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Troy Germano's Studio Design Group and Whitemark Ltd. designed studio facilities for the Abkco label's new headquarters in New York City. See page 8. Photo: Jennifer Klein.



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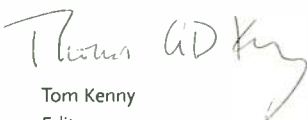
It's almost been a pro audio sport, on and off, for the past 15-plus years: Avid bashing. Practically from Day One, back in 1994, when the hot-tech Tewksbury, Mass., company made Digidesign its first acquisition, many Pro Tools users have been quite vocal in their love-hate relationship with the parent company. Why doesn't Avid/Digi gear talk to each other? Why can't I choose my own converters? Why can't I work offline without IO? Do they really think I should use these PRE's? No surround panner on the ICON? I've got to pay to export to MP3? Why are they picking a fight over mixing outside the box? Live consoles? LE, cool. Buying M-Audio? Cool. Why won't they open up? Why is it so expensive for just PCI/x/e cards and software? They're making speakers now? They've removed the Digidesign name???

Yes, they did. For a reason. And it seems to be a smart one moving forward. Extensive studies showed that there was brand value in Pro Tools, not Digi. So they kept the former. And ICON and VENUE and M-Audio. Not Euphonix. But big companies make big targets, especially ones that start out small and enter the big leagues overnight. It was only April 1988 when Avid first showed Avid/1 in private rooms at NAB, introducing nonlinear picture editing and truly changing the game. That really wasn't that long ago, and they had no real competition on the high end for nearly 20 years. So they built more products, tried some audio on their own and then started buying companies: Digidesign in '94, Softimage and Tektronix in '98, M-Audio and Bomb Factory in 2004. Pinnacle in 2005 and Sibelius the following year. Then Euphonix earlier this year. They got big. But in high-tech, with the need to continually innovate, bigger doesn't always mean faster. Final Cut and a reputation of paying little attention to their customer's requests hit them hard in video. And plenty of very solid DAW manufacturers—Steinberg, MOTU, Apple, Cakewalk and others—have had Digi in their sights for years.

This is no David and Goliath story, and I'm not writing as an Avid apologist; many user (and manufacturer) criticisms have been justified. But think about it: market dominance, in a fast-moving high-tech space, for nearly 20 years now. That is not easy. The Avid highs during the past couple of decades have been in the stratosphere, and the lows have been accompanied by tumbling stock and (false) rumors of bankruptcy. But here they are, 20 years in and still on top. While some may say they are playing catch-up, they are still innovating.

The flurry of announcements out of the Pro Tools camp these past three months has been truly impressive, with HD interfaces and HEAT, then Mbox interfaces, then HD Native and then, last week, stealing the AES thunder with Pro Tools 9 opening up the architecture. (And this comes on the heels of the Media Composer 5 launch on the video side.) Three months of releases, however, means at minimum three years of hard work in shifting the corporate culture, in responding to customers, in realigning priorities—and in developing products that the industry wants. It has paid off. The buzz was more than palpable on the Moscone Center show floor. It was downright exciting. And just wait till they really start integrating EuCon. The future looks bright.

So go ahead and bash if you will. And then go fire up your \$599 PT9 software using your own interface, import your WAV file created in another platform and make some music. Pro Tools has opened up.



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Abkco Records

For more than 50 years, the Abkco label (New York City, abkco.com) has been home to some of the most iconic recordings of the rock 'n' roll era. The Rolling Stones, Sam Cooke, The Kinks and The Animals are just a handful of the greats that have been Abkco's life's blood for decades.

One of the reasons Abkco continues to thrive and maintain a fine reputation with listeners is the philosophical approach the company brings to reissues: Abkco's releases are meticulously researched, restored and remastered to modern standards, with respect for the history and meaning of the music.

"Our new offices, while spearheading the company into the future, embrace our past legacy and honor the artists who built Abkco," says CEO Jody Klein.

The studio facilities were designed by Troy Germano of Studio Design Group (and, of course, of Germano Studios) with UK design firm White Mark Limited. "The goal was for Jody to build something that would last many years where he'd be able to do reissue work, as well as normal stereo mixing projects, archiving and pretty serious, high-tech surround mixing projects like they did on [the Stones'] *Get Yer Ya-Ya's Out!*," says Germano, whose final design makes efficient use of Abkco's loft space by employing a shared machine room for the audio studio and video suite.

The 14x18-foot audio studio, with custom acoustical treatments, was designed to accommodate the variety of engineering tasks that chief engineer Teri Landi and the Abkco staff perform: sourcing master recordings, archiving, recording and mixing music and sound-for-picture, and premastering reissues and new releases.

"We needed a facility that could do our premastering," Klein says. "That involves a vast amount of researching source material, as well as A/B'ing between singles, albums, foreign releases, domestic releases."

A great example of this type of work would be the impressive *The Rolling Stones*

1964-1969 remastered vinyl Box Set that Abkco released last month. This project involved researching the UK studio album versions, as well as the two UK "Big Hits" collections that contained hit singles not included on the original UK studio albums. "There are times with the Stones where they made two versions. An example of that is 'Time Is on My Side,'" Landi explains. "The version that's on a U.S. LP is not the same version that's on the UK LP. It's important to A/B those original references and make sure you have the right thing."

