NY) 914/764-9198 Circle 210 on Product Info Card</td>
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<tr>
<td>Firehouse Productions F12</td>
<td>N/A</td>
<td>12&quot; (JBL 2206H)</td>
<td>2&quot; (TAD 4002)</td>
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<td>Circle 211 on Product Info Card</td>
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<tr>
<td>JBL Professional SR4706A</td>
<td>60Hz-20kHz</td>
<td>15&quot; (226G)</td>
<td>1.5&quot; (2447J)</td>
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<td>(Northridge, CA) 818/893-6500 Circle 212 on Product Info Card</td>
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<tr>
<td>JBL Professional 4890</td>
<td>40Hz-1kHz</td>
<td>14&quot; (1400 PRO)</td>
<td>1.5&quot; (2450 SL)</td>
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<td>Circle 213 on Product Info Card</td>
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<tr>
<td>JBL Professional 4891</td>
<td>70Hz-1kHz</td>
<td>14&quot; (1400 PRO)</td>
<td>1.5&quot; (2450 SL)</td>
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<td>Circle 214 on Product Info Card</td>
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<tr>
<td>L-Acoustics 115 FM</td>
<td>15&quot;</td>
<td>1.5&quot;</td>
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<tr>
<td>(Manufactured by Cox Audio Engineering, Sun Valley, CA) 818/503-1550 Circle 215 on Product Info Card</td>
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<tr>
<td>Martin Audio LE700</td>
<td>60Hz-15kHz</td>
<td>15&quot; (Helix-1.4&quot;&quot;)</td>
<td>1.4&quot; titanium</td>
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<tr>
<td>(Distributed by TGI North America, Kitchener, Ontario) 519/745-1158 Circle 216 on Product Info Card</td>
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<tr>
<td>Melholt Audio PRO 212M</td>
<td>N/A</td>
<td>2 x 15&quot;</td>
<td>2&quot;</td>
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<tr>
<td>(McAllen, TX) 956/882-6147 Circle 217 on Product Info Card</td>
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<td></td>
<td></td>
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<tr>
<td>Melholt Audio PRO Monitor</td>
<td>N/A</td>
<td>15&quot;</td>
<td>2&quot;</td>
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<tr>
<td>Circle 218 on Product Info Card</td>
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<tr>
<td>Meyer Sound UM-1C</td>
<td>60Hz-20kHz</td>
<td>12&quot; (MS-12)</td>
<td>1.4&quot; (MS-1401B)</td>
</tr>
<tr>
<td>(Berkeley, CA) 510/485-1166 Circle 219 on Product Info Card</td>
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<tr>
<td>Meyer Sound UM-1P/100P</td>
<td>60Hz-18kHz</td>
<td>12&quot; (MS-12)</td>
<td>1.4&quot;</td>
</tr>
<tr>
<td>Circle 220 on Product Info Card</td>
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<tr>
<td>Meyer Sound USM-1</td>
<td>40Hz-1kHz</td>
<td>15&quot; (MS-15)</td>
<td>2&quot; (MSD-2001A)</td>
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<tr>
<td>Circle 221 on Product Info Card</td>
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<tr>
<td>Meyer Sound PSM-2</td>
<td>50Hz-1kHz</td>
<td>15&quot; (MS-12)</td>
<td>2&quot; (MSD-2001CD horn driver)</td>
</tr>
<tr>
<td>Circle 222 on Product Info Card</td>
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<tr>
<td>PAS (Professional Audio Systems) TOC SW-2.2-15</td>
<td>55Hz-1kHz</td>
<td>15&quot; (CIA-2580C co-ax)</td>
<td></td>
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<tr>
<td>(Caribou, CA) 760/431-9924 Circle 223 on Product Info Card</td>
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<tr>
<td>Peavey DTP/PSM3</td>
<td>68Hz-1kHz</td>
<td>15&quot; (1505-8 DT)</td>
<td>2&quot; &quot; (447)</td>
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<tr>
<td>(Meridian, MS) 601/496-1616 Circle 224 on Product Info Card</td>
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<td></td>
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<tr>
<td>Renkus-Heinz TRC151D</td>
<td>40Hz-17kHz</td>
<td>15&quot; (SSL15-6)</td>
<td>2&quot; &quot; (SSD330: 18&quot;)</td>
</tr>
<tr>
<td>(Irving, CA) 119/250-0186 Circle 225 on Product Info Card</td>
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<td></td>
<td></td>
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<tr>
<td>Showco PRISM Stage Reference Monitor</td>
<td>40Hz-20kHz</td>
<td>12&quot;</td>
<td>2&quot;</td>
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<tr>
<td>(Dallas, TX) 214/383-1188 Circle 226 on Product Info Card</td>
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</tr>
<tr>
<td>Stage Accompany Leader L24</td>
<td>80Hz-30kHz</td>
<td>15&quot; (SA 1202)</td>
<td>SA 8535 Ribbon Compact Driver</td>
</tr>
<tr>
<td>(Bay Ridge, NY) 718/395-7784 Circle 227 on Product Info Card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage Accompany Leader L26</td>
<td>80Hz-30kHz</td>
<td>2 x 12&quot; (SA 1202)</td>
<td>SA 8535 Ribbon Compact Driver</td>
</tr>
<tr>
<td>Circle 228 on Product Info Card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage Accompany Leader L27</td>
<td>70Hz-30kHz</td>
<td>15&quot; (SA 1530)</td>
<td>SA 8535 Ribbon Compact Driver</td>
</tr>
<tr>
<td>Circle 229 on Product Info Card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbosound TF3-300</td>
<td>60Hz-16kHz</td>
<td>15&quot; (LS-1508/1)</td>
<td>2&quot; (CD-203)</td>
</tr>
<tr>
<td>Distributed by Audio Indepedence, Middleton, WI 608/831-8700 Circle 230 on Product Info Card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbosound TF3-330</td>
<td>55Hz-16kHz</td>
<td>15&quot; (LS-1513)</td>
<td>2&quot; (CD-204)</td>
</tr>
<tr>
<td>Circle 231 on Product Info Card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HF horn type (coverage angle)</td>
<td>Crossover</td>
<td>Connector</td>
<td>Dimensions (to nearest &quot;&quot;)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Custom aluminum (40°H, 60°V)</td>
<td>1,200Hz</td>
<td>EP-4 x 4</td>
<td>15x24x17.75&quot;</td>
</tr>
<tr>
<td>Spherical waveguide (75° x 75° 6kHz)</td>
<td>Deletable passive crossover included</td>
<td>4-pole Speakon</td>
<td>12.5x29.5x19.5&quot;</td>
</tr>
<tr>
<td>(60°H, 40°V)</td>
<td>1,200Hz</td>
<td>NL4s or EP-4s</td>
<td>19.5x21.5x26.5&quot;</td>
</tr>
<tr>
<td>Conical horn (coaxial; 65° x 65°, 500Hz to 9kHz)</td>
<td>EP-4 x 2</td>
<td>Speakon x 2</td>
<td>14x22.5x16&quot;</td>
</tr>
<tr>
<td>Custom asymmetrical horn</td>
<td>EP-4 x 2</td>
<td>Speakon x 2</td>
<td>18x21x28&quot;</td>
</tr>
<tr>
<td>Wave Guide Plate* (conical, 90°)</td>
<td>Switchable active/passive</td>
<td>NL4 x 2</td>
<td>14x32.2x10&quot;</td>
</tr>
<tr>
<td>CD horn (60°H, 45°V)</td>
<td>Switchable active/passive</td>
<td>NL4 x 2, AP4 x 2</td>
<td>22.5x57.4x14.75&quot;</td>
</tr>
<tr>
<td>Horn (60°H, 45°V)</td>
<td>Switchable active/passive</td>
<td>NL4 x 2, AP4 x 2</td>
<td>22.5x57.4x14.75&quot;</td>
</tr>
<tr>
<td>CD horn (60°H, 45°V)</td>
<td>Switchable active/passive</td>
<td>NL4 x 3, AP4 x 2</td>
<td>25.25x18.25x20&quot;</td>
</tr>
<tr>
<td>HP-type horn (80°H, 55°V)</td>
<td>1,250Hz</td>
<td>NL4 x 2</td>
<td>14x22.5x12.25&quot;</td>
</tr>
<tr>
<td>Custom E-V horn (80°H x 55°V)</td>
<td>1,200Hz</td>
<td>Per customer order</td>
<td>25x18x16.5&quot;</td>
</tr>
<tr>
<td>Custom E-V horn (80°H x 55°V)</td>
<td>1,200Hz</td>
<td>Per customer order</td>
<td>21.5x15.5x15&quot;</td>
</tr>
<tr>
<td>2383 Optimized Aperture horn (90°H x 50°V)</td>
<td>1.2-1.4kHz</td>
<td>Parallel 8-pin Neutrik</td>
<td>15x27x15&quot;</td>
</tr>
<tr>
<td>Optimized Aperture Flat-Front Bi-Radial (60°H x 40°V, reversible)</td>
<td></td>
<td>Parallel 8-pin Neutrik</td>
<td>18.5x15.5x22&quot;</td>
</tr>
<tr>
<td>Optimized Aperture Flat-Front Bi-Radial (60°H x 40°V)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentric (coaxial)</td>
<td>1kHz</td>
<td>Speakon x 4</td>
<td>14x22.75x16.25&quot;</td>
</tr>
<tr>
<td>Differential dispersion horn (100°H x 70°V)</td>
<td>1kHz</td>
<td>Speakon x 2, EP6</td>
<td>26x19.5x15&quot;</td>
</tr>
<tr>
<td>Fiberglass CD horn</td>
<td>1.5/2.5kHz</td>
<td>Speakon or AP</td>
<td>38x18x20&quot;</td>
</tr>
<tr>
<td>fiberglass CD horn</td>
<td>1.5/2.5kHz</td>
<td>Speakon or AP</td>
<td>28x25x20&quot;</td>
</tr>
<tr>
<td>60° x 60° CD horn</td>
<td>1.6kHz</td>
<td>EP-4</td>
<td>14x14x22.5&quot;</td>
</tr>
<tr>
<td>UM-1P features a 45° HF pattern; 100&quot; offers 100°H x 40° coverage patterns.</td>
<td>1 kHz</td>
<td>XLR (summing or looping)</td>
<td>11x16.5x22.5&quot;</td>
</tr>
<tr>
<td>70°H x 60°V</td>
<td>1 kHz</td>
<td>XLR (summing or looping)</td>
<td>21x24.5x18.25&quot;</td>
</tr>
<tr>
<td>50° x 50°</td>
<td>1.2kHz</td>
<td>NL4 x 2</td>
<td>21.25x17.25x15.25&quot;</td>
</tr>
<tr>
<td>(40°H x 60°V above 2kHz)</td>
<td>1.2kHz</td>
<td>NL4 x 2</td>
<td>17x30.25x20.5&quot;</td>
</tr>
<tr>
<td>CD horn (64°-6)</td>
<td>2kHz</td>
<td>NL4 x 2</td>
<td>15x26.5x13&quot;</td>
</tr>
<tr>
<td>Complex Conic horns available in 90°H x 40°V and 60°H x 40°V coverage patterns.</td>
<td>1.2kHz</td>
<td>Neutrik 4-pin</td>
<td>29.5x17x14.5&quot;</td>
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<tr>
<td>Proprietary horn design</td>
<td>1kHz</td>
<td>Speakon x 2</td>
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<td>70°H x 30°V</td>
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There comes a time in the career of every successful performer (and their crew) when the opportunity arises to cross the international dateline and play in Australia. Aussies affectionately refer to their homeland as Oz, and there's more than gold waiting over the rainbow. With the Olympics coming up in September 2000, there'll be plenty going on Down Under in the next 18 months—maybe your next international tour.

I recently had the chance to spend a month in Australia (not Austraylia) as monitor mixer with chanteuse k.d. lang. Sitting on the roof of the new Star City Casino, I look over Darling Harbor at Sydney's skyline as the sun slowly sinks on my last evening in town. I'm sipping a "flat white" (and smoking the last of my American cigarettes) with lang's FOH engineer and production manager Grant McAree, who's finishing his fourth trip and second major tour here. He shares some thoughts on touring the continent, as does David Sneddon, general manager of Jands Production Services and production manager for the casino's new Lyric Theater.

"On the last Australian tour, the biggest show was the first night in Sydney," McAree begins. "We'd never played here, the tour sold out in days, and all of the press was there. That first show was the most important of 120 shows we did on the entire world tour because it was a new market. Eventually, all there is to increase a band's profit is a new market. New markets to any business are huge—that's newfound money. You have to spend more time and effort making sure you get it right."

**WHAT TO BRING?**

The largest tours carry almost everything for production, because the economics of selling out a stadium affords the expense of filling a 747. But for most acts, backline and a few key audio pieces are enough. "To me, international touring means..."
George Clinton and the P-Funk All-Stars

Funk Legends on Tour

George Clinton and the P-Funk All-Stars toured the U.S. last summer, performing at arenas and sheds across the country as one of the headliners on the House of Blues Smokin' Grooves festival. Smokin' Grooves featured an all-star lineup of R&B, rap and hip hop acts, including Erykah Badu, Cypress Hill, Brand New Heavies, The Roots and Foxy Brown with audio production by RSA Audio of New York City. Toward the end of the year, Clinton and band shifted gears, winding down the U.S. leg of their tour with a month of intimate theater dates before heading off to Europe. Mixing this scaled-down leg of the tour required plenty of flexibility, since the crew carried production gear (supplied by Thunder Audio, based in Detroit) but ended up using house equipment at almost half of the venues they visited.

Mix caught a December show at San Francisco's Maritime Hall, an acoustically renovated union hall that serves as a part-time concert venue. A couple of years ago, the venue was equipped with a Meyer P.A./stage monitor system based around MSL4 four-way powered speakers and TSW subs, and a SIM system was installed (the hall is often used for SIM classes). Other equipment includes ATL (Acoustic Technical Laboratory) monitor and front-of-house consoles, and a full selection of outboard gear, including Meyer and Ashly EQs and Yamaha reverbs.

Mixing at the monitor position is freelance engineer Garry Robbins, who joined the P-Funk tour during the Smokin' Grooves festival. Since then, he's been touring on and off with George Clinton, while taking some time off from the tour to work with Grand Funk.

Robbins says he's mixed monitors for George Clinton "on everything from a [Midas] XL3 to a Spirit 24-channel," but he tries to bring in a Soundcraft SM16 whenever he can. He hasn't convinced the band to monitor on in-ears yet, but he's working on it.

"The [monitor] mix is a basic R&B mix, with kick and snare down front, keyboards underneath and backing vocals on the sides," says Robbins. He notes that one of the biggest mixing challenges of providing 12 monitor mixes for 20 or so performers is managing SPLs onstage.

"It's pretty brutal back there; I've got two saxes, two trumpets, and one sax player sings," says Robbins of the back line. Compressors on vocals
Fiona Apple and her band of crack players have been touring continually in support of her double-Platinum album Tidal. Mix caught the show at the Warfield Theatre in San Francisco during a leg of headlining dates in soft-seaters.

Apple spends a good portion of the show at the piano, where she sings into an Audio-Technica 4055, AT's new large-diaphragm cardioid condenser. "It was a problem dealing with a real piano because of tuning issues, weather and occasionally being an opening act, especially in smaller venues," says FOH mixer/production manager Paul Dalen. "So, after a great deal of experimentation, we opted to customize an old baby grand piano by gutting it and fitting it with a Kurzweil PC-88. It's been very successful."

"We use different enclosures and consoles and different monitor engineers most every night, so it can be very challenging," says Dalen. "By the same token it's good, because it forces you to really rely on all your experience to get a good result. That and extensive phone advance work, along with a thorough follow up." Dalen carries only the Audio-Technica microphones, FOH processing and four A-1 Audio floor wedges for Apple. "It makes for a level of consistency that would be impossible to create otherwise on a tight budget," he says. For the Warfield show, Sound on Stage supplied a Yamaha PM4000 at FOH and a Ramsa 840 Series monitor board. Effects included a TC Electronic M5000, a TC 2290 and several multiprocessors and Yamaha 990s. As well as setting up the monitors with the monitor engineer, stacking and arraying the P.A. and tending to other equipment needs, Dalen acts as production manager. "I have to say this is one of the most pleasing and fun tours I've been on in my twenty or so years of doing this," he says.
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LIVE SOUND

—FROM PAGE 149, GEORGE CLINTON
and gates on drums help keep levels under control, and make up the majority of the processing onstage.

Keeping track of migratory microphones onstage is another challenge. The P-Funk front line alone is six or seven people; the total All-Stars lineup ranges from 16 to 20 performers. (I've done the full thing with Bootsy Collins, where there are like 24, 25 people onstage," says Robbins.) And people are always switching positions, Robbins says, adding that at the end of a four-hour show, mics never end up where he had originally set them up. "I have to figure out which mic George has; that's why I like to have a console that has a good meter bridge on it, to see who's singing into which mic, which strip they're in. I have to keep some mixes segregated, because certain singers, they don't want to hear down front. Then when they switch mics, I find out that the mic that's been zoned out in its own little world, George has got it. There's dancers that come out sometimes, we've got audience members up onstage during 'Atomic Dog'; it gets to be a zoo every once in a while."

Over at the front of house is engineer/production manager Carl Monforte, a freelance engineer out of Detroit who has been mixing George Clinton and the P-Funk All-Stars for two years. In addition to his front-of-house duties, Monforte's job is to make sure everything to do with lighting, sound and the crew runs smoothly. "My job is to make sure George Clinton and the P-Funk All-Stars for two years. In addition to his front-of-house duties, Monforte's job is to make sure everything to do with lighting, sound and the crew runs smoothly. "My job is wearing two hats with this band; [in addition to mixing, I also keep relationships good with the crew, making sure everyone can get along," says Monforte. "The only thing that we're lacking right now is that we're not carrying our normal production."

Monforte likes to carry a Soundcraft Series5 console, and uses mostly Shure and CAD mics. "They're industry standards, always the best. Old faithfuls," he says. When the All-Stars are not system hopping, the backup singers are all miked with Shure SM58s. The horn players get Beyer M88s and Sennheiser 441s. Clinton sings into a CAD90, and the drums are usually miked with Shure Beta 52s, 56s and 57s, with A-T 4041s on overheads. The new Mesa/Boogie M2000 bass rig is DI'd and miked with an RE20, and 57s and a Sennheiser 409 are used on guitar. All of the cables for the backline are custom-made Monster Cable Prolink.

The show is straightforward, processingwise. "For effects, normally what I like in my rack is an [Eventide] H4000 or 3000, depending on who's got what available. I'm using all SPX990 reverb, compression and gates from Drawmer, plus White FQs—your typical A Rig stuff," says Monforte, noting that he prefers to carry gear from Thunder Audio, whom he's worked with for ten years, as much as possible. (He adds that when he can, he carries an EAW KFA 850 rig with SP1000s for sub-bass, all powered by Crest.)

Overall, both Robbins and Monforte say the mix is pretty consistent each night and feel they've earned the performers' trust in getting the right sound. "George is great," Monforte says. "He's really complimentary, open-minded about letting me mix the band the way I feel because he seems to think I've captured the mix. So to have the artist come in and say 'Boy, you've captured it,' that feels really good."

Sarah Jones is an assistant editor at Mix.
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The 414 for piano and accordion) and AKG C-5600s (a rock 'n' roll version of AKG C-535 that Lang has used for over a dozen years. Other condensers were Audix D Series; vocal mics included the band gear.

Dynamic instrument mics were the Audix D Series; vocal mics included the AKG C-535 that Lang has used for over a dozen years. Other condensers were Audix D Series; vocal mics included the band gear. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat. Direct boxes were the new Neumann KM 84s for overheads and hi-hat.

The important first step for an act coming to Australia is to get in touch with the promoter's production coordinator and confirm exactly what's needed. "Certain newer items are going to be unavailable," comments Sneddon. "It's often six months to a year before an Australian distributor can get a new product, particularly the latest processing and keyboards." It's not uncommon for a technical rider sent by management to be either out of date or exaggerated, and they're not taken any more seriously in Australia. Preparing a Technical Rider Update subtitled Australian Audio Requirements with the month and year begins the process. The reality check will come eventually.

Even the longest tours in Oz last only a few weeks, so unusual items not found on typical riders are often unavailable from a vendor's inventory. "If you're using something exotic, it's not going to appear magically," McAree says. "If they have to special-order it, they'll have to charge you through the nose, because everything down here is simply much more expensive to buy." Import duties and shipping double the cost of gear not manufactured there, and it doesn't make sense for companies to buy specialty items for a handful of shows, then have them sit on the shelf for months afterward. "Substitutions Down Under are big—they don't have everything," McAree adds. "They can't just phone your favorite manufacturer and have it drop-shipped the next day, even if you're willing to pay for it. If it's important to the show, just bring it, or else be prepared to be flexible."

McAree substituted a Midas XL-4 for his Amek Recall at FOH. Instead of a Yamaha monitor board, I got a Midas XL-3, which seems to be the quality desk most plentiful in Australia. Clair 12AM wedges, of which Jands stocks dozens, were substituted for the eight mixes of Meyer UM wedges used in the States, and JBL/UREI graphics were substituted for the KT 360s. Sidefills and
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mains were the Meyer MSL-4s we'd used before with great success.

**GETTING READY**

While the band spent the first couple of days recovering from the flight and adjusting to the new time zone, the crew was at the shop helping with the rig. "Everybody knows that a rider has a limited amount of information, and the production manager can only communicate so much," McAree says. "It's much simpler to have the personnel handle the prep in a hands-on fashion."

The three months around the New Year are crazy. Chances are you'll see this busy season because everyone wants to come down for summer in the southern hemisphere, and that's when bringing a good staff and prepping will pay off. You're fitting up a rig that will do a dozen shows, not a hundred. "It's worth getting it right the first time. Let's say your first show is Sydney," McAree illustrates. "You wouldn't jump off the plane in New York and meet a sound company you hadn't dealt with before at the first show."

"The same thing with the band," he continues. "Don't expect them to fly 14 hours, get off the plane, play the show and have it be stunning. They should have a day or two to mellow out and prepare for market-breaking shows."

Upon arriving in Sydney, we met our sound and lighting techs, Andy Mitchell and Andy Mitchison, at Jands' enormous warehouse near the airport. We spent the first day labeling the stage, with sub-boxes and our pieces added to the racks being prepped. We brought our Amek 9098 mic pre and an Aphex 661 Tubessence compressor for Lang's vocal channel. I'd also brought a Sabine ADF-2400 and an EAW JF-80, for the center-fill monitor mix downstage-center. The effects racks were assembled with a minimum of substitutions—most of the Lexicon, TC Electronic and Yamaha 'verbs were either in stock or easily sub-rented.

"You also need to consider what people to bring," says McAree. "There's good technicians here, but if you have an involved lighting system, for example, you should bring your own tech to stand on stage."

We traveled with Studio Colors, Cyberlights, ColorScans and bubble machines, and Robbie Hanaford's familiarity with the design was a big help to lighting designer Brent "Ski" Lipp. "If you've got special effects and your LD is stuck out at the board, what's he supposed to do if something goes wrong?" McAree asks.

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Best Mics on Record

B yrЖeJ МЧ, Эпч, лк M Яы, (Мy. Свb M McAree, is a world-class luthier and was responsible for all two dozen stringed instruments, as well as the vintage Fender amps. "It's definitely a perk for the people you bring—they'll put out for you, and they'll be putting out ten years from now because they've had a chance to see some of the world," McAree points out. Stage manager and keyboard tech Peter Maher, borrowed from Yanni by way of Aerosmith, was responsible for both tuning the piano and fitting the Helpinstill on a daily basis, besides the bass rig and drum kit. "The same goes in audio world. You definitely bring your monitor engineer—that's a given," McAree adds. "If you've got some super-involved situation, you'll want to bring more." SIM guru Jamie Anderson came, along with A-1 Audio's elaborate eight-zone BSS drive rack that we'd used in the States, which was easier to bring than to duplicate.

THE ITINERARY

While the rig was prepped, the speakers were starting with in Brisbane were at the grand opening of the Star City Casino. A barge floating in Darling Harbor in front of the casino is the stage where Diana Ross gave a free show. Michael Crawford opened Star City's new 2,000-seat Lyric Theater, where we'll finish up our run in a couple of weeks. While we toured the rest of the country, Natalie Cole, and then Peter, Paul and Mary, performed, and after we finished Kenny G came in from Tokyo for a three-day run. Star City also has a 900-seat showroom that Tom Jones opened, and I just missed meeting up with Sandy Battaglia, though we played hotel phone-tag for a couple of days. There is now a major casino in every state capital, and some artists simply tour Australia in their showrooms.

There are five major cities to play, where more than half of the 18 million Australians live. The four state capitals along the south and east coasts are each

NEWSFLASHES

The Hollywood Athletic Club is expanding its Sunset Blvd. facilities to include a live music showcase theater. The sound system for the new room was designed by Bradley Spurr in collaboration with engineers from Bag End Loudspeaker Systems and will include Bag End's GEM Series speakers controlled by the ELF system. Performers slated to appear during the opening weeks in April include Big Bad Voodoo Daddy and Sneaker Pimps. The HAC was founded in 1924 and was once frequented by the likes of Charlie Chaplin, Rudolph Valentino, Errol Flynn and Clark Gable... Danish-based sound company European Tour Production purchased 26 QSC PowerLight 4.0 amplifiers from QSC's Swedish distributor, Englund Musik AB. ETP works mainly with local Danish bands, festivals, clubs and TV stations. QSC CX amplifiers are being used by Audio Visions (Irvine, CA) in new Virgin Megastores in Orlando, FL, and Long Island, NY... As part of the J. Paul Getty Museum's massive restoration, audio-assisted tours were added. Beyerdymanic DT 250 headphones were selected for visitors' use... Artists currently touring with Audio Analysts include Status Quo and Portishead... Sound design for the Broadway production of The Lion King, at the New Amsterdam Theatre, is by Tony Meola. Equipment provided by ProMix (NYC) includes a 117-input Cadac J-Type console with 111 motorized faders and eight programmable dual-input channel modules, and 45 Sennheiser wireless mics... The Cardiff Arms Park Millennium Stadium, now under construction in Cardiff, England, will be the first stadium in the UK with a retractable roof. This new venue will host the 1998 World Cup Rugby Games. The sound system was installed by Sound Department and includes 38 Community M4 co-ax loudspeakers in a main cluster, plus a distributed system of 180 more Community speakers to cover the bowl area... Chris Lord-Alge mixed the Country Music Association Awards, which were broadcast live from Opryland USA last fall. Audio-Technica reports that its ATM25 mics were used to close-mike drum kits during the performances; 4051's were used overhead, on hi-hat, acoustic guitars, fiddle and cello, and Lord-Alge used A-T headphones in the control room for talkback to the stage... Allen & Heath reports that a 40-channel GL4000 console has been installed in Barcelona's Luz de Gas nightclub. The venue hosted a recent appearance by Paco de Lucia, known as the king of Spanish guitar.
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about 500 miles from the next. The two largest, Sydney and Melbourne, have more than 4 million people each, and the two largest airports, so it’s not unusual to arrive in one and finish in the other. Brisbane (1.5 million population) is north of Sydney and near the Gold Coast beach resorts. Adelaide (1 million) is west of Melbourne. Touring as we know it in the States will be difficult at best. The distances involved are too long for tour buses to be practical—the band and crew end up flying everywhere—and it’s almost impossible to get gear to a next-night show by truck.

Placing a map of Australia on top of a map of the U.S. is a good way to get a perspective of how big a country you’re dealing with (i.e., they’re about the same size). The drives are long, and the roads are not great. At the last minute, plans were made to include a show in Perth, on the far side of the continent, with a travel day on either side for the band and crew to fly. When someone says Melbourne to Perth, that’s equivalent to Atlanta to Los Angeles. Distances are often measured in driving hours. Trucking from Melbourne is 38 hours (2,200 miles), but we pick up three hours due to time zone changes. Our two Showfreight trucks were loaded and on the road at 1 a.m., and by using double-drivers, they were able to go nonstop, loading in at 1 p.m. in Perth. Coming back to Adelaide is a little shorter (1,700 miles), but the time zones worked against us; again, we were able to load in at 1 p.m.

Our tour began at the Brisbane Convention Center, a legacy of the ’88 Expo, and we load in the day before the first show. Any time you change continents, it’s worth a production day. This large room converts to theater mode with bleachers lowered from the ceiling by five-ton motors at one end and an air wall that slides in a third of the way down where the stage is set up. “The Palais in Melbourne is like the Tower in Philly, and everyone’s played there,” McAree says. “It’s a good-sounding room, even though there’s problems getting in and it’s funky because of its age.” In Perth and Adelaide, we played large entertainment centers that hold upward of 4,000 and are multipurpose rooms with a temporary stage at one end. “The newer micro-arenas are a pleasant surprise because they’re not completely oriented toward sports,” McAree adds. “The rigging in those places is good because there’s ten-by-ten squares, and there’s mesh so riggers can’t fall out.”

**THE SOUND COMPANIES**

Along with being the VariLite franchise, Jands has the largest audio inventory in Australia. The company has served numerous international tours over the years and has special relationships with the half-dozen major promoters, who usually recommended them. There are other sound companies, however, and every state capital has at least one that can offer the equivalent of the better vendors in the States. I made an effort to meet with the principals of the largest as we traveled each city.

Australian Concert Productions (www.acp.net.au) in Brisbane, owned by Mick Privitera, is the largest Turbosound outfit. They have Flashlight and Floodlight speakers and are part of the Worldwide Turbo network. Consoles include a Yamaha PM4000 and a Midas XL-3. In Melbourne, McLean Audio (3-9429-5381) has EAW KF-850s and a full range of Yamaha consoles. Before forming the company, principal Richard Belinsky worked for Artist Con-
CERT Tours, which merged with Jands in the mid-80s. Audex Concert Sound (8-9328-3188) in Perth is owned by Keith Grammond, and the inventory includes XL-3 boards, KF-850s, MSL-3s and Crest amps. In Adelaide, the largest company is Osmond Electronics (8-8410-1111). Managing director George Psorakis informed me that they run EV MT-4 and DeltaMax speakers with Midas XL-3 and XL-200 consoles. Lots of Watts (2-9638-0302) is the second-largest production company in Sydney, having acquired its audio division when it bought a Midas XL-3 and Turbo speaker system from the PA People in '96. Not many companies own both sound and lights, though our High End moving lights were sub-hired, and there are several good lighting vendors. My advice is to do research ahead of time by phone, fax and e-mail. It's 18 hours ahead of California, so calls in the afternoon are early morning the next day over there.

PARTING TIPS
Smokers should bring a carton of their American brand. Sharpies are also not readily available, so bring a few boxes as gifts. Other staples from the States, like a Leatherman and Mag-Lite, also make fine presents. Suitcases have a strictly enforced limit of 70 pounds. You can check two pieces and bring one carry-on (with smaller dimensions than allowed in the States). Most flights originate from L.A. at night and arrive in the morning. Drink a gallon of water, eat only half the food and take Melatonin after dinner. When you arrive, don't sleep until dark to reset your internal clock. The exchange rate is about the same as Canada, and ATMs on the Cirrus or Plus system can take out Aussie bucks that are deducted in U.S. dollars from American accounts at the current exchange rate.

Not-to-be-missed highlights include Perth's beaches, Brisbane's Lone Pine Koala Sanctuary and Melbourne's Victoria Market (closed Mondays and Wednesdays), which has souvenirs—Ugg boots, Coogi sweaters and Okubra hats—at the best prices you'll find. Sydney's tourist crawl must include a water taxi ride to The Rocks in the shadow of the Harbor Bridge, where you can find any remaining mementos and a few fine watering holes. Finish with a trip up Argyle Street to Australia's oldest pub, the Lord Nelson, where a pint of the Old Admiral (6.5% alcohol) will send you to bed with a smile on your face. Oh, and the Opera House? Few play it twice, even though it looks great.

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NEW PRODUCTS

SPIRIT POWERSTATIONS
Spirit by Soundcraft (Auburn, CA) intros three new powered mixers in its PowerStation range. The PowerStation 350 ($1,099.95) has six mono mic/line inputs; the 600 ($1,499.95) offers eight mono inputs; and the 1200 ($1,999.95) has 16 mono inputs. Integrated 2-channel power amps are rated (at 4 ohms) at 175, 300 and 600 watts, respectively. All mixers feature an additional dedicated auxiliary send to an internal Lexicon effects unit, 18dB/octave highpass filter and UltraMic padless mic preamps, three-band EQ with sweepable mid on all mono inputs, two aux sends and two additional stereo inputs with three-band EQ and level control, seven-band graphic EQ and 48V phantom power.

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TELETRON VHF WIRELESS SYSTEMS
Teletron (Oakland, CA) has introduced a new line of mic and instrument VHF wireless transmitter/receivers. Features include 14 standard VHF frequencies and optional custom frequencies, integral companding circuitry, minimum range of 250 feet and maximum of up to 1,500 feet, LED low battery indicator and up to 20 hours performance on a single 9V battery. The half-space, rack-mountable chassis features XLR and ¼-inch outputs. Systems include the $449 THV-60 (with AKG-based THS-6 handheld mic) and $437 11V-60 (with Audio Technica-based lavaliar). Instrument systems are also available.

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HUGHES & KETTNER RED BOX PRO
Hughes & Kettner's (Mt. Prospect, IL) Red Box PRO is a combined guitar cabinet simulator and DI box. Featuring ¼-inch input and loop through connectors and an XLR mic level output, the unit can accept instrument, speaker and line-level inputs. Used with a line-level signal, the unit may be switched to emulate a power amp/speaker combination, eliminating the need for an onstage amp and mic. The Red Box PRO includes a balanced transformer for impedance matching and isolation; a ground lift switch helps eliminate hum. The passive device does not require phantom power or batteries.

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MARTIN AUDIO TOURING SUBWOOFER
The W8CS Compact Touring Subwoofer from Martin Audio (distributed by T.G.I. North America, Kitchener, Ontario) is a port-assisted, folded-horn design with a single 800-watt 15-inch woofer optimized for large linear excursion. The W8C's Linear Flow port provides low-frequency extension, and the folded-horn design offers efficiency typically 5 dB greater than that of direct radiator bass systems, resulting in a frequency response of 45 to 200 Hz ±3 dB (-10 dB at 35 Hz). The multi-ply birch laminate cabinet comes with a metal grille.

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ALLEN & HEATH SOFTWARE UPGRADE
Allen & Heath (Sandy, UT) has released Version 1.20 of its WinDR System Manager software for the company's DR66 and DR128 digital processors. The 32-bit Windows 95 application allows installers to tailor functions and parameters in the DR66 and DR128, which may be programmed to perform a variety of signal processing functions. New features: a scheduled event programmer, a new channel-naming facility, independent control of limiter attack and release parameters, and enhanced control and display of parametric EQ values. WinDR Version 1.20 also supports optional delay and Sysnet functions (the latter allows direct control by third-party systems such as AMX and Dataton). Download the upgrade from www.allen-heath.com.

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PEAVEY DIGITAL CROSSOVER
Peavey Architectural Acoustics (Meridian, MS) debuts the CEX® 5 digital crossover, with integral EQ and limiters. Based on multiple Motorola 56002 DSPs, the CEX 5 provides a choice of Linkwitz-Riley, Butterworth and Bessel filters, and variable crossover slopes of 6, 12, 18, 24 or 48 dB/octave. The unit provides two inputs and four outputs, switchable between analog and AES/EBU digital. Inputs feature five-band parametric EQ; outputs offer three-band parametric EQ, and output muting is standard. Application software (32-bit) for Windows 95 and NT platforms is included.

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This album," explains Michael Penn, "was 'Let's make an album, this would be really fun.' We just kind of got in there and did it quickly. I hadn't made one in so long, I was chomping at the bit."

The album, Resigned, is not only Penn's first album in five years but his first for Brendan O'Brien's new Epic imprint, 57 Records. Penn first surfaced on record in 1989 with the Tony Berg-produced March for RCA. That album yielded the MTV-favored "No Myth," which climbed to the superstitious chart peak of Number 13 and did a great job of introducing the New York-born, Los Angeles-based Penn and his solidly crafted pop songs.

The sophomore jinx set in with 1992's Free for All, a darker follow-up album, which was also produced by Berg but was not embraced commercially. In time, Penn found himself unsigned, but he surfaced on records by Aimee Mann and The Wallflowers as he wrote new material and looked for a new deal. Five years went by. Enter label boss Brendan O'Brien, who as producer and engineer had twiddled the knobs for Stone Temple Pilots, Black Crowes, Pearl Jam and Matthew Sweet, who as an A&R man saw Penn as the kind of solid artist he wanted for 57 Records. Not surprisingly, O'Brien fell into producing the album as well.

"I thought some of his Black Crowes records sounded really great, so it just felt completely natural that the three of us get together and make a record," Penn says. The third in Penn's "three of us" is Patrick Warren, Penn's longtime keyboardist who once again lends his distinctive piano and Chamberlin work to the album. "Patrick was in a band I had called Doll Congress," says Penn. "That band broke up but I still wanted to work with Patrick, and we've worked together since then." In addition to O'Brien on bass, Penn's rhythm section for the sessions included drummer Dan McCarroll, a former member of short-lived L.A. band The Grays.

Convening in Atlanta at one of O'Brien's favorite studios, Southern Tracks, the four-piece band began to record the rock-solid beds for Resigned, tracking through the studio's SSL 4064 G Plus console (with Total Recall) to a Studer 827 24-track machine. "The drums, bass, guitar and usually some keyboard were all tracked at one time, like a live band," explains Penn.

For the most part, Penn skipped the demo stage, preferring to record his songs fresh with the band. "I had demo'd to death on March," explains Penn. "That album was basically a re-creation of the demos. It was a really interesting experience to try to recapture things, but it was a lot of work. The second album I left more to the studio so that the demos were the album in essence. I like that better. We did the same..."
ROB MOUNSEY AND STEVE KAHN
MONKEY BUSINESS

by Gary Eskow
He's not exactly the Cheshire Cat, but you have to look past a rather sedate demeanor to catch Rob Mounsey's fire. Having lent his talent to some of the great pop artists of our time—the short list would include Donald Fagen, Paul Simon, Phil Collins, Madonna and, most recently, James Taylor, who tapped the New York-based composer to arrange the song "Ananas" for his latest album—Mounsey could be forgiven a certain regal bearing. And yet he displays no trace of self-importance.

Mix recently sat in on a session at Flying Monkey, Rob's downtown studio, where he and guitarist Steve Khan, along with engineer Richard Alderson, were working on "Clafouti," a track from the duo's forthcoming release. The pair's first album, Local Color, recorded a decade ago, garnered a Grammy nomination, which begs an obvious question: "Why did we wait so long to record another album? Gee, I guess we were busy!" he says. In fact, Mounsey, who augments his record industry work with a truckload of film, TV and commercial jobs, and Khan, who sports a lengthy credit list of his own,

---CONTINUED ON PAGE 175

HORACE SILVER
THE DOCTOR IS IN

by Chris J. Walker
Prescription for the Blues, mainstream jazz pianist/arranger Horace Silver's second CD for GRP/Impulse, marks a return to his most popular format, the quintet. Silver has dabbled with many different types of ensembles throughout his career, yet many people agree that his most appealing jazz "hits" have come from his various five-piece groups.

"The quintet has been very successful for me for years, but I got tired of that formula," he notes. "I kind of wanted to stretch out and do something else, so I went into the Silver and Brass Ensemble, a ten-piece band, for two albums on Columbia. Then, the first album I did last year for GRP/Impulse was a septet. I just wanted to deviate for a minute and try different things. So I thought now is the time to go back to the quintet for an album." Asked if this is a back-to-basics concept for him he replies, "Well, it's sort of the old quintet concept with today's Horace Silver music."

Silver says the title of the CD is to be taken literally: "Hopefully it will be 'a prescription for the blues.' First of all, I want it to be entertaining. I want people to pop their fingers, shake their butts to it, groove to it and play it in their cars. It's designed to chase a person's blues away and relieve some of their stress. You can dance to a lot of the stuff on this album and sing along."