The equipment Landi now has at her disposal includes an SSL AWS900 console purchased from Alicia Keys' Oven studios and a newly expanded 7.1 monitoring system that incorporates the ATC SCM50ASLs from Abkco's previous facility and Exigy surrounds. Landi is particularly delighted that the new studio can house all of the tape machines and other playback devices that are essential to her work. Models include two Ampex ATR-102 tape machines with Aria electronics (modified and maintained by Mike Spitz), an Ampex AG-440 with original electronics and a 351 with original tube electronics (modified and maintained by Bill Wells), and a Sony JH-24. Landi keeps a selection of interchangeable headstacks for each of these machines. Also in the new studio is Abkco's collection of new and vintage outboard gear: Neve mic pre's, EQs and compressor/limiters; GML EQs; Chandler Ltd. limiter; Universal Audio compressor/limiter; DW Fearn tube EQ; Manley Pultec tube EQ; EMT 140 stereo reverb plate; and more.

"In the new studio, Teri can perform any engineering tasks she needs, and she has these devices, literally, within an arm's



Abkco CEO Jody Klein (left) and chief audio engineer and archivist Teri Landi

Abkco's modified Ampex 351 tube reel-to-reel tape machine



length. That was a requirement that was on our drawing board from day one," says Germano. "Jody's reissues are second to none. That's partly because of the effort they put into going back to the original source, but it's also because Jody's always been on the cutting edge in terms of going with SACD, like they did with the Rolling Stones' catalog a few years back. He and Teri make the right transfers and the right adjustments to bring this material to the modern age." III

BOB ROCK

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CURRENT

compiled by Sarah Benzuly



KEN REICHEL 1939-2010

Former Audio-Technica executive VP and COO Ken Reichel passed away October 15, 2010, at his home in Richmond, Va. Reichel joined Audio-Technica in May 1982 and served the company in various leadership capacities before retiring in June 2000.

"Ken valued strong personal relationships based on mutual respect and commitment," said Phil Cajka, president/CEO of Audio-Technica U.S. "He had a powerful combination of technical understanding and sales acumen, which served him well in his time with the company and gained him the respect and admiration of customers, fellow sales personnel and A-T's R&D and engineering team. He was known for his larger-than-life personality and was as comfortable drawing up a circuit design on a napkin as he was pitching a million-dollar deal to a potential customer. Ken had an incredible sense of humor and showmanship, which often manifested itself at sales meetings, where he would don his infamous pink jacket. We extend our deepest sympathies to his family, his friends and all who knew him."

Reichel is survived by his wife, Joyce; son, Scott; daughter, Tammi; son-in-law, Martin; and four grandchildren.



From left: Kevin Becka, Blue Microphones' Tyler Barth, and engineers Ed Cherney and David Rideau

Esquire Studio Digs

Since January, *Mix* technical editor Kevin Becka has been working as the lead audio consultant for the Esquire House 2010 recording studio in Los Angeles. The 9,000-square-foot, \$19M home in the "bird streets" of West Hollywood embodies *Esquire's* Man at His Best theme throughout. The pool-house studio was a collaboration between Becka, Blue Microphones and New York designer Denise Kuriger. The room features gear from SSL, Avid, Genelec, Korg, VocalBooth.com, Waves, Steven Slate Digital, Perception Audio, Blue Microphones, TC Electronic and others. A virtual tour of the house is available at www.facebook.com/Esquire.



Becka and engineer Tony Maserati



QSC, M&W NEW CONSOLES

QSC Audio Products and M&W Design Group (Greg Mackie and Peter Watts) are collaborating on a new series of digital audio mixing consoles. Design work on the products will be done by both M&W and QSC, while manufacturing, distribution, sales, marketing and technical support will be handled entirely by QSC. The first products are expected to be announced during the first half of 2011.



"Getting one of our new commemorative systems is like taking a time machine back to 1960 and purchasing it directly from the Telefunken showroom."

—Jason Scheuner, director of artist relations, on celebrating the 50th anniversary of the ELA M 250/251, 250E/251E and 270 mics with exclusive commemorative system packages.

Industry News



Rik Kirby

Effective in the coming months at **Guitar Center** (Westlake Village, CA): **Greg Trojan**, CEO; **Marty Albertson**, former CEO, will remain as a non-executive Chairman of the Board...**Jim Bailey** is a new product manager at **Aphex** (L.A.)...New face at **Fishman Acoustic Amplification** (Andover, MA) is **Ian Popken**, director of product development...**Renkus-Heinz** (Foothills Ranch, CA) promotes **Rik Kirby** to VP of sales and marketing...While packing boxes for its move to Charlotte, N.C., in early 2010, **Neutrik** (Lakewood, NJ) promoted **Thomas Chudyk** to national sales manager and **Chris Neethling** to global accounts and business manager...**Stacey Moran** joins **Blue Microphones** (Westlake Village, CA) as VP of marketing...Filling the newly created position of applications engineer, international, at **Soundcraft Studer** (Potters Bar, UK) is **Angel G. Perez**...Distribution deals: **One Systems** (Nashville) names **Richard Dean Associates** (Newburyport, MA) for the New England region; handling **API** (Jessup, MD) in Asia Pacific is **Asia Pacific Media Group**; **Prism Sound** (Cambridge, UK) names **Moon Systems** as exclusive distributor in Saudi Arabia; and **Roland Systems Group** (Bellingham, WA) taps **Quantum Sales and Technology** for Southern California/southern Nevada.

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on the move

Who: Bill Norton, Earthworks COO

Main Responsibilities: Instruct and advise on the development of new, innovative products for the A/V and MI markets, as well as work with various manufacturers to develop integrated products involving Earthworks proprietary technology.

Previous Lives

- 2007-2010, Casio national director of sales
- 1994-2007, St. Louis Music regional director of sales

My favorite memory as a performing musician was... spending two years (1989 to 1991) traveling the world playing piano and guitar as a part of a USO show with the U.S. Department of Defense. It was a wonderful time of my life, and I was very proud to entertain our troops that are deployed all over the world.

If I could do any other profession it would be... Construction! I love to build things with my hands.

What I am currently listening to: Bruce Hornsby's latest album, *Levitate*. Also Elton John's *11-17-70*.

When I am not in the office you can find me... In the recording studio! Though my dream to be a rock star has long since sailed, my love for music and recording lives on.



Studio Unknown Update

Have you ever dreamed of upgrading your current studio space or building your own commercial studio from the ground up? If so, you need to check out our December installment. We'll dissect the path to studio creation as shared by those who have been brave enough to embark on the journey and sane enough to tell the tale. Read all about it at mixonline.com/studio_unknown.

Mix Master Directory Spotlight

This month's featured listing from the new online-only Mix Master Directory (directory.mixonline.com/mmd)

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Mr. Williams and the Fairchild 670

SECRET SOURCES REVEALED?

Mr. Williams led me through the darkened third-floor corridor of an abandoned brick office building in downtown Joliet, Ill. Cardboard boxes and ceiling plaster lay strewn on the floor, and a jolt of fear pulsed through me as we stepped over piles of debris to reach the illuminated doorway at the end of the long hall. I wasn't sure where this creepy old guy with the mustache was taking me, but it could be very bad news for a foolishly trusting single girl like myself. He smelled like old leather and cigarettes. His lips curled back to show a toothy smile as he pushed open the door, waving me inside.

I squeaked past him into the room. And there was the hoard. Stacks of old tube broadcast compressors, Altec amps, rotary-knobbed Western Electric mixers, lonely Sparta turntables, Voice of the Theater horns—an armory of equipment collected from radio stations and movie houses stacked from the floor to the roof. I had finally found the mother lode, but the one thing I really, really wanted wasn't there. I had traveled 1,200 miles and put myself in harm's way to find the Holy Grail—the Fairchild 670 compressor—and there wasn't even one Fairchild in the whole darn place.

Because I'm writing this story now, I suppose it's obvious that I made it out of there alive. And I managed to bring out a massive collection of tube broadcast equipment, too; even today, I still have most of that collection. But there was no Fairchild in that ancient red-brick building and for a very good reason—Fairchild 670 compressors were mainly found in disc mastering houses, and creepy Mr. Williams only dealt with broadcast equipment. I was barking up the wrong tree!

The Holy Grail, But Why?

So why are these old analog compressors such a big deal? Well, for starters, they are filled with magic. Putting a mix through the stereo 670 will turn a me-



This Fairchild 670 sits in Sear Sound Studio A, New York City.

diocre song into a hit. Okay, maybe I exaggerate, but today these stereo tube compressors go for \$30,000 if you can find one. And that's no exaggeration. Some may think it's a myth, but they really do something that no other compressor does. As the last element across your mix bus, the Fairchild 670 adds excitement and fury, while clarifying every part of the program going through it. The 670 smooshes everything together without becoming glassy or brittle or hard. And it can make the kick and snare on rock records go "pah-powwww."

In 2007, *Mix*'s George Petersen initiated a conversation where Les Paul described the birth of the Fairchild compressor. [Hear it at mixonline.com/TECnology-Hall-of-Fame/les-on-fairchild.mp3] It jumps back in time to a dining-room table in New Jersey in the 1950s, where the famed guitarist was discussing a compressor design with Rein Narma, a young tech who had proven his skills by building a recording mixer to use with Les' new Ampex 8-track. Les got a list and bought all the parts so Rein could assemble his new exciting design, but before Rein could put the darn thing together, another friend of Les' named Sherman Fairchild hired Rein away to have him build what would become the 670 and its mono counterpart, the 660, at his Fairchild facility in New York. Les never got his compressor built, and the parts just remained in a box in his basement for years!

Fairchild licensed Rein's compressor design, and a handful of 660s and 670s were manufactured in the early 1960s. Fairchild's mastering equipment was in competition with the Scully and Neumann gear of the same era, but the Fairchild compressors managed to jump into other audio processing applications and became very desirable for recording popular music. Paul McCartney and Geoff Emerick were rumored to have used their Fairchilds across nearly everything they recorded. "Grey Ghost" Jim Scott (Barenaked Ladies, Red Hot Chili Peppers, Sting) would never leave the house without