Silver managed to enlist some of his favorite players on the album, including bassist Ron Carter, trumpeter Randy Brecker, the versatile sax player Michael Brecker and drummer Louis Hayes. Tommy Lipuma, the album's executive producer, as well as president of GRP/Impulse, comments, "It wasn't hard at all to get the all-star players. It was really just a matter of when we wanted to do it, that the dates were open, and that the guys were

---CONTINUED ON PAGE 176
Bob Dylan works in mysterious ways. This should come as no surprise to anyone familiar with his singular oeuvre. He has always managed to do exactly as he pleases without regard to trends or the accepted ways of doing things. This is even true in the recording studio, where he is famous for working very quickly, engineers' and musicians' needs be damned. He is interested in capturing spontaneity and freshness; forget about spending two hours trying to get the perfect bass drum sound. Engineers better be ready to have the tape rolling the minute he walks into the studio, because he's liable to start a take without warning and nary a downbeat, and that first take might be the keeper. He's famous for changing tempos and other arrangement ideas from take to take, and also for radically reworking songs from one session to another. His songs sometimes are mere sketches when he enters the studio, to be fleshed out by the musicians he's picked to accompany him that day. If his albums occasionally have a tossed-off quality, it is because they are not labored over endlessly by either the musicians or the engineers. For the first two decades of his career, it often seemed as though he was barely able to record his new songs quickly enough to keep up with the sheer volume of his output.

Dylan has enjoyed several periods of undisputed genius. Certainly his first several years as a recording artist, from his earliest folk days through *Blonde on Blonde* in 1966, represent a body of songwriting that is unequaled. These are the songs that changed the course of rock 'n' roll in the mid- and late '60s and turned the medium into a thinking person's artform. If he had never made another album after this, Dylan would still have to be regarded as one of the most influential musicians of all time. But Dylan was never one to sit back and soak in accolades, and that's one reason he remains a vital talent nearly four decades after he first turned up in Greenwich Village coffeehouses. His creative restlessness always gets the best of him, and he's compelled to follow his muse wherever it leads him. It's like he sang in "Tangled up in Blue": "The only thing I knew how to do was to keep on keeping on like a bird that flew..."

After his incredible first five years, Dylan's next great period came in the mid '70s, when he produced *Blood on the Tracks* (then and now my favorite Dylan album) and *Desire*, an unusual but mostly brilliant work unlike any other record he ever made. This month's Classic Track is the leadoff cut from *Desire*, which was recorded at CBS Studios in Manhattan in mid-1975. There are a number of qualities that separate *Desire* from other Dylan albums of this era. Musically, the album is marked by the sinewy, gypsy-flavored violin work of Scarlet Rivera—a one-time street performer who fell into Dylan's world around the time he was writing the songs for *Desire*—and by the ragged back-up vocals of Emmylou Harris and Ronce Blakely. This is also the only Dylan album where he used a collaborator on most of the lyrics: Jacques Levy was a veteran of New York's adventurous off-Broadway theater scene and had worked with Roger McGuinn on The Byrds' *Untitled* album. He and Dylan hit it off and spent several days at Levy's Manhattan flat and out at Dylan's Long Island retreat writing material for *Desire*, which ranged from "Joey"—a bizarre lionization of mobster Joe Gallo—to the evocative "Black Diamond Bay," which almost sounds like the denouement of some great adventure novel.

"We were both pretty much lyricists," Dylan said of Levy in 1991. "We wrote very panoramic songs because, you know, after one of my lines, one of his lines would come out. Writing with Jacques wasn't difficult. It was trying to just get it down. It just didn't stop, lyrically."

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minute story-song about the murder conviction of boxer Rubin "Hurricane" Carter, one of the most popular and feared middleweights of the '60s. Dylan was inspired to tackle the subject after a screenwriter named Richard Solomon sent him a copy of Carter's memoir, *The Sixteenth Round*. Later, Dylan and Levy visited Carter in jail.

“When the Hurricane thing started,” Levy recalled, “Bob wasn’t sure he could write a song at that point. He was just filled with all these feelings about Hurricane. He couldn’t make the first step. I think the first step was putting the song in a total story-telling mode. I don’t remember whose idea it was to do that. But really, the beginning of the song is like stage directions, like what you would read in a script:

‘Pistol shots ring out in the barroom night/Enter Patty Valentine in the outer hall/She sees a bartender in a pool of blood/Grieves out, “My God, they’ve killed them all!”/Here comes the story of the Hurricane...’ Boom. Titles. You know, Bob loves movies and can write these movies that take place in eight to ten minutes, yet seem as full or fuller than regular movies.”

Part short story, part documentary and part polemic, the song lays out a scenario in which Carter was “obviously framed” and convicted for a robbery and triple-murder he did not commit. Dylan and Levy don’t pull any punches—they accuse various witnesses of lying on the stand; the judge of tainting Carter’s witnesses as “drunkards from the slums”; the media of blindly accepting the “pig-circus” trial; and society in general for having a system “where justice is a game.”

Columbia staff producer Don DeVito was assigned to oversee the making of *Desire*, and DeVito brought in engineer Don Meehan to record the sessions, which began in mid-July 1975 in CBS’ Studio E, which had been a broadcast studio originally. Meehan had been with Columbia since the mid-'60s, working in a number of different engineering capacities—tracking, mixing, mastering—and maintaining a highly successful career as a bassist and a backup and commercial singer on the side. He was at CBS when the label's studios made the transition from 3-track to 8-track, 16-track and beyond. *Desire* was cut on an MCI 16-track, through Studio E's 48-input MCI board.

“Studio E was a very small studio, about 30 by 30, with a little closet for a vocal room, and we had a little drum house in the corner of the room,” Meehan says. “And Dylan came in with all these musicians; they were everywhere. I couldn’t even tell you how many there were. It was kind of crowded, but it worked.”

Meehan remembers the Dylan sessions as “very loose,” and “with Dylan it had to be live with no overdubs; that’s the way he worked.” Though he found Dylan to be reasonably cooperative, “I had to follow him around the studio to set up a mic on him because he wandered all over the place. On one take, he might want to be over near the drums, on another over in the other place, so I had to be ready.

“I used a dynamic mic on him,” Meehan remembers. “I would never use a condenser mic on anybody who was singing live in the studio like that because it would pick up everything. I asked him to work as close as he could to it to cut down the leakage. I probably used an RE-20, which is pretty good for most anything.” Meehan also set up two vocal mics for Dylan because of the singer’s habit of moving off-mic.

Even with an idiosyncratic singer like Dylan, Meehan always liked to carefully ride every lead vocal. “Being a singer I know that almost everybody drops off at the end of a word, but you
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want the end of that word to come up because it's got to be intelligible. So I'd work with my fingers and a limiter (usually LA-2As1 and then limit again even in mixing."

Meehan recalls that bassist Rob Stoner was "the driving force behind the music," which was barely organized when the large group of players straggled into the studio. There were so many players on some songs that instruments had to be stacked three to a track in a few cases; hardly ideal conditions. The first version of "Hurricane," which has been described by some who have heard it as having an almost disco beat, was cut on July 28 with a large band that included guitars, bass, drums, trumpet, bouzouki, accordion, fiddle and Emmylou Harris gamely trying to keep up with Dylan on tandem vocals.

"I didn't know her well," Meehan says. "She was following him around and didn't seem to know half the words. That pissed me off because I wanted to get it right, but that's the way they wanted it, so fine, we went with it."

Two days later, the group took a shot at more takes of the song, and by that time the tempo had veered away from the beat-heavy version of July 28 to a more flowing rhythmic feel anchored by Stoner and drummer Howie Wyeth. By the end of the session, Dylan was pleased with "Hurricane," and it seemed as though one of the versions from the 30th would make the album.

While all this was going on, Dylan was enjoying a huge surge of interest in his music. Blood on the Tracks was a commercial and critical smash, and in mid-'75, he authorized the release of a double-LP's worth of songs from the legendary 1967 Basement Tapes sessions with The Band. In the fall of '75, too, he and a loose amalgam of musical friends and fellow travelers put together the Rolling Thunder Revue, which played sporadic gigs in clubs, arenas and a few stadiums through the middle of 1976.

One night in late October 1975, Don De Vito got a call from CBS Records president Walter Yetnikoff informing him that for legal reasons, the master tapes for "Hurricane" would have to be erased. Apparently, Dylan and Levy had mistakenly placed a character at the murder scene who was not there, an error which certainly could be considered libelous.

"I got this call from Don telling me, 'You've got to get those tapes out and erase them!' Meehan says. "I said, 'I can't do that, man!' He said, 'You've got to—everything with Emmylou on "Hurricane."' So I pulled the tapes out but I just couldn't do it—I couldn't bring myself to erase all those 16 tracks. I ended up erasing the vocal tracks only, so at least the tracks would still be there. Those are probably still in the vault somewhere. But then, instead of just doing a new vocal, Dylan wanted to record the song again from scratch, so that's what we did."

On October 24, Dylan and a much smaller group—Stoner, Wyeth, Rivera, guitarist Steven Soles and conga player Leon Luther, with singer Ronce Blakeley (the star of Robert Altman's Nashville and part of the Rolling Thunder Revue) taking Emmylou's place—went into Studio E and laid down 11 takes of "Hurricane" with Devito and Meehan, finishing up in the wee hours of the next morning. The version on Desire is believed to be a splice of two different takes from that marathon session. Meehan mixed the tune on the MCI board, using EMT plate reverb on much of it. Though Studio E was equipped with huge Altec A7 loudspeakers, Meehan says he liked to mix on 4-inch Lafayette speakers: "If I could get bass on those, I knew I could..."
get it anywhere," he says with a laugh.

At one point on the October “Hurricane” session tapes, Dylan impatiently notes that he’s anxious to get the song out on the streets, no doubt because he believed its release might affect Carter’s status and win him a new trial. A single version—“Hurricane, Part One”—was rush-released in November and made it all the way to Number 33 on the Top 100 singles chart. And on December 8, the Rolling Thunder Revue touched down at New York’s Madison Square Garden for a benefit concert for Carter, dubbed “Night of the Hurricane,” attracting wide publicity for Carter’s cause. The album was released in January 1976 and quickly shot to Number One on its way to becoming Dylan’s first Platinum album.

Dylan’s efforts were undoubtedly helpful in getting Carter a new trial, but the euphoria of his supporters was short-lived: Carter was convicted a second time. (Eventually, he was granted clemency. He’s been free for a number of years, and he still turns up at Dylan concerts from time to time.) Despite acceding to the erasure of the original vocal tracks for “Hurricane,” Dylan was sued by one of the principals in the case (Patty Valentine) anyway, and the litigation stretched into the early ’80s.

Don Meehan would go on to record and mix Dylan’s live TV special/album, Hard Rain, in October 1976, but he still views Desire as a career high point: “I consider that album the best I’ve ever done,” he says. “My style was to get every bit of energy I could out of every track, and I think you can hear it on that album. I’d love to do another album with Dylan in that style.”

—from page 164, Michael Penn

thing on this one. For about three-quarters of the songs, I had the arrangements pretty firmly in mind. I probably had about 15 songs going in, with a few others that needed to be reworked so they didn’t wind up on the album.”

 Occasionally, however, Penn does feel the need for a multitrack demo. “It’s like I’ve got a bunch of songs on acoustic guitar that I know exactly what they’re gonna be and they’re fine. Then I’ll have a few other songs where I don’t know, so I’ll record an acoustic guitar and vocal thing on ADAT and maybe start figuring out the drums to see if that makes it work. You’ve got to try and make it work with the least; it had bet-

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O'Brien's predilection for spontaneity and intuition combined with DiDia's telepathic engineering skills also paid off for Penn. "Brendan is really not a 'tech' guy as far as miking and stuff like that," Penn observes. "Sure, he knows what certain microphones are capable of, etcetera, but he's so much more about the moment. You'll be listening to a track and he'll say, 'Let me try something,' and he'll go out and grab a guitar and an amp and he'll say to Nick, 'Okay, put up a mic. Oh, what's already hooked up right there, that's fine.' Because he knows that if you start screwing around you start thinking too much — you know, that 1950 AKG might be interesting here; we haven't pulled that one out yet — by the time you get it set up [the inspiration] is just gone. So his priorities are much more about just getting it on tape."

One such moment occurred on the lovely ballad "Out of My Hands," a melancholy 12-string arrangement that needed an elusive kick in the mix. This time O'Brien's fuzz bass saved the day. "We had the arrangement down, but I was listening back to some of the earlier takes and thinking it was sounding too pretty, too precious," Penn says. "Then Brendan grabbed a fuzz box and we went out and cut it and that was it. Contrast is really important. When the bass was just playing clean, the bass wasn't speaking with that kind of variance of personality, even though Brendan has a lot of nuance to his playing. For some reason, when the fuzz was added to it, it not only thickened it up and brought it into the mix more, but it also gave it these sort of random noise things that helped. It just allowed it to breathe in a different way."

Penn notes that many of the most interesting sounds on Resigned weren't so much the result of experimenting in the studio as in the application of little things he'd tried over the years. Thus, he finally got to use his "kazoo guitar invention" on "All That That Implies". "I've been threatening to use that sound for years, on just about every song I've ever written," recalls Penn who now shares the details of his invention with Mix. "That's the 'chunk, chunk' guitar in the 3/4 section under the hurdy-gurdy part. Basically, you

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ter work with just voice and guitar."

Assisting O'Brien in the tracking of Resigned was his longtime engineer of choice Nick DiDia. "I've never seen a more efficient team of producer and engineer," remarks Penn. "They have an amazing communication. Nick is just so familiar with the way that Brendan works, it's like there's a lot of mind-reading going on. Just the little pragmatic things that go on when they're making a record together that they have down."

Penn says that DiDia's expertise, and the extensive mic selection of Southern Tracks' owner Mike Clark, helped define the album's sound. Lead vocals were mainly captured with a Neumann U47, but Penn was also fond of an AKG C-12 and even an "old reliable" Shure SM57. For the album closer, "I Can Tell," Penn sang into one of Southern Tracks' most curious vintage mics, a Neumann CMV 3.

"I'd never seen one before," Penn says. "It's an old '30s radio mic with this enormous cylinder which I guess is the mic pre, which is built into it. The mic itself looked like something that would be in front of Hitler in some documentary, so it was kind of scary that way, but it had an amazing sound. Mike is sort of fanatical about wiring, and the studio is immaculately wired. It's the only place I've ever been where when you mic a guitar amp in the room and go back in the control room, it sounds like the amp in the room. Whatever he's done in terms of phase and polarity and everything else, it's paid off."

O'Brien's predilection for spontaneity and intuition combined with DiDia's telepathic engineering skills also paid off for Penn. "Brendan is really not a 'tech' guy as far as miking and stuff like that," Penn observes. "Sure, he knows what certain microphones are capable of, etcetera, but he's so much more about the moment. You'll be listening to a track and he'll say, 'Let me try something,' and he'll go out and grab a guitar and an amp and he'll say to Nick, 'Okay, put up a mic. Oh, what's already hooked up right there, that's fine.' Because he knows that if you start screwing around you start thinking too much — you know, that 1950 AKG might be interesting here; we haven't pulled that one out yet — by the time you get it up [the inspiration] is just gone. So his priorities are much more about just getting it on tape."

One such moment occurred on the lovely ballad "Out of My Hands," a melancholy 12-string arrangement that needed an elusive kick in the mix. This time O'Brien's fuzz bass saved the day. "We had the arrangement down, but I was listening back to some of the earlier takes and thinking it was sounding too pretty, too precious," Penn says. "Then Brendan grabbed a fuzz box and we went out and cut it and that was it. Contrast is really important. When the bass was just playing clean, the bass wasn't speaking with that kind of variance of personality, even though Brendan has a lot of nuance to his playing. For some reason, when the fuzz was added to it, it not only thickened it up and brought it into the mix more, but it also gave it these sort of random noise things that helped. It just allowed it to breathe in a different way."

Penn notes that many of the most interesting sounds on Resigned weren't so much the result of experimenting in the studio as in the application of little things he'd tried over the years. Thus, he finally got to use his "kazoo guitar invention" on "All That That Implies". "I've been threatening to use that sound for years, on just about every song I've ever written," recalls Penn who now shares the details of his invention with Mix. "That's the 'chunk, chunk' guitar in the 3/4 section under the hurdy-gurdy part. Basically, you
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Penn played all the guitar parts on the record, mostly using a 1962 SG Les Paul, with PAF pickups. He also employed an Epiphone Casino and a Rick-enbacker, often routed through a Vox AC30 or “the occasional Marshall and small Fender amp.” For acoustic, Penn prefers his 1957 Gibson J-50 acoustic guitar for its “really cool sound, like it’s got a compressor built into it.”

Although most of the string sounds heard on Resigned come courtesy of Patrick Warren’s Chamberlin and Mellotron, two of the album’s 11 songs employed a real string section, with arrangements by Tommy Cooper. The strings were overdubbed in one session at Nashville’s Money Pit studio.

Besides completing his first album in several years, Penn has also entered the world of film music, first scoring Paul Thomas Anderson’s Hard Eight and, more recently, Anderson’s critically acclaimed Boogie Nights (in which Penn also makes his acting debut as a music producer). Penn confesses that he was initially wary of the soundtrack business and that he actually had to be coaxed into doing his first score.

“I had never really been interested in pursuing art by committee, and I didn’t want to have a bunch of people in the studio telling me what I was supposed to be doing,” he says. “But Paul had done this film called Hard Eight, and he had his people call me insisting that I score this movie. I ignored his calls for a while, but apparently he was a big fan of mine and would not take no for an answer. So totally reluctantly, I went down and saw a screening and I thought it was really a terrific film and did the score. Then I did Boogie Nights, and while there’s not more than 15 minutes of my music total, it was fun because I was allowed to address the subtext of the film as opposed to doing some wah-wah-infused porn music.”

Still, Penn’s first love continues to be making records: “My pet theory about record making and songwriting is that it’s really about inventing. Some people come up with these things which are essentially basic patents that everybody builds off of. The Beatles, for instance, obviously came up with more than anybody. The goal is to hopefully come up with some basic patents of your own.”
have stayed in close touch but only recently decided to develop material for their current project.

"The fact that I have my own label means that Steve and I can record what we want, master it and be involved with distribution," Mounsey says. "That makes it easy for us to follow our muse, rather than the dictates of an A&R person at another label—God bless their souls!"

Khan, whose last solo album, *Got My Mental*, brought the guitarist together with jazz greats John Patitucci on acoustic bass and drummer Jack DeJohnette, concurs: "Collaborating is a very delicate matter. Getting a feel for another writer, and in the case of a jazz-oriented project like the record Rob and I are currently working on, which involves a lot of improvisation, being able to sense where the other person is going with the form of a piece, is a delicate balancing act. It requires fearlessness, trust and flexibility."

While Mounsey toiled over his Pro Tools workstation, cutting up snippets of phrases from Khan's extended soloing on the aforementioned "Clafouti," Khan whipped out a series of typeset-written notes he had compiled for each tune. It's not exactly a good-cop/bad-cop situation here, but it seems the two have a comfortable relationship that resolves two distinctly different work styles. "Rob and I got together early on and developed very basic harmonic ideas for a number of pieces, which we dropped to tape," Kahn says. "Each of us would take a copy of these tapes and study them. At subsequent sessions, we developed and extended the forms of the pieces we felt were the strongest."

Khan doubled as session stenographer, noting which tasks each would be responsible for prior to their next get together. "I tend to contribute passages that are more active, he points out a flurry of 16th notes on a score to embellish his point while Rob senses the longer, more melodic lines."

Modern technology is the silent third partner in this collaboration. The two took a basic 8-bar phrase as the starting point for "Clafouti." Step two had Mounsey sequencing a simple drum loop. With Khan in an iso booth soloing on a Yamaha nylon string guitar and Mounsey out front comping on keys, the...

Steve Khan (L) and Rob Mounsey collaborating on the sequel to their Grammy-nominated release *Local Color.*

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two went round and round, laying their extended jams onto a Tascam DA-88. Richard Alderson achieved an absolutely exquisite guitar sound using a pair of Josephson mics—wide stereo, but a nice center with no phase problems. The La-font mic pre and TC Electronic M5000 multiband compressor that Alderson used to capture Khan's performance on the way to tape seems to have helped as well.

Mounsey and Khan then studied their performance and transferred the strongest parts to Pro Tools. "At this point, Steve and I have not determined the form of the piece," says Mounsey. "How good does it feel, for how many times around the loop? We'll build an arrangement, with new drum and percussion parts and synth and sample arrangements around the best elements of Steve's improvisation on the tune's basic changes, cutting and pasting the best bits of his work into a final performance."

Flying Monkey sports a pair of Quested Monitoring Systems speakers and a set of Active Studio monitors as well. "I really like mixing in this space," Mounsey says. "It may not be the most hermetically sealed environment, but my ears are tuned to the room, and I like the monitors we use quite a bit."

Alderson, who first turned Mounsey's loft into a studio more than a decade ago, has reworked the room several times since. A comfortable, cozy series of flowing rooms, Flying Monkey has lots of exposed brick and open space. An Akai Angela sits at the heart of the mixing area, with a Mackie 1604 handling reverb returns. Outboard gear includes a pair of Yamaha SPX 1000s, two dbx 160X's, as well as the TC Electronic and Laffont pieces. Mounsey says he would feel naked without his ever-present Eventide H3000.

Pro Tools is central to Mounsey's work. "I currently have a core system of 16 tracks, using 4.0 software, but I plan on upgrading to the new Pro Tools 24 system. Digidesign's done a great job moving the technology along, and the contributions of third-party developers are great."

And you can add Mounsey's voice to the chorus of WAVEs fans: "What can you say about the 1.1 that hasn't already been said? It's a great piece of software. I also use the SI stereo enhancer a lot, and the new Renaissance compressor achieves exactly what the WAVEs people said it would—a great analog compressor emulation. I also really like the products that Arbutetus is turning out. Hyperprism is great, so is the Ionizer."

Sooner or later, Kahn and Mounsey's new album will be completed. What other plans do the two have? Mounsey, who produced an album for Eddie Daniels several years ago, says the two have talked about working together again. "I'd really like to record a true Afro-pop album with Eddie. There has to be a base of authentic African musicians in New York. I’ll have to do some research. Hey Steve, you know everyone in-town—where are the real African musicians located?" “South African or West African?” shouts Khan. When your current partner is a guy who’s played with almost every local musician of note who needs the New York Public Library?

---FROM PAGE 165, HORACE SILVER---

Wanted to use were in town. Everyone loves working with Horace. The combination of the writing, the arranging—they all know they’re going to have a ball.

"I was very excited about doing a quintet album with Horace," he continues. "This is really the first quintet album that he’s done with a major label in the last 25 years or so. He did a few quintet recordings on his own small independent label, but the last one for a major was on Blue Note with the Brecker Brothers, too."

Although Li Puma and Silver have both known and worked with a lot of the same people over the years, surprisingly they only met recently. That was for Silver's debut recording on GRP/Impulse, Hard Bop Grandpop. "It's only been the last few years that we've gotten to know each other," LiPuma says, "but by the time we got to this album we had become good friends. He has a sense of what I'm able to contribute. He's more comfortable and more interested in my opinions. We hang and have dinner together when he's here in New York, and the same thing on the West Coast where he lives when I'm out there. We're both in our 60s and have a lot in common. That's what makes for making great music and being able to work with one another."

Silver says that he leaves nothing to chance when he goes into the studio to make a record. "I don’t ever go into the studio unless I’m well prepared," he states. "I write the music, I arrange it, I
send the music out two weeks before to the session guys, so they can look it over and fool around with it. Then, when they come to the rehearsals they're that much further ahead. Then we go in the studio and do it.

"I usually do three takes per track, and hopefully I'll get what I like out of one of those tracks," he continues. "After those three takes, if it still doesn't sound like it's coming off the way I want it to come off, I usually will stop and go to the next tune. Then I'll come back later in the session and try it again."

"Horace is a very organized individual," LiPuma says. "Basically, what we did early on, several months prior to the session dates, on one of my trips out to L.A., was get together at his house. There we went through and agreed upon the strongest songs. From that point on, he laid out the charts/arrangements the way he was thinking about doing them. He did a demo with some friends. From there we finalized the list of compositions and figured out who we were going to have on the CD. The actual sessions took two days, and we averaged about five tunes a day. The mixing took another two days."

The sessions were recorded at Avatar—the old Power Station in New York—which remains one of LiPuma's favorite places to work. "For the most part, when I'm in New York that's where I do most of my recordings," he says. "We love studio A; it's a great room to record in. We did Hardbop Grandpop there, too. It has an old Neve 8000 series board which is very unique and musical. Avatar has three different rooms that are all configured the same. The only difference is the scale. 'A' is the largest room. It has a cone-shaped ceiling with two good-sized isolation booths against the far wall. We set up the drums in the left booth. In the right iso booth we had piano and bass. The horns were out in the main room. There was complete visual contact between everyone."

The technical details of recording in the studio were left in the very capable hands of engineer Jim Anderson, and at the mixing stage, Al Schmitt, who worked at the Village Recorder in L.A. "We recorded on 24-track, 30 ips with Dolby SR, but we certainly didn't use all 24 tracks," LiPuma says. "We had probably five to seven positions on the drums, stereo piano. We used direct and acoustic mics on the bass. Then one for the trumpet and one for the tenor. I have a couple of mics that I own personally that I usually use: a couple of Neumann 67s and a 251 Telefunken. We also used the EMT 250 reverb."

LiPuma says of his own production style, "I don't want to start jumping in and putting my fingers on the knobs. I have a sense of what things should sound like, and if I'm not hearing it I ask for it. I'm specific about what I feel is lacking. If something doesn't feel balanced to me, I want to get to the bottom of it. The most important thing for me is that my ears are tuned in to what's going on during the session. I want to focus on the music. My style of producing is that I don't stay in the booth when the recording is going on. I'm in the room because I have a problem communicating through the plate-glass window and being 40 feet away from people. I have a set of earphones on with the music on a chair in front of me. I'm sitting there reacting and being able to respond immediately on a much more personal level."

LiPuma notes that engineer Jim Anderson "specializes in working on jazz products. He has a sense of the importance of getting acoustic sounds. Him being a musician helps; he's right there with you. He knows the element of the parts and the various sections. He
Having worked in countless recording situations through the years, Silver has seen the evolution of recording from mono to multitrack. Still, as a jazz musician, he likes to record live in the studio with a minimum of overdubs. An admitted technophobe, he comments, "They've got a lot more fancy equipment in the control booth these days. There's a lot more things to deal with—automatic stuff. It ain't like what it was when I was doing it with Rudy Van Gelder, the great jazz engineer. Then, everything was done by hand. It's fascinating to see the guys work the boards now."

"But it still isn't easy," he continues, "I dread the mixing process. I love it and I hate it at the same time. It drives me nuts, because you work so hard writing the music, arranging it and recording it. It comes out good and you're happy with it. Then you get into mixing. You hear the mix back and sometimes it's 'Oh shit! This doesn't sound right. That doesn't sound good.' The mixing is hard. A lot of times I'm not satisfied and I want to do things over again."

Silver's trepidations notwithstanding, Al Schmitt, who has worked with Lipuma for more than 25 years, found the mixing chores for the Silver project trouble-free. "In general, it was pretty easy, pretty straight-ahead. Horace and Tommy are so cool to work with. They let me do my thing. Horace will let me know about anything that is near and dear to his heart. They let me do what I do, then they critique it. Then we do some fine-tuning. It's pretty acoustic what he does. It was mixed on a Neve 72-input console that was mixed down to an ATR Ampex machine. We used BASF 900 tape with no noise reduction. There were not a lot of gimmick things; very little limiting and very little EQ was used. We used really nice echoes. I used some of the old echo plates and some of the newer things, like the TC Electronic M5000.

"If it's recorded right, that's it," Schmitt concludes. "It's just a matter of where things are placed and getting the right balances. The setup was a little smaller than Hardbop Grandpop because of the quintet thing. But it's Horace at his best, playing and writing his great tunes. We work eight to ten hours a day mixing. We take a nice lunch. Usually when we're done we'll go out and have a nice dinner. All and all it's the kind of project you look forward to."
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RIAAN WAGES WAR ON PIRATES

The ever-increasing dominance of digital media has brought many benefits to both the producers and consumers of entertainment and information. But by minimizing the differences between masters and copies, new technologies have brought with them new threats of piracy—the unauthorized and uncompensated use of copyrighted music, video and software.

According to TR Technologies, a company that markets equipment designed to make CDs harder to reproduce without authorization, the value of pirated media worldwide is $11 billion annually. Piracy is often considered mainly as a problem in developing countries, where governments may be less than vigilant in defending intellectual property rights. But according to Steve D’Onofrio, anti-piracy director for the Recording Industry Association of America, “CD piracy in the United States is on the rise.” The RIAA attributes the growing problem to increased competition for orders among replication plants.

The problem made the news most recently in relation to Americ Disc, a replication plant in Salida, Calif. The RIAA has filed a $7 million lawsuit against the replicator and its Canadian parent, Disque Americ, alleging that the plant was involved in the manufacture of 75 unauthorized music titles, and claiming that the company “knew or recklessly disregarded the fact that many orders it accepted for pressing were pirate discs.”

The RIAA’s allegations have yet to be upheld in court, but the suit underscores the seriousness with which the record company trade group views the piracy threat. The RIAA has in place a CD Awareness program, which it says is based on “two simple rules for plant managers: Know your customers, and demand proof that they have legitimate authority to manufacture and distribute the sound recordings they are asking you to press.”

Given the tremendous volume of CDs manufactured each year, it is unclear how closely the RIAA can monitor plants for compliance with its guidelines, but the group is promising to get tough with those it believes are disregarding the ownership rights of its members. “If pressing plants fail to implement effective safeguards,” says RIAA lead attorney Steve Fabrizio, “we are committed to pursuing a campaign of litigation. The cost of accepting illicit business has just gone up.”

If, as the RIAA asserts, U.S. copyright law clearly provides for strict liability for anyone pressing an infringing disc, one wonders exactly how far back the production chain that liability might stretch. Are mastering houses (and engineers) open to being sued if they produce masters without verifying the rights of their clients to use the material? What about recording studios where elements of previously recorded material may be thrown into a mix? It may be unlikely that the RIAA will pursue its campaign that far, but the issue raises some interesting questions about the responsibility shared by everyone in the industry to keep pirates from sinking the ship.

Meanwhile, some replicators are moving to raise the barriers to piracy with modifications in their production process. For instance, according to TTR, the company’s DiscGuard technology has been licensed by Nimbus CD International for use in the replication of CD-Audio, CD-ROM and DVD discs. DiscGuard works with the Mastering Interface System from Doug Carson Associates to place an “indelible digital signature” on optical media that can be read by CD players and drives but not duplicated by disc recorders or by remastering.

DAIKIN TO SUPPORT SDII FORMAT FOR DVD

Daikin U.S. Comtec Laboratories announced that its Scenarist II DVD authoring program now directly imports audio in Digidesign’s Sound Designer II format. Daikin, which was the first company to offer a commercial DVD authoring tool, had originally teamed up with Sonic Solutions, whose DVD Studio product handled the preparation of audio (and video) for DVD. But last fall Sonic debuted its own authoring software, DVD Producer, and ties between the two companies loosened.

Because SDII files can be output by the Digidesign Pro Tools line, as well as Audiovision products from Digi’s parent company, Avid (and
many other Macintosh-based audio editors), the move allows Daikin to tap into a mature audio production platform with a broad user base. Pro Tools already has an established presence in the audio post market and includes the multitrack capabilities needed to create surround sound soundtracks.

Although it will now be easier for Pro Tools users to play a role in audio production for DVD, Pro Tools is not designed to handle the same production tasks as DVD Studio. For starters, Sonic Studio encompasses both audio and video capture and compression. Pro Tools provides an audio-only environment and does not offer DVD-specific audio compression capabilities, which will apparently be handled within Scenarist or by other third-party products. And though the new Pro Tools/24 supports 24-bit audio, it is not currently capable, as DVD Studio is, of supporting DVD's high sample-rate options (up to 96 kHz).

**MASTERING NOTES**

*Northeastern Digital Recording* (Southborough, MA) announced that it has been awarded a contract to master Enhanced CDs of 120 film soundtracks from the archives of MGM. The Enhanced CDs, which combine standard CD-Audio tracks with multimedia material including trailers from the films, will be released by Rykodisc...*Airshow Mastering* announced the opening of a new facility in Boulder, CO. The complex includes two Sonic Solutions-equipped mastering rooms and an editing/production studio. Airshow founder David Glasser will head the new operation, while Charlie Pilzer will take the helm at Airshow's original location in Springfield, VA...*Bernie Grundman Mastering* (Hollywood, CA) reports that Ani DiFranco was in for mastering of her new release *Little Plastic Castle* with engineer Chris Bellman...Mediaforce, a SADiE-equipped facility in New York City, had engineer Rick Rowe mastering projects for Thomas Moore, Blue Note Records and the Rock and Roll Hall of Fame...At *Masterfonics* in Nashville, Shania Twain's *Come on Over* became the first commercial release mastered with SADiE's Apogee UV22 plug-in, with Glenn Meadows behind the board...*Music Lane* (Markham, Ontario) announced the purchase of the 96kHz/24-bit upgrade to its Daniel Weiss mastering system...*Joe Yannece* of Trutone (Hackensack, NJ) celebrated the tenth birthday of client RMM Records by mastering the label's upcoming release of an anniversary concert at the Meadowlands. The two-CD set includes performances by Tito Puente and Marc Anthony...At *CMS Mastering* in Pasadena, CA, Robert Vosgien mastered a set of Bush remixes called *Deconstructed, The Uninvited*, and the soundtracks for *Gattaca* and *Scream 2*...Ken Lee of Rocket Lab in San Francisco mastered albums for Ron E. Beck, Tony Lindsay and the *Fiesta Comes Alive* compilation from Slap A Ham Records...*Boston's Soundmirror* was the site of mastering sessions for Mario Vas, Epic Brass, the Rev. Hersey Lee Mitchell, Popgun, Shoeless Joe, Ron Barron and Revels.
COAST TO COAST

L.A. GRAPEVINE
by Maureen Droney

Studio City's Scream Studios celebrated its tenth year in business with the installation of a Solid State Logic SL9072 J Series console. I stopped by in mid-January to visit the inaugural session—regular Scream client and hit producer David Kahne (Sublime, Sugar Ray, Tony Bennett, The Bangles) was in mixing new English artist Lisa Hall for Warner/Reprise with engineer John Travis.

Kahne, who says he works almost exclusively on 9K boards, is a definite fan of the series. "They're great for mixing," he comments, "and I'll cut on them too. The board has the bottom of a Neve and the push of an SSL—if you're into SSL, once you work on one of these, you can't go back. You may have to work a little harder for the high end, but when you get there, it's very packed in and present—I love it. And, of course, you can also keep your dinner warm on the board."

—CONTINUED ON PAGE 184

NY METRO REPORT
by Dan Daley

In Control A at New York City's Sear Sound, Japanese quirk-rockers Cibo Matto tracked for their next Warner Bros. release. Seated are bandmembers Yuka Honda (l., who also produced) and Mika Hatori. Behind Honda is engineer Tom Schick with facility owner Walter Sear.

Twenty years ago, Lou Gonzales opened Quad Recording in Times Square. The facility's four rooms (the opening of a fifth is imminent) are not its namesake, however. When it opened in May of 1978, Quad was a one-roomer, named for the Quadraphonic multi-channel matrix system whose window opened and closed within a few years. "I named it for multichannel sound, and who would have thought it would have taken this long for that format to start to make it?" muses Gonzales.

Gonzales himself is a living monument to an era of studio ownership when the personality of the facility's founder was part and parcel of the studio itself, when studio owners built not only the studios themselves but much of their own equipment, as Gonzales did for his first studio. He also modified a 16-track Ampex MM1000 for 24 tracks, storing the additional electronics in a rack next to the machine.

—CONTINUED ON PAGE 187
NASHVILLE SKYLINE

by Dan Daley

Nashville is a recording Mecca, but now a once-dormant club scene is reinvigorating itself, and the two domains—live and Memorex—tend to complement each other. A healthy live music environment has been known to be a good thing for area studios. For those who are contemplating a trip to Nashville for either of the above reasons, this month we'll take a look at some of the more notable venues in town.

Make the record and play a gig—why not?

The Exit Inn, which opened in 1971, is Nashville's longest-running rock venue. The room has gone through several ownerships and was recently sold yet again late last year to the Horton Group, which has stated its intentions of returning the place to its glory days. Funkiness, though, is part of the club's charm. The room is known for a tight low end and a remarkable sonic clarity that was present even as scores of rented P.A. systems passed through it before it settled on its own permanent system four years ago (installed, flown and wired by local sound engineer Kevin McGinty, who ran sound at the club several years ago). Four Renkus-Heinz CE3 trapezoidal boxes are

—CONTINUED ON PAGE 190

SESSIONS & STUDIO NEWS

Audio Playground (Winter Park, Fla.) recently hosted sessions for the band Cobalt Blue; system designer Bill Hanley dropped in to lend a hand. Behind the Malcolm Toft & Associates Series 980 (with Optifile 3D automation) in Studio A were bandmembers Steve Salipante, Steve Bird and Eric Charles. In front are owner/studio manager Michele Rivers, Hanley and owner/chief engineer Joseph Rivers.

SOUTHEAST

At the Sound Kitchen (Franklin, TN), Buddy Guy worked on a new release for the Jive label with producer/engineer David Z and second Todd Gunnerson. Also in was Gill Grand, mixing for Sony with producer Byron Hill, engineer Greg Droman and assistant Tim Coyle...The Nitty Gritty Dirt Band mixed for Rising Tide at Masterfonics (Nashville) with producers Emory Gordy Jr., Josh Leo and Steve Fishell. Steve Marcantonio engineered, assisted by Chris Davie. Lila McCarr was in tracking for Asylum with producer Mark Spiro, engineer Jeff Balding and assistant Mark Hagen...The Thompson Bros. Band mixed for RCA with producer/engineer Rob Feaster and assistant Mike Purcell at Emerald Sound in Nashville...

—CONTINUED ON PAGE 191
Randy Alpert, Scream's owner, acknowledged the need for an upgrade in air conditioning to accommodate the new desk. "It does run about two-and-a-half times warmer than our previous console—we knew our air-conditioning system had to be traded for a new five-ton one. We were concerned, because our clients are very happy with the sound of our room, and we didn't want to alter the acoustics at all. Luckily, we didn't have to take the main room apart; we only had to open up the ceiling, which we then replaced in the same way, with no acoustic changes. Meanwhile, we took the opportunity to re-sand and clean the wood in the control room and also to install new fabric."

Scream, although a bit of a well-kept secret, has always been a lucky studio; when it opened in October of 1988, its first client was Matt Wallace; the project was Faith No More's The Real Thing, and it gave both Wallace and the studio their first international hits. Soon after, two landmark albums were mixed at Scream: Nirvana's Nevermind, and the Don Gehman-produced and mixed Cracked Rear View by Hootie and the Blowfish. Gehman, another regular client for more than four years now, also mixed and mostly recorded Tracy Chapman's New Beginnings album at Scream. That album included the single "Give Me One Reason," which was nominated for the Record of the Year Grammy in 1996. In '97, Scream also hosted the Top Ten mixes for Jewel's "Foolish Games," Sugar Ray's single "Fly" and album Floored, Sublime's Sublime and Hanson's "Mm Bop," also nominated for a Record of the Year award.

Owner Alpert, a producer and songwriter (in 1997 co-writer on Notorious B.I.G's Number One song "Hypnotize"), shared some of his thoughts on the process of purchasing a new console: "It generally takes three to five months for the whole process," he says, "but we made the decision November 15 and did it in only eight weeks. It was time; our G Series was ten years old. The biggest decision to make was, 'Do we want an analog board?'—because I think the 9000 will be the last great analog board. The upcoming kids, who will be the hot mixers in five years, are all working in digital now, and are ready for it, but the producers and mixers of today are still into analog. I'm in business for those clients, and the feedback I got from them was that they love the console. I also listened myself and thought it was great. The center section is amazing—without the capacitors, the signal chain is so clean that even just monitoring a DAT playback you can hear the difference. You can crank the monitors all the way and hear no console noise. Another feature I like is that the small faders are automated, actually giving us 144 inputs.

"The purchase decision really came quite naturally," Alpert continues. "We've always been lucky at Scream to have three or four main clients who like a smaller complex that is state-of-the-art; we stay busy. Last year was one of our best, but I've been seeing the trend; there are a lot of G Series boards in town now, and there's a lot of rate undercutting going on—it became clear to me that I had to make a change or get out of the business. My staff is very important to me—I've only had three assistants in ten years, and Jeanne Moultrie, my studio manager, has been with me for all ten years.