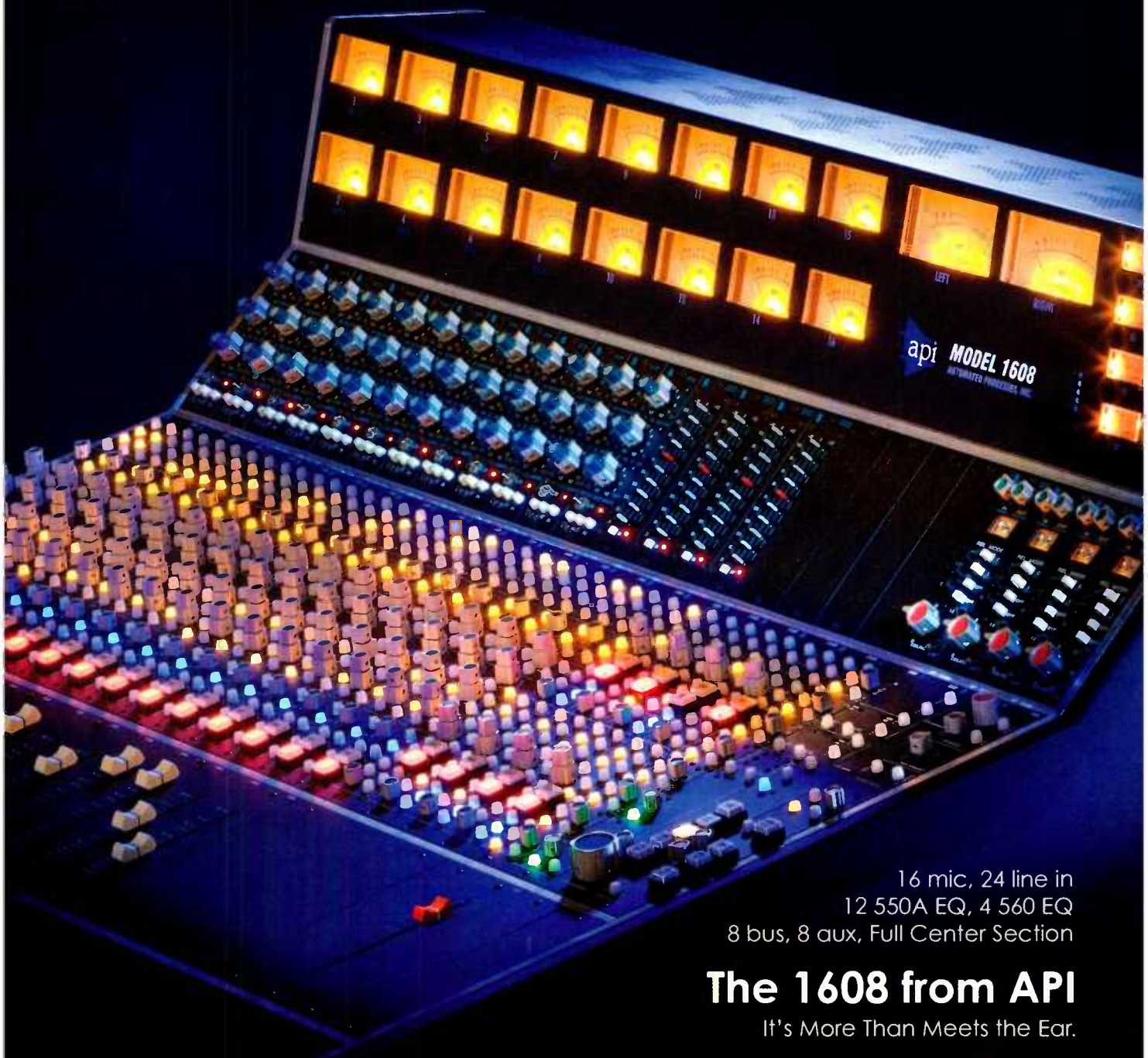
his 660, and, of course, Jack Joseph Puig (Weezer, Green Day, Jellyfish) drove his 670 like a rented mule across his major mixes.

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THE FINISHING TOUCH

TOP ENGINEERS ON MASTERING TODAY

By Blair Jackson

Periodically, we like to check in with folks in the world of mastering to see what's happening in that end of the audio business and find out what's on their minds. The good news? Even with the downturn in the economy and the falling fortunes of the major record labels, there still seems to be a high demand for that "finishing touch" that professional mastering gives to a project.

We recently spoke with four top mastering engineers about a range of issues. First meet our panel for this forum (which was assembled from separate interviews).

Jim DeMain owns and operates Yes Master Studios (Nashville, yesmasterstudios.com), which has been serving large and small acts from the Music City region and clients all over the world for the past 12 years. Though Yes Master was badly damaged in the devastating Nashville flood in May 2010, DeMain has barely missed a beat, working steadily in a temporary space while his studio is being rebuilt.

Mike Wells of San Francisco's Mike Wells Mastering (mikewellsmastering.com) is not just one of the Bay Area's leading mastering engineers, he is also a vital member of the audio community in general—an educator who has run "Audio Outreach" seminars; a member of the

Board of Governors of NARAS; and co-chair of the workshops at the recent San Francisco AES show, among other extracurricular activities.

A mastering engineer for three decades, Stephen Marcussen has run his state-of-the-art Marcussen Mastering in Hollywood for the past 10 years, and opened a shiny new facility just recently. Aside from tons of major-label and indie work, Marcussen Mastering also does copious 5.1 surround jobs.

Situated on the third floor of one of Manhattan's busiest and most respected facilities—Avatar Studios—Kevorkian Mastering (kevorkianmastering.com), named for engineer Fred Kevorkian, has been attracting a diverse range of clients for the past six years. Previously, Kevorkian worked at Sear Sound and Absolute Audio.

For a while there seemed to be an increase in the D.I.Y. aesthetic, where more people believed they could do a professional mastering job at home. Has that cut into your business and do you find yourself occasionally correcting/repairing poorly done mastering jobs?

DeMain: Maybe, but for some reason I'm still really busy. I wonder if it's because there are more independent artists making CDs and EPs. So the

percentage of people that want mastering has actually gone up even though the established record companies aren't putting out as much product. It seems to me that there's more indie work now than ever before.

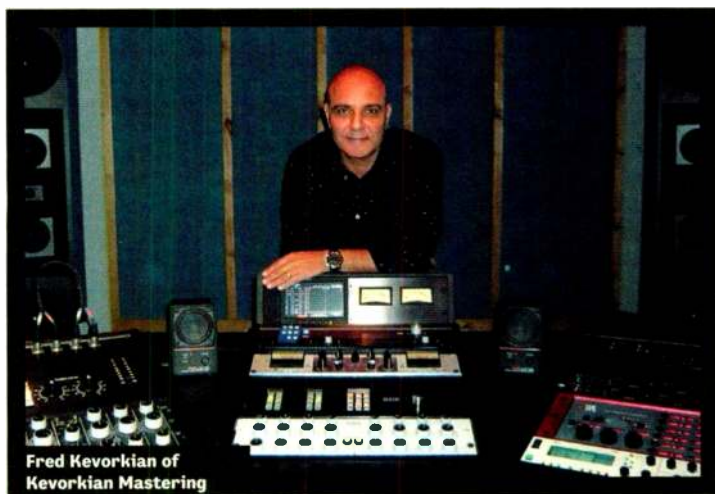
Also, I think mastering still seems a little mysterious to a lot of people. Most of the guys who are really in the game have serious playback systems. And they also have a reputation. So I think there will always be a percentage of artists who, even if they make their own record, are open to the idea to have one last guy that's a professional dot all the "i"s and make sure it's all right.

Wells: I re-do projects all the time. It ranges from people saying, "I tried to do it myself and I couldn't figure it out," to, "My friend tried to do it and he couldn't, so now we're talking to you." At the end of the day, most of it comes down to mastering engineers being able to communicate—especially to independent artists—what is achievable given the recording. Sometimes it's a tough-love answer. I have found that it's not a good idea to promise things that can't be delivered. In the world of Internet mastering, we see that happening every day: Grand promises are made for a dollar a song.

I'm hoping that in the next few years we



Marcussen Mastering's
Stephen Marcussen



Fred Kevorkian of
Kevorkian Mastering

might see a renaissance in the appreciation for those who have dedicated themselves to audio engineering, whether it's tracking, mixing or mastering. Over the last decade, the manufacturing and sales sector have really pushed with such fervor this idea that you can do everything yourself, but the reality is most people are going to fall short in one or all of those areas, no matter how diligent they are, and there is no plug-in that is going to make up the shortfall of what an actual professional in one of those areas can do for them.

Kevorkian: I mostly see two types of mixes coming through the door. The "old-school" ones with plenty of headroom, and the mixes that have been already maxed out and been brick-wall-limited to death. I understand this [latter situation] was probably done to impress the label or the artist. Once in a while, I get those loud mixes and they sound amazing. There is nothing I could do to make them sound better. So I do the best possible transfer to the 16-bit/44.1kHz world. Those are isolated cases. Most of the time, over-limited mixes do need some work, and unfortunately when there are no more transients left in the program, it is very hard to do any corrections—de-essers don't work the way they should and compressors are useless. Unless the mixing engineer is very confident with the processing he applies to the final mix, I would suggest providing the client with

the pumped-up versions for approval and bring the *non*-processed files to the mastering session. It's so much better to work with.

Marcussen: I've seen a lot of people go through the D.I.Y. stage; I think that's part of growth in this business. If you're lucky enough to be able to make a record and you've got a shoestring budget and that's how you've got to do it, then that's how you've got to do it. There are a lot of D.I.Y. guys who provide a valuable service, and it's a stepping-stone for artists to get their stuff out. It's not all bad—you can do some fairly impressive stuff in some of these workstations; we see it. But at the end of the day, when you go to mastering, you're really paying for the guy's experience that's working on your project. Anybody can technically add bottom, middle, top, whatever it is—make it loud, make it this or that. But when you go to somebody that's been doing it for a long time, there's a whole different perception that comes with that and that's obviously a good thing.

Years ago, when Pro Tools was really taking off, we started hearing a lot of complaints in the mastering community about receiving unlabeled PT sessions from acts, poorly employed DSP plug-ins, etc. Has that situation improved as musicians have gotten more savvy about using DAWs and plug-ins have, by most accounts, gotten better?

Kevorkian: This is why I don't have Pro Tools! I don't have that problem. I work mostly from stereo mixes—not from sessions. I understand why it could be productive to adjust a mix while mastering, but most of my clients don't have the luxury to spend two or three hours on a song anyway. To be honest, I don't even like working from stems. To me, it takes all the spontaneity away. I like to work fast and have the client evaluate the result in an environment they know well. They can then touch up their mixes if needed and I will recall my settings. Mixing is an art, and I am not a mixing engineer. Occasionally, I am happy to have a kick track stem available to add a little punch to a mix that needed help.

Today, almost every musician has a more or less elaborate studio setup at home. Like everyone else, they have to go through a learning curve. They are more knowledgeable about software and plug-ins, but still, talent makes the difference.

Wells: I'm someone who works with a lot of independent artists, where the artist is also the engineer, but they're not professional engineers: They have a DAW and maybe they're recording in their practice space, they've read a lot of magazines and gone on the Internet to try and glean information that they can apply in their environment to get their project created. What I see missing from that equation right now is a real depth of understanding of the terminology. People throw around a lot of terms—"dither" is a good example—without understanding what "dither" does.

They know they need to do it, but are you talking about dither with or without noise shaping? Once they go beneath the surface, there isn't much understanding. People have a lot more access to information now, but the deeper understanding is still at the very top level with professionals. I think it's a reflection of the times because when you look at how many directions people are pulled today doing their work, their music, their social media—e-mail, text messaging and phone—there's not a lot of time to dedicate oneself to really becoming proficient in something like audio engineering when you also need to be the musician and the manager and the promoter and whatnot.

Marcussen: We see everything imaginable—including, I've got to say, plenty of really fantastic, well-put-together projects that already sound great. But we also see things that come in already distorted for you. [Laughs] We see things that come in with a little pre-mastering "help" on them. You get the call: "Can you master from an MP3?" Well, technically, yes, you can, but do you

want to is the question.

There are definitely times when there's a problem that surfaces in the mastering room and then we have to go back to the client and see what they want to do. I would be remiss in my duty if I didn't say, "Hey, these files look funny," or, "This tape doesn't have stable tones"; whatever the flaw is. The good news is that today most of this stuff is correctable.