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A few years ago. You can’t have a good staff unless you take care of them, and you can’t take care of them if your rates are too low.

“I think some of what has happened in studios is the same as what happened with record companies. They used to be run by music people, but now they are run by business people, and, in the case of recording studios, sometimes by not very good business people. They don’t understand that if everybody held their rates up there’d be a level playing field—there really is enough business for all of us. But when you go down to $1,200—well, this is a small business and everybody knows what’s going on—it becomes impossible to get those rates back up. So, although our rates are not high, we made the decision to upgrade to keep our studio on a certain level of quality that can command rates high enough to uphold our standards.”

In February, Magnitude 8 Post opened a DVD (5.1) and Dolby Pro Logic suite featuring mixing/remixing and audio sweetening for the home theater market. The new suite is centered around a D&R Cinemix surround sound console with dedicated surround panpots, moving faders, automated joysticks and “stems” modules. “The D&R is a Dutch board,” says Magnitude 8 owner Les Claypool. “I chose it for the new suite because we’ve already been using a D&R Vision in one of our other rooms, and we really like it. For its price range, the D&R is a great value—it’s an extremely quiet board with great EQ. Several of our clients who have heard a project mixed on the most popular eight-bus console and then on the Vision like the sound of the D&R better.”

The new suite also includes a complement of high-end home theater equipment to simulate the end-users’ environment accurately, including an M&K “THX” speaker system and ADA THX preamps, decoder and power amps. “For over six years,” says Claypool, “we have been posting and mixing shows for laser disc and video release geared toward fans and collectors. These are shows that are purchased and viewed numerous times, and they leave little room for the hurried or sloppy editorial and mixing that can occur on shows where the product is viewed only once or twice by the consumer and then forgotten. The collectible nature of DVD puts it right at home with our perfectionist.”

Do it until
suites are small, they are very accurate. Recent clients at Magnitude 8 include Sony, Pioneer, Manga Entertainment, Bandai and Jim Henson Productions.

Transplanted New Yorkers may be especially interested to know that Sam Ash Music Corp is going bi-coastal. A store opened in Westminster in December, and three more will open in the spring in Cerritos, Caroga Park and in the Virgin Megastore complex on Sunset Blvd. in West Hollywood.

Sam Ash, of course, is the quintessential one-stop shop, carrying everything from recording equipment, computers and music software, sound systems and disc jockey setups, to brass and woodwinds, digital electronic pianos, synthesizers, sheet music, instructional videos and even theatrical lighting. Sam Ash also offers mail order, repair shops and an educational services department that sells and rents product to schools, institutions and the military.

“We’ve always believed in investing in the customer, just as they are investing in the equipment that we are purchasing,” says senior VP Sammy Ash. Customers are encouraged to play with displayed equipment and to bring in their own instruments and components to demo with new merchandise. Sam Ash also offers clinics featuring well-known artists and major manufacturers, and musical instrument purchasers have the option to sign up for four free lessons with their instrument.

“This is an exciting time for us,” says Ash. “We’ve already expanded into Ohio, Pennsylvania and Florida, but this is a very big step. Some people don’t realize that the L.A. basin is the largest market in the nation. We intend for our presence there to offer an alternative. We will be very in-depth with high-tech and hard disk, computer-based products, and with pro audio lines like Tube-Tech, Zoom and Lexicon, to name a few. Our Sam Ash Professional department, which serves clients like ABC, NBC, CBS and the film houses, has taught us how to bring pro audio into the stores, and we intend to be able to put together anything that our clients need.”

---FROM PAGE 182, NY METRO REPORT---
He had prepped himself for studio ownership with a combination of working at other start-up and well-established facilities, and typical New York chutzpah, as illustrated by how he got into the studio business in the first place.

“I was working as a broadcast engineer at WADO, and I wasn’t all that crazy about that job,” he recalls. “I was in the boss’ office when he went to the bathroom. The phone rang and I picked it up and the guy on the other end said, ‘This is Bob Goldman and I’m way behind on getting my studio built. Can you help me out?’ I said, ‘I’ll send over my best man.’ I went over there and said, ‘They told me to come over here and help you out.’ That’s how I got into the studio business.”

Gonzales helped build Goldman’s Mira Sound in the old Henry Hudson Hotel on West 57th Street. Several years later, Jerry Ragavoy hired him as chief engineer at The Hit Factory. Along the way, Gonzales worked on several other start-up facilities in the 1970s, experiences that lead up to his decision to open his own room in 1978. “At that time, there were a num-

---ADDED CONTENT---

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ing facility; it’s a mid-level facility that also specializes in audio forensics and CD-ROM production. Owner-founder Larry DeVivo moved back to his roots near Saratoga Springs, about 30 minutes north of Albany, from the San Francisco Bay Area, bringing back with him an entire recording facility, including a Trident 24 console and Westlake monitors. DeVivo says he was tiring of beating against the home recording trend, which he says had dropped rates to $20 per hour in the area. Instead, he found that a mastering niche was developing around the still-vital independent record trend there.

“The closest mastering to here is in Boston or New York City,” he explains. “A lot of the local bands were skipping the mastering process altogether, or else sending tapes out of the area. I found I could compete nicely in mastering, where I would never have been able to do that in recording.”

DeVivo charges $65 per hour for mastering—about what the new generation of mid-level mastering facilities in Manhattan are charging—but he caps projects at $650. As a result, he says, volume has increased: Silvertone did 50 CDs in its first year of operation last year, and DeVivo intends to expand from the 1,500 square feet of space he built into his home into a new ground-up facility sometime later this year. Like most studios, though, he is seeking additional markets; DeVivo has started Odditure Audio Rentals, and is pursuing audio archiving and forensics for the Albany’s courts and private investigator businesses.

Silvertone’s approach is to route a signal through a minimal but high-end series of analog devices, including a pair of Summit Audio EQF100s, a Dominator II and a TC Finalizer, and then into Pro Tools, monitoring through Hafler 9505 amps and Westlake BBSM 10 and Paradigm speakers. “That’s pretty much the way I had learned mastering, from talking to people like Bob Katz and Glenn Meadows,” he says. DeVivo intends to move to a Sonic Solutions system later this year, and he is awaiting the return of an old Summit Audio 24 bit discrete mixing console built in the ’60s by Daniel Flickinger, which is being modified by Ken McKin of Retrospec. “I can’t wait to get that back after the mods are done—it’s a work of art,” he says.

Gloria Estefan, Dolly Parton, Neil Young, Lou Reed, Laurie Anderson, Bob Dylan, Madonna, Eric Clapton, George Harrison, Paul McCartney, Paul Simon, Joe Henderson, James Carter, Ernie Watts, Bill Hollman, Saturday Night Live, The Muppets and many others have done great work with the M-1. The M-1 is clearly superior, satisfaction guaranteed. Here’s why:

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Olivia Newton John began work on her forthcoming MCA Nashville release in Studio A at Emerald Sound (Nashville) with (from left) assistant engineer Chris Davie, producer Chris Forren and engineer Steve Marcantonio.

—FROM PAGE 183, NASHVILLE SKYLINE
arrayed above the center of the stage, with four R/H C2 subs on the stage itself. The system is wired for dual stereo, with a L/R mix aimed at about 45° out to either side from the center of the stage.

"With that setup, you don't lose the image when you pan hard left and right," explains Frank Sass, the Exit Inn's chief mixer for the past four years, who maintains a vantage point at the far left of mid-room behind the 32x4x2 Soundtracs Solo FOH console. He also runs the Peavey 24x8 Mark IV monitor mixer from the stage, which feeds five subgroup mixes through a Rane ME 60 EQ to the monitors, a combination of 15-inch EV-loaded Horizons and JBL Cabaret cabinets loaded with JBL 2226 speakers and a Renkus-Heinz horn. These are bi-amped using BGW 750A, 750B, 750C and 250D amps for lows and mids and a Rane MA-6S for the highs, which were scheduled to be switched over to Crown 2400 and 2600 amps. Adjacent to the FOH console is a Mackie ADAT XT, which is occasionally joined by a second one for live recordings via direct post-fader outputs on the console. A Jason & The Scorchers album was recorded live at the club in 1997—maybe the best club performance in Nashville for that year (in my opinion, anyway).

Caffe Milano on Fourth Avenue lured the legendary Chet Atkins out of semi-retirement and established itself as a force in a revitalized live music scene here. The 6,000-square-foot room has a small (15x20) stage at one end of an almost all-brick rectangle. The club sound system consists of four Adamson MH121.5 (12-inch horn, 2-inch tweeter) speakers flown in double-bin clusters on either side of the stage, and a pair of Adamson B-318 subs on the stage edge. Crossover processing is via an Adamson DX4000. The main system is powered by a Crown M5000 for the MH121s and a Crown MA2400 on the subs. A JBL rear speaker in the restaurant is run off a delay line. The monitor system is four Adamson FM121.5 speakers (12-inch speaker, 2-inch horn) and a custom-made drum monitor powered with a pair of Crown MA2400 amps and EQ’d with a White -40 dB 1/3-octave graphic. House mics are garden-variety, including Shure SM57s, Audix OM-5s, an AKG D112 and an Audio-Technica 4031. Caffe Milano has one of the first production versions of the Mackie 40x8 live sound consoles, replacing a rented Crest Century console and installed last April.

House sound engineer Marcus de Paula noted the room's proclivity to get brighter as it gets louder, thanks to the brick walls. He says that one advantage the Mackie console offers is its four matrixed outputs, which interface with the four monitor feeds originally designed in by Russ Long and two of which are used as a stereo feed for regular live broadcasts on local Lightning 100 radio. The venue also offers three Betacam video cameras (at additional charge; acts are also charged for the use of sound equipment and personnel), whose video is also run from the Mackie matrixes. "It's a great room for music because of the combination of the

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190 MIX, MARCH 1998
sound system and the vibe," says de Paula. "It can handle the volume, and that's something else Nashville's getting used to."

Sound for both Ace of Clubs and 328 Performance Hall is handled by Production Services Inc. Jim Wakefield, production manager for the cavernous, low-ceilinged 328 and system owner for the Ace's sound, says both clubs use similar systems—RCF-loaded proprietary bins, two flown 2x15/2x12/1x2 with 4x15 subs at Ace, and eight 2x15/1x10/1x2 with eight 2x18 subs at 328. Ace's FOH is a 32-input Soundcraft Spirit; at 328, FOH is a Crest GT with a Crest LM for monitors. All power is Crest. "Ace is a very tight-sounding room," explains Wakefield, "but because it's smaller, the stage volume has a tendency to compete with the P.A. At 328, it's a potentially great-sounding room, as long as you keep the volume under control."

Send Nashville news to Dan Daley at danwriter@aol.com or fax 615/646-0102.

—FROM PAGE 183, SESSIONS & STUDIO NEWS

SOUTHERN CALIFORNIA
Crunchmeister Terry Date mixed the A&M/Flip Records debut for Cold at Skip Saylor Recording (L.A.). Ross Robinson produced, and Ian Blanch assisted...At Larrabee North (Universal City), Bobby C. mixed the self-produced song "The One," the first single from his new Red Ant release, with engineer Rob Chiarelli and assistant Steve Durkee...Warner Brothers artists Nada Nuf remixed a single in Studio A at Ameraycan (L.A.) with producers Livio Harris and Doc Little and engineer Michael Nally...Canyon Studios in Laguna Beach had sax player Eric Marienthal in overdubbing on a release for Award Records artist Ola, with producer/engineer Mark DiLorenzo...

NORTHEAST
At Bopnique Musique (North Chelmsford, MA), Annette Kramer (formerly of Opium Den) overdubbed with Anthony J. Resta. Resta also worked on the next Mudhens CD...Universal artist Shadow mixed at Bear Tracks Recording in Suffern, NY, with producer Josh Thompson, engineer Earl Cohen and assistant Iain Fraser...Guster were in the SSL room at Sound Techniques in

—CONTINUED ON PAGE 201

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manufacturers have clearly learned that these maniacs want the most features and highest flash and confusion factors possible. Simply put, with all else equal, the boom box with the highest Videogame Factor will fly out the front door, while the ones with a few less spinning plasma CD animations or a slightly less intimidating color reverberant field display will end up being thrown out the back door. That seems basically acceptable to me in a sort of twisted, borderline way, but there is a second reality that just puts it over the top. The same holds when all else is NOT equal. Customers will pick the one with the highest flash factor over another that sounds much better… and they will pick the one with the highest flash factor over one that sounds better and costs less to boot. Weird but true.

So the More for Less path is as alive and well as ever. Moreso, in fact.

LESS FOR MORE

High end. Only 234 people buy it, but what a terrible world it would be without elitist, high-end tweaky audio gear. Less features—in fact, as few as possible. Less display—the absolute coolest gear has no displays at all. Less watts—but the ones that are there can butt-weld themselves. Less display—the absolute coolest gear has no displays at all. Less watts—but the ones that are there can butt-weld 1-inch steel plate with less than 0.1% total distortion. More money. Lots more.

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THE BALANCE OF POWER

Yin and Yang. A crucial balance of power. Without these two paths, the world would become unbalanced (kind of like New York, only bigger), flip on its axis and fly right out of orbit, eventually freezing or vaporizing whatever the dominant audio gear was that caused it all in the first place.

The advent of digital hardware, with its potential for both the elegant minimalism of a $7,000 black block of aluminum and the blinding audio-visual assault of a $345 component mini-system, has allowed these paths to distill and purify their respective directions to a level undreamed of mere years ago. But the advent of this hardware has also made it inevitable that this digital fork in the road also splits the audio itself.

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Now we have digital audio and digital economics. Even as the world moves into 20-bit converters, HDCD, super-low jitter clocks, and dreams of 2-gigahertz sample rates, it offers Dolby Digital and other violently compressed audio data formats. The ol’ Yin and Yang again.

And what are we to do? I gave up and got a DVD player at Christmas, at my friends’ insistence, so that they could buy me inexpensive but impressive presents: media for $19 a pop. Then two more HDCD press demos showed up. Then I took another serious listen to DTS. Boy, what a situation we have now.

When I first hooked up my new DVD player to the old Monster Home Theater system and put in my first movie, I was stunned by the 20 to 20k frequency response, the Earth-shaking sub, the amazing 360-degree imaging, the clarity and crispness and the smooth, seamless transition of sound from speaker to speaker. I was also immediately caught by the thin, lifeless, sterile nature of the whole thing. It was like a hologram—impressive as all hell, but weak and ghostly thin. It was all there, but not there. Certainly it blew the doors off of Pro Logic with its embarrassing mono rears, slurred image and psychotic steering. And Dolby Digital is serious fun. But it lacks body and soul.

And at the same time you can get HDCD and DTS—one an absurd and impressive over-the-top CD format that some can hear and some cannot, and the other a much more rational approach to the reality of (the Yin and Yang of) the commercial desire to achieve Mo’ Betta Audio.

AND TOGETHER...

The interesting twist is that in the pursuit of this goal, the two ever-divergent paths have bent back upon themselves and are now intersecting. And this is producing the very conflicts and confusion that one would expect.

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And reality also dictates that we need more audio and video in less space. We are way far from any technology that can grab a digital movie off of a little silver disc and squirt it down a wire to your TV right now. Way, way far. You just can’t cram a high-res movie onto a little CD or onto a box of little CDs without serious compression. So we have serious compression—of both the video and the audio.
little too much compression, in fact.

On the other hand, we have multiple channels of very clean, virtually noiseless 20 to 20k audio streaming off these discs. But it's gutless. And people can hear that. The general feeling in the consumer audio community is that this compressed audio is damaged beyond what one would hope for, if not beyond acceptability.

The result is further travel down both (now parallel) roads, resulting in unstable formats, new format proposals, titles being withheld in anticipation of coming superior formats, threats and litigation, big politics between the hardware manufacturers and the studios that own the films, and confusion in general. In fact, the entire DVD family of formats, both existing and potential, are in serious danger of extinction.

Hardware sales are a fraction (a very small fraction) of what the enlightened experts had so optimistically predicted. The number of titles available, even after more than a year of growth, is truly pitiful. I don't buy what I want, I buy what I can get!

Recordable DVD, the original promise, is buried under threats of mountains of expensive international copyright litigation, not to mention the staggering technical challenge of coming up with an intelligent, high-quality, real-time codec for under 15 bucks. This format may fail. I hope it doesn't, but it is in critical condition. It just isn't catching on. I have to tell you, I like this format. I find the noiseless picture to be enjoyable (when the compression engineer has done a good job). I believe in the potential of higher-quality audio compression formats. I realize that my brand-new hardware will no doubt have to be trashed to move into that better future audio, but I am willing to play the early adopter and do so.

DVD in all its permutations offers the chance for these two roads to truly merge. No, it is literally necessary that these reunite for DVD to survive and prosper. It must deliver both More for Less andLess for More. More features and more quality for less money. That's what it is going to take to wow today's technically savvy buyers. Quite a challenge, to be sure, but there is no other hope for survival of this attractive and promising format.

For all of us, for the audio and film industries, let's hope they can pull this off.

SSC still has a Beta deck, but has never owned an 8-track. Win some, lose some.
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(773) 292-1692; Fax (773) 292-1698

World-class mastering coming to Chicago. Colossal Mastering's new state-of-the-art facility is home to the finest equipment and services in the region. From custom discrete analog to precise 24-bit digital, names like Sonic Solutions, Manley, Avalon and Weiss are used to realize the full potential of your project. Clients include Styx, The Smithereens, CSO principal oboist Alex Klein, Sonia Dada, Ella Jenkins, Enuff-Z'Nuff and Brother 6.

Infinity Studios

COLOSSAL MASTERING, LTD.

The Sound Lab
1006 E. Guadalupe
Tempe, AZ 85283
(602) 345-0906; Fax (602) 345-6966

Located ten minutes from the Phoenix airport, Arizona's finest audio facility features a NEVE VRP 48-channel console with Flying Faders Automation, Otari 32-track digital DTR900, Analog, and 32 tracks of ADAT XT. Our Yamaha concert grand, vintage Neumann and AKG mics, Gretsch drum kit, along with the finest in outboard gear provide a selection without compromise. Enjoy experienced professionals in a relaxed atmosphere with Arizona's world-class amenities nearby! Package rates available on hotel, car and studio time. Highest quality at the best price.

Infinity Studios
27 Cobek Court
Brooklyn, NY 11223
(718) 339-1336; Fax (718) 339-1424
e-mail: luvthenoiz@aol.com
http://www.singularity.com/infinity.html

The only Neve VR60 with Flying Faders and Recall in NYC outside of Manhattan. Great-sounding, accurate control room with a full-complement of hot new and classic vintage outboard gear. 24- or 48-track recording on Studer A-827’s or ADAT formats. Recent credits include: Gloria Estefan, Michael Jackson, Janet Jackson, Luther Vandross. Real McCoy, Patti LaBelle, Kenny G, Rub A Dub. Freaks of Desire, etc! Just 20 minutes from the city! Accommodations nearby. Major credit cards.

Artisan Recorders Mobile
PO Box 70247
Ft. Lauderdale, FL 33307
(954) 566-1800; Fax (954) 566-3090
e-mail: mobile red@aol.com

For over 20 years, Artisan Recorders has been providing excellence in remote recording and broadcast. Along with an extensive array of equipment in a comfortable aesthetic environment, our "Mobile Red" studio boasts an expert staff of technicians with a love of music and desire for perfection. Recent credits include: The Artist (formerly Prince), "The Big Bang" concert series featuring performances by LeAnn Rimes, Duran Duran, Lisa Loeb and Shawn Colvin, MTV Latin "Unplugged" and more. When you rock, we roll.

Artisan Recorders Mobile

194 MIX, MARCH 1998
Goin' Mobile's unique medium-sized remote truck offers you superior 24- and 32-track mobile recordings & live broadcasts, for considerably less than the "big rigs." Owner Lonnie Bedell's 12 years live recording experience includes: "Live from the House of Blues," Jeff Buckley, Bill Bruford, Throwing Muses and Peter Wolf. Engineers, producers & studios get a 20-30% discount at resellers. Call for FREE info package & demo tape.

Skyelabs offers the finest in mobile acoustics & equipment for live concert recording, remote broadcast, audio for picture & in-house recording. From live-to-2tk to multiple 33-48s & ISDN live broadcast to ADAT, Skyelabs delivers clean, accurate recordings. Our credits range from AC/DC to the San Francisco Opera, Pearl Jam to Herbie Hancock and Van Morrison to Chick Corea. For more than just saturated tracks, give us a call.