DeMain: The percentage of unlabeled files is actually pretty small. We do stuff from all over the world now because the Internet has made it so easy. Someone sees your name on a CD they like and all of a sudden we have clients in Italy and Sweden and France and England, Australia, South America, Scandinavia. Files exchanged over the Internet are always labeled properly and pretty much always have an e-mail with all the info. But then you still get the odd disc in the mail that's just a CD with the files on it and

aggressive? I'm trying to see what they're hearing on that album and then try to apply what I know to their project.

DeMain: Sometimes I get clients who come in with two or three other records, and say, "I want my record to sound like this." I don't mind giving it a try, but I'm really not into that because every time I've done that in the past, I've ended up having to re-do it because it never comes out right to everybody's satisfaction. I know "the customer is always right" and all that, but the reality is, you're not that artist, you don't have the same guys in your band, those aren't the same songs, you didn't record it at the same studio with the same engineer, and the same guy didn't mix it through the same equipment. So if I can make your record sound like that with just a couple of EQs and compressors, I might as well be a miracle worker. My philosophy is, everything becomes what it's going to be. In other words, I listen to it and I make it the

best it can be for what it is. Obviously, I can push it in a direction—I can push some more bottom end into it to make it sound more rock, or a little more "top" for the country sound or whatever. But I find it really

hard to copy other CDs.

Kevorkian: That doesn't happen very often. Sometimes I wish they did, but most of the time I'm glad they don't. Somehow, the sound of the reference records my clients bring to the session often has nothing to do with their mixes. I guess they have very high expectations. Unfortunately, we don't have the ability to *transform* a mix; we can only enhance its quality and make it more compatible for the real world. A good-sounding record is not only the result of a good mastering job. The arrangements, the production, the recording and the mixing are all key elements. If the magic is not there in the flat mix, it won't happen after the mastering session. At that point, you have to be very diplomatic and explain to the client what can or cannot be done to achieve their goal. You have to lay out the limitations of the process. But even if the reference source is way off, I can still pick up what the artist is aiming for—loudness, brightness, warmth, dynamics, et cetera—and I will do my best to make my client happy.

Wells: I encourage people to bring a reference because, especially with independent artists, they're usually using one or two records to benchmark their mixes against, and that

also represents partially what they're hoping to achieve in mastering. It gives me a ton of information when I hear their mix and what they're using as a reference for what they're trying to achieve, so we can get to the common language faster that way.

What they're going for will often come across more quickly and more easily by listening to something, rather than talking about high end, low end, warmth, air, sizzle, fairy dust—all these terms that are really personal.

Are there any pieces of gear you're particularly hot on at the moment?

DeMain: The coolest thing I've gotten recently is actually an upgrade to something I've had for a while. It's a digital compressor made by Weiss. I had the DS-1, which is a really nice box, but it was sort of the first one out of the chute, so I upgraded to the DS-1 MK3, which does all this new stuff I never could do before with that type of compressor.

My favorite overall piece of gear is still my monitoring system. I have Lipinski [707] speakers and a Carl Tatz PhantomFocus System, and I don't know if I could do what I do without that because I can hear everything so well.

Wells: My Dangerous Music mastering console is the coolest piece of gear I own. Period. Additionally, I can't say enough about my Dunlavy [SC-V] speakers. The detail, clarity and, most importantly, the lack of coloration is amazing on these speakers. They are as flat and as truthful as it gets.

Marcussen: We're always adding things. Our move into the new place is a three-year project, and we were very fortunate that we were doing this just as Cat-6A—the latest 10-Meg cable—came out. In the new studio we can move data around so much more easily and our rooms are tied together better. Whatever comes down the road, we'll be ready.

Kevorkian: I haven't bought any major new piece of equipment in a few years. The last thing I got was a pair of Chandler LTD2 compressors—mastering versions—that complement very nicely my Manley Vari-Mu, which also has step controls for mastering applications.

But I've basically worked with the same setup for the past 10 years. After all, recording and mixing engineers still rely on 40-year-old pieces of equipment to get the result they're looking for. I own all the analog and digital outboard gear I really need. They are still very musical by today's standards. Too many options are not always a good thing for me. I'd rather know a handful of pieces of gear inside out. Just like knowing my room and my monitoring system. It's critical. III

Can you master from an MP3? Well, technically, yes, you can, but do you want to is the question.

—STEPHEN MARCUSSEN

there are no titles or sequence and sometimes no phone number, et cetera. It does make you scratch your head sometimes.

On the other hand, I'm actually surprised at how many great-sounding mixes I get from places you would never expect—mixing in the box or maybe a little home studio. The level of mixing has gotten a lot better. But my big complaint is that many mixers still think they need to do some kind of mastering to the mixes before it gets to me. So a lot of times I get stuff that's been over-compressed. Then you have to explain to the client, "Well, I can't really get that sound because you've already stamped it in a sense with what you have done to it, so it's going to be tricky to get some punch or openness anymore because you've already taken it all out."

How often do clients bring in specific records they hope you can somehow "match," and is that a good thing?

Marcussen: People come in with their benchmarks, and say, "I like the XYZ album. It always has made me feel good. I'd like my record to feel like that." That's often the case. Sometimes you can look at the picture from a mastering perspective: Is it a warm record? Is it a loud record? Is it a lo-fi record? Is it a super-hi-fi record? Is it ag-



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iZotope RX2 provides a full suite of audio restoration tools.

SOUND RESTORATION SOFTWARE

TOOLS FOR AUDIO RENEWAL

By George Petersen

Buzz. Hum. Click. Pop. Hiss. EMI. RFI. Wind noise. It's a tough (audio) world out there. Sound happens. Some of it is good and some—well, not so good. Once upon a time, any sort of blemish on a track was there forever. And equalization and gating alone can only do so much. Today, high-speed, nearly real-time analysis algorithms and state-of-the-art sonic re-creation software driven by fast CPUs can create a powerful combination, capable of audio miracles that just a few years ago would have required either hours of drudgery or excessively long computational times.