Located in the heart of midtown Manhattan, Quad is the only studio in New York with two SSL 9000J Series tracking and mixing rooms. Quad is a six-floor facility with four world-class SSL rooms. Clients are welcomed by a friendly staff of professionals and enjoy our studio because of its creative atmosphere. Each studio is located on a private floor with separate lounges, bathrooms, kitchens and on-some floors, bedrooms. Recent Quad clients include Mariah Carey, Robyn, Michael Bolton, Sugar Ray, Yoko Ono, Metallica and David Kahne.

Skyelabs Mobile Recording
520 Penngrove Ave
Penngrove, CA 94951
(707) 792-2000; Fax (707) 792-2500
e-mail: skyelabs@aol.com
Skyelabs offers the finest in mobile acoustics & equipment for live concert recording, remote broadcast, audio for picture & in-house recording. From live-to-2tk to multiple 33-48s & ISDN live broadcast to ADAT, Skyelabs delivers clean, accurate recordings. Our credits range from AC/DC to the San Francisco Opera, Pearl Jam to Herbie Hancock and Van Morrison to Chick Corea. For more than just saturated tracks, give us a call.

Mobile Audio Recording Services Inc.
2610 Freewood Dr., Suite 16
Dallas, TX 75220
(214) 352-2446; Fax (214) 352-6001
e-mail: marsaud@ix.netcom.com
Little Bull, Lotta Attitude!!! Serious remote recording facility for music, video and film production. 24/48-track analog or digital capability with video interface. API console, vintage processing gear. Full complement of mics and accessories. Recent projects include Robbie Robertson, Rita Coolidge, Herbie Mann, Dwight Yoakam, Gene Hackman and James Woods. A five-minute walk from the historic plaza, Stepbridge offers charm, privacy, on-site accommodations and an experienced, fully professional staff—the perfect combination for your next project.

Lobo Recording
2103 Deer Park Ave.
Deer Park, NY 11729
(516) 242-0266 or (516) 243-2983
Fax (516) 243-3964
e-mail: loborecording.com
http://www.loborecording.com
Lobo Recording is the new, state-of-the-art Audio Recording, Mixing and MIDI facility in Deer Park, New York. Our equipment includes the SSL 4000G+. AMEK Angelas IIs, Studer D39s, A827s, AMSs and additional top-notch outboard gear and vintage mics. We offer beautiful health and recreational facilities with complementary boarding on our 50-ft. yacht and our custom-designed limousine. Call us for additional info.

Stepbridge Studios
528 Jose Street
Santa Fe, NM 87501
(505) 988-7051; Fax (505) 988-7052
e-mail: stepbridge@sprynet.com
http://home.sprynet.com/sprynet/stepbridge
Our SSL is mated with a Neve "sidecar." The tracking room is spacious, the mic list extensive, and the racks are loaded with the finest digital, class A and tube processing. Recent projects include Robbie Robertson, Rita Coolidge, Herbie Mann, Dwight Yoakam, Gene Hackman and James Woods. A five-minute walk from the historic plaza, Stepbridge offers charm, privacy, on-site accommodations and an experienced, fully professional staff—the perfect combination for your next project.
ProTools Project™
Digital Audio Workstation for Macintosh

ProTools Project is designed to provide ProTools functionality at a more affordable price. The system includes an audio card as well as a ProTools standard editor (ASR) and a master AIS-IO interface to complete the package. Project also features 8 tracks of record/playback, 4 tracks of digital ED, MIDI record/playback and Cardioemb. Digidesign also has an upgrade path when you’re ready to expand your system.

REQUIRES—
- Qualified NuBus or PCI Macintosh CPU
- Hard Drive, system software 7.1 or greater

ProTools 4.0 Software

Pro Tools version 4.0 software provides the next step in the evolution of Digidesign's award-winning digital audio production system for the Mac. Fully Power Mac native, 4.0 removes noticeable improvements in every major area. ProControl support, improved automation, sequencer, relative time signatures, and group networking, in addition to MIDI personality lists, multiple edit play lists, and Sound Designer II functionality.

Session 8™
Digital Audio Workstation for Windows

Session 8 is a professional quality digital audio rec-studio, editing, and mixing system created specifically for personal and project recording studios. Designed to operate with Windows 95 or Windows 3.1. Session 8 offers professional and project recording studios. Designed to operate with Digidesign digital mixing, unparalleled integration with new recording features, powerful random access editing, auto-sampling, and advanced features built into popular MIDI sequencer, and other software programs.

FEATURES—
- 6-channel direct to disk digital recording
- Random access, non-destructive editing
- Automated, intuitive digital mixing environment
- Built-in volume and pan automation
- Complete SMPTE time code support
- Digital parametric EQ
- 24-bit D/A conversion

Audiomedia III™
Digital Audio Card

Audiomedia III for Macintosh and Windows OS systems. Audiomedia III will transform your computer into an powerful multiflack stop recording workstation. Compatibles with-a wide range of software options from Digidesign and Digidesign development partners. Audiomedia III features features 8 tracks of playback, ups to 4 tracks of recording, 24-bit DSP processing, multiple sample rate support and easy integration with leading MIDI sequencer and other software programs.

PORTABLE HARD DISK RECORDING

Roland VS-880 V2
This new version of the popular VS880 incorporates powerful additional software functions that allow you to get the most out of this baby’s incredible creative potential.

FEATURES—
- Auto-Mixing Function records and plays back your mix in real-time
- Process the master output with a specific inserted effect such as total compression
- Simultaneous playback of 6 tracks in MASTER MODE
- 10 additional effect algorithms (30 total) including voice Transformer, Mic Simulator, 10-band Vocoder, Hum Canceler, Lo-Fi Sound Processor, Space Chorus, Reverse 2, 4-band Parametric EQ, 10-band Graphic EQ, and Vocal Cancellation
- 100 additional preset effects presets

Fostex DMT-8 VL
The lastest in the Fostex HD recording family, the DMT-8 VL truly brings the familiarity of the personal multitrack to the digital domain.

FEATURES—
- 16 bit 4:0:2, 10 bit DAT
- Built-in 6 channel mixer, CD, & 2 feature mic input level
- 24-bit and 16-bit auxiliary per channel
- Cut/Copy/Move/Place within single or multiple tracks
- Built-in MIDI Sync, 6 memory locations
- Dual function Jog/Shuttle wheel provides digital "click" from tape or buffer within pitch change. 1/20 to 18X
- Drive the drive into 5 separate virtual reels, each with it’s own timing information
- NO COMPRESSION!

Telex ACC2000/ACC4000 Cassette Dupicators

Designed for high performance & high production, Telex duplicators offer easy maintenance and operation. The ACC2000 is a 2-channel mono duplicator while the ACC4000 is stereo. Each produces 3 copies from a cassette master at 16X normal speed & by locking addition of other modules, you can duplicate up to 27 copies of a 59 minute original in under 2min!

ACC2000VL/ ACC4000XL

THE X Series feature "Embedded Life" cassette heads for increased performance and wear characteristics. They also offer improvements in wow and flutter, linear response, SN ratio & bass.

marantz CDR615 / CDR620
Compact Disc Recorder

Both next-generation stand alone write-once CD recorders. The CDR615 & 620 offer built-in simple disc conversion, CD-ROM/DAT/SCD playback, and adjustable DVD level sensing. They also feature adjustable fades/levels, record mute time & analog level automatic track incrementing. A 9 pin parallel (DIF) port, headphone output with level control and RS-232C remote are also included. The CDR615 adds a SCSI port, XLR (AES/EBU) Digital In/Out and Digital cascading, 2x speed record, Index Recording and best possible copy prevent and erasures.

CD & CASSETTE DUPLICATION

CDR615 / CDR620
Compact Disc Recorder

Telex ACC2000/ACC4000 Cassette Dupicators

Designed for high performance & high production, Telex duplicators offer easy maintenance and operation. The ACC2000 is a 2-channel mono duplicator while the ACC4000 is stereo. Each produces 3 copies from a cassette master at 16X normal speed & by locking addition of other modules, you can duplicate up to 27 copies of a 59 minute original in under 2min!

ACC2000VL/ ACC4000XL

THE X Series feature "Embedded Life" cassette heads for increased performance and wear characteristics. They also offer improvements in wow and flutter, linear response, SN ratio & bass.

Fostex D-15Tc/D-15Tcr

The new Foster D-15Tc/D-15Tcr is the least expensive timecode DAT on the market. It has a host of new features aimed at audio post production and recording audio environments. The D-15Tc comes with the addition of options chock and sync capability installed. It also includes timecode readout and output. The D-15Tcr comes with the further addition of an optional FS-122 port installed, adding timecode and serial control (Sony protocol including env-speed).
**Microphones**

Mures — I Series microphones is mom-126dB dynamic range. eications. %performance & uncommon reputation for lawless voL'Il know why Its a classic for lawless broadcast announcers. One listen and 5-position bass control to astern, and 5- position bass control for recording guitars and und  pressure levels, imakind it dynamic element handtes high transient response and del outpat e'en thorough 5 steps to ensue optimum chanc-
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Wines extremely law self  ro  se of err
Inique  powering  all  EaMtek mics.

**Mixing Boards**

Jackie.

Get on the 8-Bus!

Since its introduction, Jackie Designs’ 8-Mics have consistently proven that excellent sound quality, practical features and extreme durability can be affordable. All 2-microphone offer extreme monitoring, 4-band, I.C. accurate, loga-
ithmic taperecorder and expensive heasroom. The 24-4 and 32-4 can be expanded using Jackie’s 24E4
Exapnder console which consists of 24 switchable channels and tape returns and may be daisy-chained to provide 128 or more total input channels.

Available in 16x8, 24x8, & 32x8 versions.

FEATURES:
- Each channel includes Jackie’s well-known Mic pre-
- 10dB and -10dB switchable tape return
- 8-assignable sum/mutes and a L/R mix master
- 4-band, not parametric EQ

**Studio Monitors**

**Tannoy**

PBM 6.5II

Take advantage of Tannoy’s advanced technology in consumer and professional audio systems. The PBM 6.5II is the industry standard for studio reference monitors. Th-ly provide true dynamic clarity and real world accuracy.

FEATURES:
- 4” low frequency driver and 34” tweeter.
- Fully radiated and potted cabinet design reduces resonance and diffraction while providing deep lin-
- ear extended bass.

**JBL**

4206 & 4208

The JBL 4206 & 4208 studio reference monitors are 6” and 8” respectively. Both offer exceptional sonic performance, setting the standard for today’s multi-
- purpose studio environments.
- Multi-Baffle Design
- Solid aluminum baffles virtually eliminates rattles and creaks.
- 1” dome tweeter.

**Spirit**

Absolute Zero

Absolute Zero monitors maintain a wide frequency response at high and low listening levels, both on and off. This is an excellent choice for mixt

**Mixing Boards**

Tascam M-1600

16 & 24 Channel 8-bus Consoles

Great for modular Hip hop/Multitrack setups and hard discs recording the M-1600 is part of Tascam’s next generation series of recording consoles. It features multiple options for inputs and outputs and wide line-apparel for lenghtrural 8-bus connector, as Tascam’s more expensive

FEATURES:
- XLR Mic inputs w/phantom power on 8 channels.
- Signal present/overload indicators on each channel.
- Balanced & Unbalanced line returns & Balanced Group/Dual outputs using 8-bus connectors.
- S/PDIF Balanced Line Inputs on all channels.
- 3-band EQ with switchable nobs.
- 5 Aux sends (1 stereo)

**MINIDISC MULTITRACKS**

TASCAM 564

Digital Portastudio

The Tascam 564 Digital Portastudio combines the flexibility and superior audio quality of digital recording with the simplicity and versatility of a portable multi-

FEATURES:
- Self-contained digital recorder/remote
- Uses low-cost, removable MiniDiscs
- 2 AUX sends / 2 Stereo returns
- 8 XLR mic inputs
- Channel inserts on in/out 1 & 2
- 5 takes per track. 10 with-rec. 20 inbdes per song
- Random access and instant locate

**Sony**

MDX-4X

MD Multi-Track Recorder

MI recorder are here! Offering up to 31 minutes of high-quality track Digital-Mix, the MDX-X4 is truly the next genera-

FEATURES:
- Records on standard, removable MD data discs
- 5-5/8” hand-LED for dynamic writing and erasing.
- 10 inputs / 4-Bus mixer.
- 8 AUX sends. 3-band EO / 1-pint locator
- Random access memory for quick playback and record from anywhere off the disk.

Editing features include: Inserts, Reo & Section/Song editing for mixing material between different tracks.
PORTABLE DAT RECORDERS

TASCAM DA-P1

- Rotary 2 head design: 2 direct drive mechanisms
- XLR mic/line inputs (XLR phantom power)
- Analog and SPDIF (RCA digital I/O)
- 32/44.1/48kHz sample rates & SCMS-free recording
- Built in Mic limiter and 2968 pad
- TSS jack for level control for monitoring
- Includes shoulder belt, AC adapter & battery

PDR1000/PDR1000TC

The PORTADAT has fast become an industry standard location DAT machine. Popular for film and video production use, as well as ENG/EFP, the PDR1000 features a large backlit display, 4 motor transport and AES/EBU and SPDIF digital I/O and SCMS. The PDR1000TC adds the ability to record, generate and reference to timecode as well as use sync to convert absolute time to timecode.

FEATURES:
- 4 head Direct Drive transport
- XLR mic & line analog inputs, 2 RCA line inputs. Digital I/O includes SPDIF (RCA) and AES/EBU (XLR)
- L/R channel mic input attenuation selector (0dB/-30dB)
- 48V phantom power, rotary & internal switcher
- Illuminated LCD display shows clock and counter, peak level metering, margin display, battery status, ID number, etc.
- Viscous Metal Hybrid power powering the PDR1000 for 7 hours, AC Adaptor/charger included

PDR1000TC Additional Features—
- All standard SMPTE/EBU time codes are supported, including 24, 25, 29.97, 29.97DF, 8 30 fps.
- TCD-D10 PROD

FEATURES—
- 30-bit internal signal processing for a clear and accurate sound
- 20-30kHz limitations
- 15Hz-20kHz, 600Ω
- High level background noise attenuation
- Dynamic stereo HiFi/professional headphone offering

Fostex PD-4 V.2

The TCD-10 PROI is designed with rugged professional use in mind. It has many enhanced features including an absolute time recording, allowing immediate use of the tapes as source material for Sony’s PCM-7000 series DAT editing system.

FEATURES—
- Pre or post clipping of SMPTE/EBU timecode
- 3 in 2 output mixer with 3-position pan functions
- Selectable 48V phantom powering and variable low-cut filters

Sony DVS-777 2 Ch. Master Effects Processor

Sony's latest effects processor, the DVS-777 yields excellent sonic quality combined with realtime control, a digital I/O and many more features that will put a smile on the face of any discerning studio engineer.

FEATURES—
- 198 effect 198 user-dedicated programs
- Control up to 6 parameters in real-time via MIDI information and an optional foot pedal
- Use the AES/EBU & SPDIF digital I/O to link multiple V-77s together and when working with digital mixers
- 20-bit/16-bit, Audacity, AES/EBU and SPDIF digital I/O
- "Wizard" menu, 2-bit dithering tools, Tap and MIDI tempo
- Simple parameter editing, 1 rack space

Lexicon PCM-80 & PCM-90 Digital Signal Processors

A great combination for any studio owner with an ear for the best. The PCM-80 delivers high quality multi-effects based on the legendary PCM 70, maintaining Lexicon's high standards for sonically clear and extremely powerful processing audio. The PCM 90 is a digital reverb with its roots stemming from the studio standard 480L and 300L effects systems.

FEATURES—
- 8-bit internal signal processing for a clear and accurate sound
- 20-bit/16-bit user-reprogrammable encoder allows for quick patch changing
- A wide range of effects are provided ahead of the input for guitar players and other instrumentalists who want top quality effects without sacrificing tone

Sony SRV-330 Dimensional Space Reverb

The SRV-330 provides exceptional sound quality, using proprietary Roland Sound Space Technology to achieve three-dimensional spatial effects with conventional two-channel speaker setups.

FEATURES—
- 30-bit internal signal processing for a clear and accurate sound
- "Wizard" menu, 2-bit dithering tools, Tap and MIDI tempo
- Simple parameter editing, 1 rack space

Roland V-77: together with working with digital mixers

beyerdynamic DT 770 Pro

These comfortable closed headphones are designed for professionals who require full bass response to complement accurate high and mid-range reproduction.

- Wide frequency response
- Durable lightweight construction
- Equilateral to meet diffused field requirements
- Foldable headband ensures long term comfort

Sony MDR 7506

The Sony MDR 7506 have been proven in the most trying studio situations. Their rugged, closed ear design protects them great for keyboard players and home studio owners.

- Folding construction
- Frequency Response 10Hz to 20kHz
- 1/4" & 1/8" Gold connectors
- Soft carrying case
- Plug directly into keyboards

AKG K240M

- The first headphones
- Choice as the recording industry's gold standard
- High performance dynamic, transistor and an electrically tuned- venting structure to produce a natural sound
- Integrated semi-open design
- Circular pads for long sessions
- Steel cable, self-adjusting headband
- 15Hz-20kHz, 600Ω

Sennheiser HD 265/HD580

The HD-265 is a closed dynamic stereo headphone offering high level background noise attenuation for domestic listening and professional tape applications. The HD 580 is a top class open dynamic stereo headphone professional headphone that can be connected directly to DAT, DCC, CD and other pro players. The advanced dual channel diaphragm avoids resonant frequencies making it an ideal choice for the professional recording engineer.

For orders call: 800-947-5508
212-444-6698

OR FAX (24 HOURS):
800-947-9003
212-444-5001

On the Web: http://www.rhphotovideo.com

Sony — A professional's source for photography, video, audio, and professional computer systems.
**KEYBOARDS & SOUND MODULES**

**A-90EX**
Master Keyboard Controller

**JV-2080**
64-Voice Synthesizer Module

Roland resets the standard with the incredibly expandable JV-2080 64-Voice Synthesizer Module. This amazingly powerful package offers unprecedented expandability, digital signal processing, and remarkable operational ease, housed in a 2-unit rack-mount design.

**FEATURES—**
- 64 voice polyphony (expandable to 128)
- 4MB sound RAM
- 2 CD-ROM's included (40MB of sounds)
- 8 balanced analog outputs
- Onboard graphic waveform editing
- Load while play
- Stereo phase lock time compression

**KURZWEIL**
K2500 Series Music Workstation

Building on the same features that made the 2000 Series popular, the K2500 utilizes the acclaimed V.A.S.T. technology for top-quality professional sound. Available in 76-key (K2500), 88 weighted key (K2500X) and rackmount (K2500R) configurations, the K2500 combines ROM based samples chosen from the best of Kurzweil's collection, on-board effects, and full sampling capabilities on some models (K2500X, K2500RS & K2500X).

**FEATURES—**
- 96 MB sound RAM
- 64 voice polyphony (expandable to 128)
- 4MB sound RAM
- 2 CD-ROM's included (40MB of sounds)
- 8 balanced analog outputs
- Onboard graphic waveform editing
- Load while play
- Stereo phase lock time compression

**MIDI SOFTWARE**

**Digital Performer 2.1**

- Full MIDI controller capabilities
- 32-track sequencer & Dual SCSI ports
- Advanced file management system
- Sampling option available
- Optional OMI Digital Multitrack interface for data format and sample rate conversion with ADA1/DA-88s
- Full featured notation section that rivals dedicated notation software programs
- Playback using Quicktime Musical Instruments
- Virtual automated mixing
- Non-destructive MIDI output processing

**MIDITECH**

**Mark of the Unicorn**

Macintosh MIDI Sequencer w/ Integrated Digital Audio

digital Performer contains all of the sequencing capabilities of Performer 15 and adds Digital Audio to the picture. Apply effects such as Groove Quantization, velocity scaling and more. All in REAL TIME.