And such products are not simply for archivists in tape vaults. Having the right application on hand can do wonders for saving a great take—even under ordinary, everyday circumstances, such as a piano bench squeak during

the decay of a final note that mars an otherwise exemplary performance. Fortunately, help may be no more than a few mouse-clicks away. Let's look into some new entries in the field of software-based audio restoration tools.

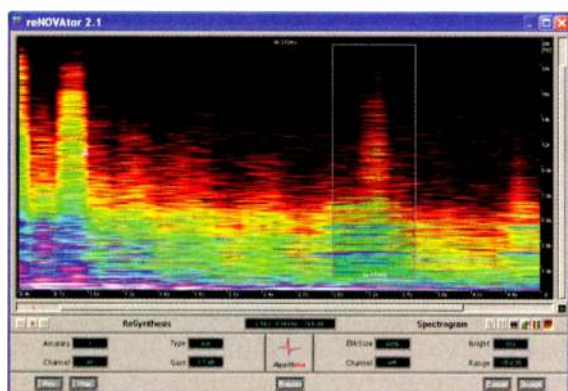
Adobe

The latest version of Adobe (adobe.com) Audition for Mac, currently in public beta, is a new development (not a porting from the PC version), offering stereo or multitrack mixing/editing/recording, Native 5.1 surround support and advanced audio restoration capabilities. Functions specific to audio renewal include automatic phase correction; adaptive noise reduction (to remove noise that changes over time); click/pop repair; de-clip; and a Photoshop-style frequency lasso tool to select/delete glitches isolated in frequency and time on a spectral frequency display.

Algorithmix

Algorithmix (algorithmix.com) offers a full palette of mastering/restoration tools. Its flagship reNOVator runs as a plug-in on

Algorithmix's reNOVator plug-in uses color-spectrogram analysis.



Pyramix, Steinberg WaveLab, Pro Tools HD/Mix/LE (Mac and PC), Sequoia, Soundscape 16/32 and R.Ed, and in stand-alone mode on Windows PCs. It uses color-spectrogram analysis to locate, isolate and remove problem spots; the removed sound is then replaced by a signal re-synthesized from the surrounding material. The company also markets two restoration plug-ins for DirectX/VST users: NoiseFree operates on broadband noise while preserving the timbre, ambience and low-level detail of the original; and ScratchFree removes clicks, crackle and scratches.

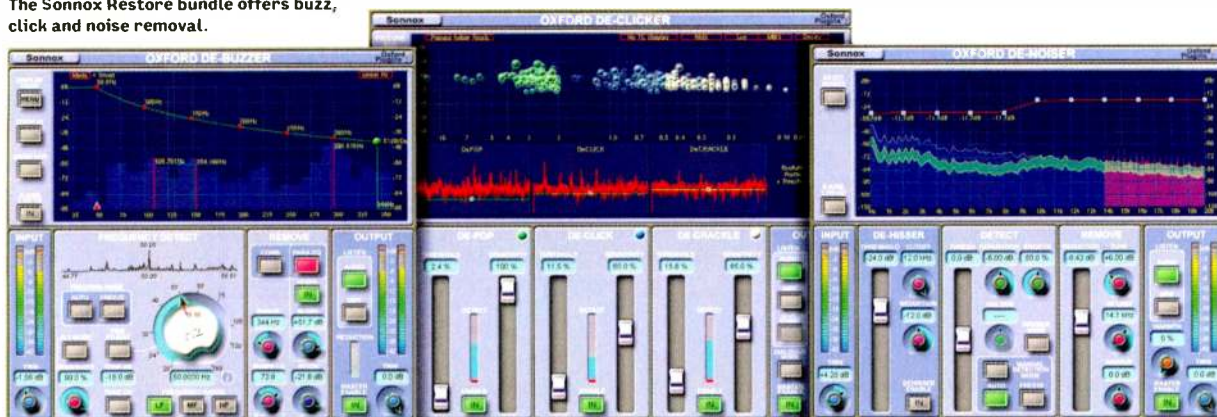
Apple

Included with the Logic Studio and Final Cut Studio bundles from Apple (apple.com), Soundtrack 3 offers multitrack editing/looping/mixing with a variety of audio repair tools on the Macintosh platform. Included is a Frequency Spectrum view; individual or batch correction of clicks, pops, hum and phase issues; and an advanced Noise Print function for replacing unwanted sounds with ambient noise copied from another section or file, with automatic matching and crossfades for a seamless blend.

Avid

Formerly known as DINR, the Avid (avid.com) Intelligent Noise Reduction plug-in for Pro Tools

The Sonnox Restore bundle offers buzz, click and noise removal.



reduces unwanted noise, such as tape hiss, guitar amplifier buzz or rumble from air-handling systems. Previously available only for TDM systems, this award-winning plug-in is now also available in the AudioSuite format for Pro Tools LE systems on Mac OS or Windows.

BIAS

Offered separately or included with its new Peak Pro Studio XT bundle, SoundSoap Pro 2 from BIAS (bias-inc.com) offers intelligent adaptive noise-reduction with four restoration tools in a single plug-in, including new Adaptive technology for automated broadband noise removal with advanced controls for eliminating unwanted hiss, room noise, electrical hum, rumble, clicks, crackles and broadband noise with minimal artifacts. SoundSoap Pro 2 is designed for AU, RTAS/AudioSuite and VST formats for use with Mac (OS 10.3.9 and higher) and Windows (XP/Vista/Win 7) hosts.