**FEATURES—**
- MIDI Machine Control
- Quicktime Video playback
- Sample rate conversion
- Spectral effects, pitch correction, realtime editing and effects processing

**MARK OF THE UNICORN**

**Digital Performer 2.1**

- Full featured notation section that rivals dedicated notation software programs
- Playback using Quicktime Musical Instruments
- Virtual automated mixing
- Non-destructive MIDI output processing

**MARK OF THE UNICORN**

**Studio 64X**

Cross Platform Interface

The Studio 64X is part of Opcode's new Studio X Series. This 64 channel MIDI interface is compatible with both Macintosh and Windows and features Emulator sampling/synchronization as well as Opcode's renowned Emulator Operating System (EOS) and superb audio quality in a package perfect for the budget-minded professional. The Studio 64X comes with stereo sampling, 4MB of RAM and is fully upgradable to Opcode's top of the line Emulator sampling/synchronizers, the E4X and Emulator Turbo.

**FEATURES—**
- Cross-platform Mac and Windows compatibility
- 64 MIDI inputs and 64 MIDI outputs
- 64 MIDI channels
- Stand alone programmable patchbay, any in to any out
- SMPTE timecode generation and synchronization
- Front panel patchbay
- Opcode access and panic button

**EMU SYSTEMS, INC.**

**e-6400**

Emulator

The e-6400 offers the power of E-mu Systems' renowned Emulator Operating System (EOS) and superb audio quality in a package perfect for the budget-minded professional. The e-6400 comes with stereo sampling, 4MB of RAM and is fully upgradable to E-mu's top of the line Emulator sampling/synthesizers, the E4X and Emulator Turbo.

**FEATURES—**
- 64 voice polyphony (expandable to 128)
- 4MB sound RAM
- 2 CD-ROM's included (40MB of sounds)

**TRIKON SYSTEMS**

**MTP AV**

AKAI MTP 2000 MIDI Production Center

Whether your producing rap or hip-hop, sequencing MIDI modules, or performing live, the MTP2000 gives you powerful tools to make your music shine. Its the NEW MPC!

**FEATURES—**
- Large 248 x 60 LCD Graphic display
- 64-track, 100,000 note sequencer with linear drum machine style programming
- 16-bit, 32-voice stereo sampler
- Standard SCSI interface

**AKAI**

**MIDI Time Piece™ AV**

8x8 Mac/PC MIDI Interface

The MTP AV takes the world renowned MTP II and adds synchronization that you really need like video genlock, ADAT sync, and word clock sync. even Digidesign superclock!

**FEATURES—**
- Same and works on both Mac & PC platforms
- 8x8 MIDI merge matrix, 128 MIDI channels
- Fully programmable from the front panel
- 128 scene, battery-backed memory
- Fast 1x mode for high-speed MIDI data transfer

**AKAI**

**Digital Time Piece™ Interface**

**Mark of the Unicorn**

MIDI Time Piece "AV

Mark of the Unicorn

Studio 64X

Mark of the Unicorn

Digital Time Piece™

Interface
<table>
<thead>
<tr>
<th>PRODUCT INFO</th>
<th>ADVERTISER</th>
<th>PAGE</th>
<th>PRODUCT INFO</th>
<th>ADVERTISER</th>
<th>PAGE</th>
<th>PRODUCT INFO</th>
<th>ADVERTISER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGE 174</td>
<td>127</td>
<td>Aardvark</td>
<td>PAGE 41</td>
<td>023</td>
<td>Emagic</td>
<td>PAGE 22-23</td>
<td>-</td>
<td>Panasonic (DA7 Mixer)</td>
</tr>
<tr>
<td>96</td>
<td>068</td>
<td>Acoustic</td>
<td>125</td>
<td>090</td>
<td>Ensoniq</td>
<td>173</td>
<td>-</td>
<td>Panasonic (SV-3800)</td>
</tr>
<tr>
<td>44</td>
<td>026</td>
<td>Acoustical Solutions</td>
<td>174</td>
<td>126</td>
<td>Equi-Tech</td>
<td>35</td>
<td>018</td>
<td>Peavey (Studio Tools)</td>
</tr>
<tr>
<td>190</td>
<td>141</td>
<td>Acoustic</td>
<td>52</td>
<td>033</td>
<td>Evosonic</td>
<td>157</td>
<td>111</td>
<td>Peavey (Unity 300 RQ)</td>
</tr>
<tr>
<td>193</td>
<td>144</td>
<td>Acoustics First</td>
<td>181</td>
<td>133</td>
<td>Europakid</td>
<td>74</td>
<td>062</td>
<td>Pilchner Schousial</td>
</tr>
<tr>
<td>124</td>
<td>009</td>
<td>Acoustic Systems</td>
<td>55</td>
<td>036</td>
<td>Event Electronics</td>
<td>86</td>
<td>059</td>
<td>Prism Media Products</td>
</tr>
<tr>
<td>17</td>
<td>006</td>
<td>Akai</td>
<td>61</td>
<td>041</td>
<td>Eventide</td>
<td>205</td>
<td>153</td>
<td>ProSound &amp; Stage Lighting</td>
</tr>
<tr>
<td>193</td>
<td>141</td>
<td>Alesis (Wedge)</td>
<td>151</td>
<td>151</td>
<td>Five Towns College</td>
<td>204</td>
<td>152</td>
<td>QQA</td>
</tr>
<tr>
<td>18-19</td>
<td>008</td>
<td>Alesis (Studio 32)</td>
<td>40</td>
<td>022</td>
<td>Focusrite</td>
<td>105</td>
<td>076</td>
<td>QSC Audio Products #2</td>
</tr>
<tr>
<td>98</td>
<td>071</td>
<td>AlterMedia</td>
<td>136</td>
<td>095</td>
<td>Focusrite #2</td>
<td>151</td>
<td>105</td>
<td>QSC Audio Products #2</td>
</tr>
<tr>
<td>93</td>
<td>065</td>
<td>Amek</td>
<td>140</td>
<td>101</td>
<td>Full Compass</td>
<td>160</td>
<td>114</td>
<td>RADIAL</td>
</tr>
<tr>
<td>11</td>
<td>006</td>
<td>AMS Neve (Capricorn)</td>
<td>170</td>
<td>121</td>
<td>Full Sail</td>
<td>126</td>
<td>091</td>
<td>The Recording Workshop</td>
</tr>
<tr>
<td>90</td>
<td>062</td>
<td>AMS Neve</td>
<td>104</td>
<td>075</td>
<td>Genelec</td>
<td>189</td>
<td>139</td>
<td>Rocket Lab</td>
</tr>
<tr>
<td>72</td>
<td>050</td>
<td>Anthony DeMaria Labs</td>
<td>43</td>
<td>025</td>
<td>Genelec</td>
<td>49</td>
<td>030</td>
<td>Roland</td>
</tr>
<tr>
<td>85</td>
<td>058</td>
<td>Apex Systems</td>
<td>98</td>
<td>072</td>
<td>Graham-Patton</td>
<td>26</td>
<td>011</td>
<td>Sabine</td>
</tr>
<tr>
<td>62</td>
<td>047</td>
<td>Apogee Electronics</td>
<td>56</td>
<td>037</td>
<td>Grandma's Music &amp; Sound</td>
<td>152</td>
<td>052</td>
<td>Sam Ash Professional</td>
</tr>
<tr>
<td>155</td>
<td>109</td>
<td>Applied Research &amp; Technology (ART)</td>
<td>161</td>
<td>135</td>
<td>Great River Electronics</td>
<td>167</td>
<td>118</td>
<td>SEK'D</td>
</tr>
<tr>
<td>70</td>
<td>048</td>
<td>Athan</td>
<td>158</td>
<td>112</td>
<td>Groove Tubes Audio</td>
<td>172</td>
<td>124</td>
<td>Sennheiser</td>
</tr>
<tr>
<td>193</td>
<td>145</td>
<td>AudioForce/MediaForce</td>
<td>123</td>
<td>086</td>
<td>Guitar Center's Rhythm City</td>
<td>161</td>
<td>116</td>
<td>Sensaphonics</td>
</tr>
<tr>
<td>106</td>
<td>077</td>
<td>Audio Precision</td>
<td>87</td>
<td>060</td>
<td>HBB Communications #2</td>
<td>163</td>
<td>117</td>
<td>Shure</td>
</tr>
<tr>
<td>51</td>
<td>032</td>
<td>Audio-Technica</td>
<td>145</td>
<td>104</td>
<td>The Hollywood Edge</td>
<td>187</td>
<td>138</td>
<td>Simon Systems Engineering</td>
</tr>
<tr>
<td>91</td>
<td>063</td>
<td>Audix</td>
<td>94</td>
<td>066</td>
<td>Hot House Professional Audio</td>
<td>134</td>
<td>135</td>
<td>Solid State Logic (SSL) #2</td>
</tr>
<tr>
<td>196-199</td>
<td>146</td>
<td>B &amp; H Photo-Video</td>
<td>192</td>
<td>143</td>
<td>Institute of Audio Research</td>
<td>69</td>
<td>047</td>
<td>Sonic Solutions</td>
</tr>
<tr>
<td>83</td>
<td>113</td>
<td>BASF</td>
<td>123</td>
<td>087</td>
<td>Intelix</td>
<td>14-15</td>
<td>-</td>
<td>Sony</td>
</tr>
<tr>
<td>142</td>
<td>102</td>
<td>Bellari</td>
<td>28</td>
<td>013</td>
<td>JBL Professional</td>
<td>73</td>
<td>051</td>
<td>Soundcraft</td>
</tr>
<tr>
<td>57</td>
<td>039</td>
<td>Benchmark Media Systems</td>
<td>139</td>
<td>099</td>
<td>KABA</td>
<td>65</td>
<td>045</td>
<td>Soundelux</td>
</tr>
<tr>
<td>34</td>
<td>017</td>
<td>Burlington</td>
<td>189</td>
<td>140</td>
<td>RecResearch &amp; Development</td>
<td>140</td>
<td>100</td>
<td>Sound Ideas</td>
</tr>
<tr>
<td>139</td>
<td>099</td>
<td>AV Recording Media</td>
<td>203</td>
<td>150</td>
<td>Korg</td>
<td>117</td>
<td>061</td>
<td>Soundscape Digital</td>
</tr>
<tr>
<td>45</td>
<td>028</td>
<td>CAD</td>
<td>64</td>
<td>044</td>
<td>L&amp;M Music</td>
<td>92</td>
<td>064</td>
<td>Spanish Music</td>
</tr>
<tr>
<td>71</td>
<td>049</td>
<td>Cakewalk Music Software</td>
<td>119</td>
<td>083</td>
<td>LAK</td>
<td>168</td>
<td>119</td>
<td>Stanford Research Systems</td>
</tr>
<tr>
<td>188</td>
<td>158</td>
<td>Cal Switch</td>
<td>130</td>
<td>094</td>
<td>Lexicon</td>
<td>2</td>
<td>002</td>
<td>Studer Professional</td>
</tr>
<tr>
<td>186</td>
<td>137</td>
<td>Caruso Music</td>
<td>206</td>
<td>155</td>
<td>Lexicon</td>
<td>171</td>
<td>213</td>
<td>Studio Audio Equipment</td>
</tr>
<tr>
<td>169</td>
<td>120</td>
<td>Carvin</td>
<td>56</td>
<td>038</td>
<td>Lexicon</td>
<td>128-129</td>
<td>-</td>
<td>Studio Consultants</td>
</tr>
<tr>
<td>206</td>
<td>036</td>
<td>CMS Digital</td>
<td>159</td>
<td>019</td>
<td>- Los Angeles Recording Workshop</td>
<td>129</td>
<td>-</td>
<td>Studio Pro '98</td>
</tr>
<tr>
<td>97</td>
<td>070</td>
<td>Conservatory of Recording Arts &amp; Sciences</td>
<td>124</td>
<td>-</td>
<td>- Los Angeles Recording Workshop</td>
<td>101</td>
<td>073</td>
<td>Sweetwater Sound</td>
</tr>
<tr>
<td>27</td>
<td>012</td>
<td>Creamware</td>
<td>6-7</td>
<td>004</td>
<td>Mackie (HR824)</td>
<td>53</td>
<td>034</td>
<td>TAD/Technical Audio Devices</td>
</tr>
<tr>
<td>84</td>
<td>057</td>
<td>Danish Pro Audio/T.G.I.</td>
<td>18</td>
<td>157</td>
<td>Mackie (HUI)</td>
<td>3</td>
<td>003</td>
<td>Tannoy</td>
</tr>
<tr>
<td>97</td>
<td>069</td>
<td>The DAT Store</td>
<td>68</td>
<td>046</td>
<td>Manley Laboratories</td>
<td>25</td>
<td>010</td>
<td>Tascam (DA-38)</td>
</tr>
<tr>
<td>37</td>
<td>020</td>
<td>dB Technologies</td>
<td>118</td>
<td>062</td>
<td>Markertek Video Supply</td>
<td>101</td>
<td>073</td>
<td>Tascam (Decksetts)</td>
</tr>
<tr>
<td>122</td>
<td>085</td>
<td>Demovision</td>
<td>176</td>
<td>129</td>
<td>Martinssound</td>
<td>60</td>
<td>040</td>
<td>Taytrix</td>
</tr>
<tr>
<td>79</td>
<td>054</td>
<td>Denon Electronics</td>
<td>80</td>
<td>055</td>
<td>Metric Halo</td>
<td>31</td>
<td>015</td>
<td>TC Electronic (Fireworx)</td>
</tr>
<tr>
<td>9</td>
<td>165</td>
<td>Digidesign</td>
<td>103</td>
<td>074</td>
<td>Microboards of America</td>
<td>39</td>
<td>021</td>
<td>TC Electronic (Finalizer Plus)</td>
</tr>
<tr>
<td>63</td>
<td>043</td>
<td>Digital Audio Labs</td>
<td>156</td>
<td>110</td>
<td>Micro Technology Unlimited (MTU)</td>
<td>50</td>
<td>031</td>
<td>TC Electronic (Tube-Tech)</td>
</tr>
<tr>
<td>126</td>
<td>092</td>
<td>Disc Makers</td>
<td>178</td>
<td>131</td>
<td>Miles Technology</td>
<td>114</td>
<td>080</td>
<td>That</td>
</tr>
<tr>
<td>54</td>
<td>035</td>
<td>Dolby</td>
<td>113</td>
<td>079</td>
<td>Minnetonka Software</td>
<td>178</td>
<td>132</td>
<td>Thoroughbred Music</td>
</tr>
<tr>
<td>33</td>
<td>016</td>
<td>Drawmer/Transamerica</td>
<td>185</td>
<td>-</td>
<td>Mix in Espanol</td>
<td>42</td>
<td>024</td>
<td>TLAudio/Sascom Marketing</td>
</tr>
<tr>
<td>44</td>
<td>027</td>
<td>Dream Sound</td>
<td>137</td>
<td>096</td>
<td>MUSICAM USA</td>
<td>175</td>
<td>128</td>
<td>Waveframes</td>
</tr>
<tr>
<td>95</td>
<td>067</td>
<td>Dynaudio Acoustics</td>
<td>127</td>
<td>093</td>
<td>Musician's Friend</td>
<td>138</td>
<td>098</td>
<td>Wenger</td>
</tr>
<tr>
<td>177</td>
<td>130</td>
<td>EAR Professional Audio/Video</td>
<td>171</td>
<td>122</td>
<td>National Sound and Video</td>
<td>138</td>
<td>097</td>
<td>West L.A. Music</td>
</tr>
<tr>
<td>203</td>
<td>149</td>
<td>Earthworks</td>
<td>13</td>
<td>007</td>
<td>Neumann/USA</td>
<td>111</td>
<td>078</td>
<td>Whirlwind</td>
</tr>
<tr>
<td>121</td>
<td>084</td>
<td>Eastern Acoustic Works (EAW)</td>
<td>21</td>
<td>009</td>
<td>Otari</td>
<td>202</td>
<td>147</td>
<td>Whisper Room</td>
</tr>
<tr>
<td>153</td>
<td>107</td>
<td>Electro-Voice (EV)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
FROM PAGE 191, SESSIONS & STUDIO NEWS

Boston mixing for Hybrid Recordings with producer/engineer Mike Shipley. Tina Morris assisted...Arabesque recording artist Paula Robison tracked her latest at EastSide Sound in December with producer Danny Criss, engineer Lou Holtzman and assistant Gary Townsley...Pianist Silvind Kool recorded for the Musical Mollusk label at Soundworks Studios in Watertown, MA. Monster Mike Welch was also in, tracking for his upcoming release on Tone Cool Records...At New York City's M.A.W. Studios, Luther Vandross tracked demos with the Masters at Work production team, engineer Dave Darlington and assistant Oscar Monsalve...Dean Batstone tracked for an upcoming Canadian release on 280 Records with engineer Doug Ford at Soundworks (Argyle, NY)....At Red Rock Recording (Lansing, PA) alto sax giant Phil Woods cut tracks for the first in Blue Note's upcoming Jazz Masters series. On the session with Woods were Johnny Griddin on tenor, Cedar Walton on piano, Peter Washington on bass and Ben Riley on drums. Bill Goodwin produced, and Kent Heckman engineered...Marc Ribot and Los Cubanos Postisos recorded for Atlantic with producer JD Foster, engineer Andy Taub and assistant Wayne Dorr...At Kampo Audio/Video in New York City, Buddy Miles laid down drum tracks for a release on the Knitting Factory label...

NORTH CENTRAL

Cirrus artists Aleister Wild completed a new album with producer/engineer Cal Moore at Immortal Productions (Coral Fulton, OH)...Satellite Studios in Chicago had Uniform in tracking a new CD with producer/engineers Jack LeTourneau and Tomas Ford. LeTourneau and Ford also recorded a show for guitarist Andy Summers at local club Marty's...

SOUTHWEST

Interscope artists Smash Mouth stopped in at SugarHill Recording (Houston) to overdub on a song for the Half-baked soundtrack with engineer Andy Bradley...

STUDIO NEWS

I want youooou (to roll tape today): Peter Frampton installed a Studer A827 analog 24-track in his Nashville home studio, Nuages Recording...Crosstown Audio in Atlanta is completing reno- vation on its new space, adjacent to its existing studios. The new addition includes a new reception area, office suite, a conference room and more space for data storage.

In session for his next album at Ocean Way (L.A.) Paul Westerberg (second from left) was accompanied by Shawn Calvin, guesting on vocals, dread-locked producer Don Was, drummer Jim Keltner and engineer Al Sanderson (R).
Insider Audio

—From Page 28, Graceful Death

buy one chip, not eight. But if one channel on that chip fails, there's nothing anyone can do to salvage the other seven.

Still, even doing repairs at the chip level has become rare: Most manufacturers don't want to have a bunch of proprietary replacement chips floating around outside their factory, where they could be analyzed by the competition. So whole assemblies, even if they're otherwise perfectly functional, end up being replaced.

A lot of this attitude, not surprisingly, is borrowed from the computer industry, which in the early '80s adopted the "don't-fix-it-replace-it" mentality so as to keep the costs of training field technicians down, and to keep tight control over crucial components like operating system ROMs. It has meant repairs can get done quickly (assuming the replacement boards are available), but it has also meant a lot of people end up paying for very expensive assemblies when a cheap diode or capacitor is really all that was needed. Unfortunately, it means really useful service manuals are becoming a scarce commodity, and quick and clean component-level repairs are simply not an option.

Other factors are at work, too. Product development cycles have become so short that there's no time for long-term failure testing, to say nothing of developing practical ways for users to respond to failures. Often, a service manual for a new device doesn't become available until long after the product is out there, as manufacturers are reluctant to invest in the creation of the service manual until they're sure they have a hit on their hands. How many devices do you have that display "error codes" that are explained nowhere in the documentation? One of the reasons that our esteemed editor George Petersen's book on modular digital multichannel units is borrowed from the computer in our industry is that it was not originally designed to function both in professional environments (where one presumes they would be carefully maintained by trained technicians) and in consumer environments, where they would not be pushed very hard. But as audio decks, at least in the personal and project studios for which they were originally targeted, they often do not get the attention they need, while they are being pushed just as hard as if they were in a video-editing suite.

On desktop computers, we're asking for DSP and hard disk performance that few others in the industry demand. The video and graphics developers who use PCs as front ends for their systems are mostly smart enough to provide their own hardware to do the heavy lifting, but the trend in our industry is going the other way, to use as much "native" processing as possible, to keep costs down. There's no easy solution to this problem. As long as we customers demand high performance at a low price, and as long as the manufacturers are obsessed with getting their next generation of product out the door ahead of the next guy's, the cost of field-serviceability, of usable real-world troubleshooting guidelines, and of "graceful death" will be too high to be included in the products we use. But manufacturers could do more to acknowledge that things do indeed fall apart and make more of an effort to address the problems that users will undoubtedly encounter. Could I teach a student to get a wayward tape channel on that chip fails, there's nothing anyone can do to salvage the other seven.

And even if we try to be cautious, we're pushing our tools harder than ever. The video transport the MDM is based on was not originally designed to be constantly run at the high speed required for multitrack digital audio, and so component and head wear are accelerated, and tolerances must be tighter. The units are also caught in a kind of netherworld between professional and consumer—as video decks, they were originally designed to function both in professional environments (where one presumes they would be carefully maintained by trained technicians) and in consumer environments, where they would not be pushed very hard. But as audio decks, at least in the personal and project studios for which they were originally targeted, they often do not get the attention they need, while they are being pushed just as hard as if they were in a video-editing suite.

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Paul Lehrman is trying hard to age gracefully. Meanwhile, he offers congratulations to Bill and Lisa, and thanks to his ever-suffering students for being such good sports.
APPLE TALK

—FROM PAGE 74, THE FUTURE OF THE MAC

Mac, especially with OMS. But NT’s time will come.

Froker: Professional customers generally pick the workstation they want, not caring much which platform it runs on. In this regard, the Mac is important mainly from the standpoint of “Does it allow Digi to implement the features and performance our customers want?” The Mac does well here. The PC is catching up and in some ways offers a few advantages, but also has more configuration headaches and operating system issues. The Mac is still probably easier to develop for.

How do you interpret Apple’s decision to back away from cloning? What signal does it send to developers such as your company, and to your customers? What impact do you think that decision will have?

Zacai: In the past, Waves has experienced numerous difficulties in supporting clones, specifically with the need to support different systems and to provide compatibility solutions for the various clones. Apple’s decision will be beneficial in terms of fewer compatibility issues, and will provide us with known and standardized hardware to which we can adjust our products in the best possible manner.

Doris: Apple’s decision to eliminate clone products has very little impact on our market. Sonic products are typically used on the top-of-the-line Macintosh systems, and for the most part, our users have not been sensitive to the marginal advantage in the price of a completely configured system that a clone might offer. We believe that Apple’s decision to eliminate cloning has little bearing on developers, other than to make them more confident in Apple’s long-term financial wherewithal to continue to deliver state-of-the-art technology.

de Benedictis: As long as Apple makes fast, inexpensive machines that are easy to buy and configure, it should be okay.

Froker: Apple made a smart move to back away from clones. One of their biggest problems has been their lack of profitability. The clone-makers concentrated their marketing and products at the high end of the Mac market, thereby hurting seriously Apple’s most profitable segment. So Apple did what any card-carrying capitalist would do: They killed their competitors.

How well do you feel that Apple’s cur-

"Everyone Agrees!"

Earthworks Mics Sound Great!

But a few have mentioned...

...that self noise may be detectable when recording quieter sources, so...

Earthworks introduces the QTC1 quiet omni!

The QTC1 offers 4dB less noise than the TC40K, ruler flat frequency response from 4Hz to 40kHz, superior impulse response and that great Earthworks sound.

...and because omnis are not for everyone,

Earthworks introduces the Z30X cardioid mic!

The Z30X offers unusually smooth on-axis response to 30kHz, very low off-axis coloration, extraordinary rear rejection, clean impulse response and great sound for vocals, drums and etc.! Excellent for stage, studio, and broadcast.

...and just in case you haven’t heard, the LAB series preamps are transparent and so quiet that the preamp noise is inaudible even at 60dB of gain. Flat response from 2Hz to 100kHz ±0.1dB and rise time of 0.25 µsec. The LAB preamps allow stepped gain from 0 to 66dB as well as variable control of gain to three separately driven outputs capable of 8Vrms into 600Ω at less than 0.02% THD. Gold plated switches! (standby, polarity, and phantom) The LAB series preamps are ideal for 96K/24 bit digital or extended frequency analog recording. If you like the clarity and realism of Earthworks mics, you’ll love our preamps!
APPLY TALK

rent leadership is handling the company's problems? Do you think they understand the needs and concerns of companies such as your own? What would you like to see them do that they are not currently doing?

Zacai: In order for Apple to continue to get strong demand in specialized professional markets such as audio and multimedia, as well as among audio enthusiasts in general, they should include some unique audio features and options as part of the Mac OS.

Doris: Apple is making significant progress on many fronts. We are enthusiastic about the direction Apple's new leadership has shown in re-establishing the Macintosh as the platform of choice for multimedia authoring. Their direction is clear, and we believe they have a well-formulated strategy for making the Macintosh continue to be very relevant to our user base.

We know, as a fact, that Apple well understands the needs of companies like Sonic. Sonic is one of Apple's strategic partners in multimedia authoring, and they have proactively solicited our input on future directions and product features. We are confident that they are listening and taking what we offer to heart.

Bottom line, I think we will all be happier when Apple sells more systems and their market share moves above the 10 percent level once again. —Bob Doris

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themselves with another video post facility. Instead, they added video capability of their own, and many of their audio clients followed. The Wolff Brothers Audio company houses two suites equipped with Yamaha 02R digital consoles and four spectral workstations, and Burt Wolff says that the company’s work for Turner, The Family Channel and other broadcast clients has been very strong. “Atlanta is a relationship-based town,” he says. “As long as a producer is happy and wants to work with certain people, the size of the facility doesn’t really matter. They’ll go the extra mile to overcome the limits of size and technology. On the other hand, you have to offer clients as much as you can to make that easier, so we added some video capability.”

Synchronized Sound has taken the symbiotic route, allying its three audio suites with an Atlanta video studio. Synchronized Sound had been an all Studer Dyaxis facility—“the Studer Museum of Natural History,” jokes company president James Klotz, referring to the discontinued Dyaxis. The abrupt lack of support for the workstation caused the company to survey the workstation landscape, and the owners purchased two Fairlight MFX-3™ systems and a Fairlight FAME console/workstation.

Upgrading technology presented Klotz with what he euphemistically calls a “rate challenge.” “We have an all-inclusive rate structure here; we don’t charge for extras,” he explains. “We’re going to have to up the rates in the FAME room because of the cost of the upgrade. And we know that a lot of traditional Atlanta clients have been resisting rate increases, especially since the Time Warner/Turner merger, which has cut budgets some. They need to make their bottom lines look better, and I understand that. They have not asked us to cut our rates, but they have indicated they would like to see them stay where they are rather than increase. And that’s the challenge: You hope to make up the cost of the technology upgrades with more work at the same rates. Believe me, it’s a challenge.” So, Klotz is considering taking some equipment that he owns outright, specifically an Amek Big console, and creating a fourth, lower-cost room for overdubs and offline work. “That seems like the most sensible way to expand,” he says, “because there is definitely plenty of work coming in—the rooms are constantly booked. But you have to deal with the costs of upgrading.”

Crosstown Audio has also upgraded, adding a Euphonix CS2000 with film mixing capability to one of its two suites. The new board sets Crosstown up for surround audio, which has not been a big issue in this broadcast-oriented city up till this point. It also helps Crosstown with the film market, which at the moment is pretty much based on independent documentary filmmakers, a market that the studio has tapped deeply in recent years. While not lucrative, that work is steady, says chief engineer Nick Ketter. The larger benefit is that it provides a film component to the client base, which helps Crosstown prepare for larger productions and/or be associated with a filmmaking community that could at any moment produce the next Hollywood wunderkind. Crosstown is also dabbling in multimedia audio work, using its pair of Sonic Solutions systems for file format conversion and sample rate reduction for game projects. The facility recently completed a demo in 5.1-channel sound that will go out with all IBM Thinkpad computers.

Ketter has felt resistance to rate hikes but says the addition of a new console (doubling the number of channels and adding “wow-factor”) has helped. “But we know we can’t sell that to documentary filmmakers whose work is going out on PBS,” he acknowledges. “So we’re also having to try to move more of our client base further upscale to help pay for technology upgrades.”

Cat’s Paw Productions has been in the catbird seat for a while now, says president/CEO/voice talent Doug Paul. Despite the proliferation of project-type post rooms and the fact that some clients are enhancing or expanding their own in-house capabilities, the six-room Cat’s Paw has been able to raise rates slightly after installing an SSL Scenaria to complement its Post Pro and Dyaxis workstations. “There’s a lot of corporate work coming to Atlanta that wants bells and whistles,” says Paul, who exudes the fundamental optimism that characterizes Atlanta’s post community. “They want performance as well as creativity and quality. There are more competitors in Atlanta, and that can cause deflation in the rates at some point. But the upgrading of facilities here is also attracting a lot more work from other parts of the region, like Greensboro and Charlotte, places with a lot of corporate activity. Atlanta is the gem of the region. It has the sizzle. And that’s what they’re coming here for.”

Dan Daley is Mix’s East Coast editor.
field test

—from Page 126, AMS Neve VX/VXS

features the same multitrack routing push buttons as mono units, with left outputs being routed to odd-numbered buses and the rights to even. Phase of either channel can be inverted, and the two channels interchanged. Mono collapse and LR takeover are also featured, along with a built-in M-S (Mid/Side) decoder. Filters and insert points are essentially the same as those provided on the mono channel strips; as would be expected, EQ is dramatically simplified, and aux sends feature a balance rather than pan control. The mono module’s dynamics section is replaced with a twin bar graph meter that can be switched to monitor levels at four points. A width control adjusts the width of the sonic image within a stereo sound field.

A standard stereo module has a single L/R balance control that can be switched out. Optionally, the module can be fitted with a front/back balance control that pans the stereo signal between stereo pair 1/2 and 3/4. (With normal models, you need to make use of an aux bus or spare multitrack for surround-channel assignments.) A Skew control works much like balance, except that it provides a mono-compatible signal by introducing crosstalk.

The optional Fader Direct Input module provides a very useful direct-to-fader input capability via the Channel section. The entire front end of the console can now be bypassed, enabling an alternative front end—maybe an outboard mic preamp—or off-tape signals to be connected directly to the fader without passing through unnecessary electronics or switches. Control of Fader Direct Input is via a bank of push buttons within the Monitor section; input switching can also be controlled as an event by Encore/Flying Faders automation.

VXS Surround Monitoring/Recording Panel

The optional VXS panel provides surround-sound monitoring functions and access to record modes via film-style PEC/Direct paddles. In standard mode, the console features either four, six or eight mixdown buses: in Post/Scoring Mode, a group of switches configures the mixdown bus format to provide either eight mixdown buses (assigned via the panpot as odd/even pairs), four stereo pairs (for, let’s say, stereo dialog, effects, music and ambience stems; a separate 8-in-2 mixer creates the final stereo mix), or three stereo buses and one mono bus that serves as a hard center or dedicated mono surround. Each bus features both a pre- and post-fade insert, and individual trim controls.

Three eight-wide playback inputs enable monitoring of up to three recorders, while for post sessions, playback inputs can be used to return prebuds into the mix buses, on into just the monitor. VXS consoles can be supplied in one-, two- or three-operator configurations.

A comprehensive 8x8 matrix section selects which channels are sent to control room/dubbing stage loudspeaker sources. As is to be expected, Solo accesses individual speaker buses via the monitor path’s final output and is not destructive to any 2-track mix selected. A dedicated button routes the return from a Dolby DS4 insert to the left- and right-surround speaker buses. A unique Dialog On mode selects monitoring of a dialog track to either center Summer (mono) or left/right channels. Other modes enable the bus-monitor signal to be heard regardless of the state of the Bus/Return paddles, for example.

in A Nutshell

The VX/S provides so many features that it is hard to summarize. The combination of Neve’s sonic performance—now enhanced with some non-trivial circuit changes and tidying up of module wiring—and AMS’s new Encore automation with optional Recall capabilities, makes the VX Series a serious contender for facilities looking for no-compromise performance.

My complaints are minor. The surface is a sea of knobs, with color coordination helping break up sections. However, some functions—particularly the dynamics section—can be hard to implement, simply because knobs are packed so tightly together. In contrast, the track assignment, aux-send and EQ sections are more spacious. Fader and switch automation are blindingly fast, easy to master and pack a lot of useful features. It’s high-tech with an open, clear sound.


Mel Lambert currently heads up Media & Marketing, a consulting service for pro audio firms and facilities.
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TIPS FOR TWEAKING

Best described as a “dynamic equalizer,” the BSS Audio DPR-901 II may be thought of as a 4-band parametric EQ with each cut/boost control replaced by a variable-ratio compressor/expander control. The EQ only operates when the affected frequencies cross the selected threshold. The DPR-901’s ability to alter the equalization contour of a signal as the dynamic profile changes makes it the ideal tool for smoothing out dynamically “peaky” voices and instruments and for repairing overequalized or “popped” tracks. The DPR-901 may also be used as a broadband compressor/expander (with the EQ switched out) and performs de-essing and other selective noise reduction functions. Seven years after its introduction, the 901 remains unique, a secret weapon for which there is no substitute—on the recent k.d. lang tour, we used one each for monitors and FOH.

Each of the 901’s four dynamic processors can operate as a compressor or an expander, with adjustable threshold control and Fast Release and Below Threshold switches. LED bar graphs indicate Threshold, Compression and Expansion action. Two parametric controls per section select frequency and Q. Each section can be switched in/out, and a sidechain monitor feature helps determine which frequencies need to be compressed or expanded. The filters on the first and fourth sections are switchable between shelving and bell shape, and the two middle sections offer individual filter bypass switches, allowing their use as normal, full-range dynamics processors. The Fast Release, useful for de-essing and de-popping, can be switched out to prevent pumping on composite music mixes.

LEAD VOCALS

The 901 is particularly useful on lead vocals, which sometimes benefit from the use of all four sections:

Excess Proximity Effect: Use Band 1, set EQ frequency between 100 and 150 Hz. Select Shelf. Set Compression to about 10 o’clock, set Threshold switch for Above. Adjust Threshold to release when the artist moves about six inches off mic.

“Whisper” Presence Enhance: Use Band 4, set EQ frequency to about 2.5 kHz, set Expand at about 2 o’clock.

Shy Vocalist “Bass Enhance”: Use Band 1, set EQ frequency between 150 and 250 Hz. Set Expand at 2 o’clock, Threshold switch Below and Threshold control about -10.

De-Essing: Use Band 4 (or 3). Set frequency to about 5 to 8 kHz (use Sidechain Listen to find the exact frequency). Set Compress to about 9 o’clock, set Threshold high and select Above switch. Set Release to Fast.

Frequency “Hot Spots”: Many singers have a hot spot in their range. Use Sidechain Listen to find the frequency range (typically Band 3) and use the same settings as for De-Essing.

Vocal Smoothing: With the filter defeated, use one of the mid sections as a broadband compressor to even out the vocal. Alternately, broadband expansion can minimize the “stage wash” picked up by a vocal mic in front of a band.

DOUBLE YOUR FUN!

The original DPR-901 (I own serial number 11) is a mono signal processor. Introduced in late 1995, the DPR-901 II can be split into two independent 2-band processors, which can be used on different signals. When using the 901 II in Split mode, remember that each EQ filter is sweepable over four octaves and overlaps adjacent section(s) by an octave. Channel “A” affects low (40 to 320 Hz) and low-mid (150 to 1,600 Hz) filters, while Channel “B” controls high-mid (800 to 9k Hz) and high-frequency (1.6 to 18 kHz) filters. Of course, as Bands 2 and 3 can function in full-range mode, the 901 II may substitute for two compressor/expanders.

BASS EXPANSION

The 901’s low section can compensate for the nonlinearity of human hearing at different sound levels. A touch of mild expansion of low frequencies below a threshold can have a pleasing effect on the tonal balance (hence the “Loudness” control on most home stereo systems).

On bass guitar, some gentle use of the Band 1 will give the instrument more weight on quieter songs while not overpowering louder tunes. Switch the filter to shelving, and the effect is weighted toward the lowest frequencies, the way the ear responds. Or try processing across a subgroup of instruments with signal content below 100 Hz.

For live sound systems, the 901 can be inserted in the subwoofer signal chain. Band 2 can be used, with its filter defeated, as a broadband, above-threshold compressor, complementing Band 1’s below-threshold expansion and protecting the subs at high volume. Band 3 can be used to limit overenthusiastic thumb-snapping techniques.

A 901 across an entire mix can have a powerful effect, but with this much control, there is ample opportunity to make things worse. As you start experimenting with the controls, extreme settings will identify the sound of different types of dynamics processing, but modest adjustments provide more transparent and natural results.

Mark Frink (mfrink@teleport.com) is in his fifth year as Mix’s sound reinforcement editor and also works as an independent engineer.
Pro Tools® 4.1 productivity breakthrough!
Analog Feel. Digital Power. All Mackie.

A HUI® GUIDED TOUR.

1. Assign Section. V-Pot assignment control lets you configure Sends A thru E, pan and channel bus I/O functions.
2. Channel Strips. Eight channels are considered the maximum human hands can handle at once. Stereo/mono LED meter bridge displays digital dBFS levels.
3. DSP Section. Fluorescent display shows plug-in DSP parameters. Rotary V-Pots let you "tweak" settings with fingers instead of mouse.
4. Switch Matrix section handles automation configuration and edit functions such as cut, paste, copy, delete, etc.
5. Control Room Section controls I/O selection, master monitor level, and global muting.
6. Navigation Controls. Scrub and shuttle wheel controls, timecode display, cursor controls, virtual "tape transport" buttons, window buttons for Pro Tools screens such as Mix, Edit and Transport, and keyboard shortcut buttons including Save, Undo, Edit Mode, etc.
7. THE CHANNEL STRIP DESCRIBED. All eight HUI strips can be soft-configured in Pro Tools® 4.1 as an aux return, group or main master or channel strip.
8. Record Ready toggles track record.
9. Insert calls up DSP plug-ins. V-Pots and V-Pot function selectors can act as pan pots or aux sends. Built-in LED display gives visual indication and displays recalled settings.
10. Auto toggles automation modes.
11. Real Solo and Mute buttons!
13. Select enables editing, grouping, assignment routing or DSP.
14. Touch-sensitive 100mm fader. Conductive knob reacts instantly to touch updates without pressing a separate enable button. Long-life fader has a high-resolution (default resolution 9 bits), tightly-tuned servo amplifier to reduce annoying fader "chatter."
15. Analog Control Room I/O. Three stereo pairs can be switched between six discrete signal paths for surround sound.
17. Insert for your favorite NON-plug-in (hardware) signal processors.

THE HUI REAR PANEL REVEALED.

18. Built-in power supply.
20. "Trigger" ports add foot switches for Stop/Play/Punch, On-Air, external console solo, etc.

Digital audio workstations need hands-on control. Not just a fader pack, but a whole "cockpit" of controls that you can get your hands — and even FEET! — on. Mackie's Human User Interface (HUI®) gives you 100mm faders to record and tweak level automation moves, virtual rotary controls for functions such as panning and adjustment of DSP plug-in parameters and dedicated function buttons for things like muting, soloing, or "arming" a virtual Pre Tools 4.1 track. Then HUI lets you "touch update" levels as the motorized faders play back your automation sequence. If we stopped there, we'd have beaten the knobs off any conventional fader pack. But we also added a complete analog control room section and two of our renowned microphone preamps. For many post production applications, HUI provides all the mixer you'll need — including discrete/mute switch, input source selection matrix, speaker/headphone assign, master monitor level control and built-in talkback microphone!

If you're a serious professional who makes your living running Pro Tools day in and day out, call us, or contact your Digidesign vendor for more information on HUI.

Then get behind the jog/shuttle wheel of the ultimate workstation control surface and accelerate your productivity.

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New multichannel formats are challenging old monitor concepts. While traditional stereo is still prevalent, 4, 5 or more channels are being monitored in modern production environments, daily. The LSR Family applies new technology to meet these requirements. By going beyond traditional design techniques with Linear Spatial Reference performance, JBL has literally redefined how a system is created. The LSR concept helps to dramatically expand the listening area, creating a larger, more accurate mixing space.

The LSR32 introduced the world to the Linear Spatial Reference philosophy. This 12" 3-way mid field monitor offers maximum performance in both vertical and horizontal configurations.

The LSR28P is an 8" bi-amplified near field monitor, ideal for multichannel mixing in small to medium-size production environments.

The LSR12P is a 12" powered subwoofer that easily integrates into a wide variety of stereo and multichannel formats, and complements both the LSR32 and LSR28P.