CEDAR Audio

DNS One—the first software-based, dialog noise-suppression plug-in from CEDAR (cedar.audio.com)—is available in RTAS format for Pro Tools HD and LE (Mac OS X and Windows), with the same audio quality and performance as the DNS1500, DNS2000 and DNS3000. A DNS Control System GUI lets users control as many instances of DNS One as the host system can support, plus up to 126 instances of DNS2000 and DNS3000. It's fully integrated with Pro Tools' automation and hardware control surfaces, such as the ICON, D-Control and D-Command..

CEDAR Tools™ is a range of AudioSuite plug-ins with advanced processes (Auto-Dehiss/Declip/Retouch/Declick/Decrackle/De-thump) to eliminate audio degradations on the Pro Tools PC platform. All offer high-resolution

processing of up to 48 tracks simultaneously.

Cube-Tec

Known for its extensive mastering, restoration, analysis and surround sound Virtual Precision Instruments (VPIs) for its AudioCube 24-bit/192kHz multichannel DAW, Cube-Tec (cube-tec.com) now also offers VPIs for the Pro Tools platform. New RTAS versions of the AudioCube restoration plug-ins developed for Pro Tools (Mac OS X) include DeBuzz, Spectral DeHiss Expert, DeScratcher, DeCrackler, DeClipper and RepairFilter. Also planned are Azimuth and DePop, the latter designed to remove low-frequency impulse noise bursts, which can occur on optical film soundtracks. A number of Cube-Tec VPIs are also offered for the Sequoia platform.

iZotope

iZotope (izotope.com) is now shipping its second-generation RX and RX Advanced software, which include the original's Denoise, Spectral Repair, Declick, Declip and Remove Hum modules while adding DSP algorithm improvements and new Decrackle and Channel Operations modules. RX 2 Advanced expands the package with an adaptive Denoiser mode, a Deconstruct module, third-party plug-in hosting, iZotope 64-bit SRC resampling, MBIT+ dither, iZotope Radius time/pitch control, multi-resolution Spectral Repair and automatic azimuth correction. It supports Windows and Mac (OS 10.5 and later) for stand-alone use and as plug-ins for Pro Tools 7 and above (RTAS/AudioSuite), VST, MAS, AU and DirectX.

Sonic Studio

Sonic Studio's (sonicstudio.com) soundBlade Version 1.3.5 handles mastering, editing, restoration, recording and mixing chores, with up to 16 channels at up to 192 kHz and real-time AU and

VST DSP hosting. Standard is Sonic EQ LE, DDP file delivery, background SRC, TPDF redithering, and iZotope's SRC and MBIT+ redithering. Options include the NoNOISE II restoration suite, renovator spectral restoration and more. New to NoNOISE II is the FixIt suite, providing DeClick/DeCrackle/DeNoise, analog and digital noise suppression, transient and broadband noise elimination, specialized restoration EQs and real-time DeNoise.

Sonnox

Sonnox (sonnoxplug-ins.com) Restore plug-ins (Oxford DeBuzzer, Oxford DeClicker and Oxford DeNoiser) offer fast, effective removal of pops, clicks, crackles, scratches, hum, buzz and extraneous background noise. Each plug-in in this Native suite uses a two-step approach, where a detection section pinpoints unwanted noise followed by a removal section that determines the desired level of repair while minimizing collateral damage to the original audio. Supported formats include RTAS, AU and VST platforms.

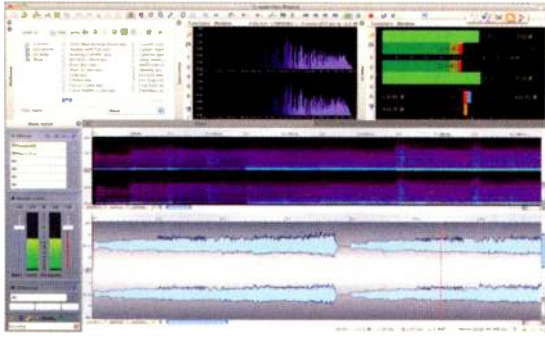
Sony Creative Software

Designed for audio editing and mastering duties on the PC platform, Sony Creative Software's (sonycreativesoftware.com) Sound Forge Pro 10 is an all-in-one, 24-bit/192kHz production suite for audio recording/mastering, sound design, audio restoration and Red Book CD creation. In addition to 64-bit SRC sample-rate conversion and MBIT+ bit-depth dithering from iZotope, Sound Forge 10 ships with Noise Reduction 2, a suite of audio correction plug-ins including Noise Reduction, Audio Restoration, Click and Crackle Removal, and Clipped Peak Restoration.

Steinberg

Now available for Mac OS X and Windows, this latest generation of Steinberg's (steinberg.net)

sound restoration software



Steinberg's WaveLab 7 is now available for Mac and PC.

PC-based software (XP/Vista/Win7) now includes a Big Click Filter for working with badly gouged records, a Direct Spectral Editor for manually interpolating noise issues (coughs, whistling, chair movement, etc.), a subharmonic synthesizer for boosting LF and an Overtone Synthesizer for adding top-end enhancement.

Broadcast WAV (BWF), FLAC and Ogg Vorbis files are now supported.

Wave Arts

The Master Restoration Suite from Wave Arts (wavearts.com) is a bundle of plug-ins designed specifically for audio clean-up applications that work with any Mac OS X (AU/VST/MAS/RTAS) or Windows-based (DX/VST/RTAS) DAW host. Included in the MR suite are MR Noise (broadband noise reduction), MR Click (click/crackle attenuation), MR Hum (buzz/hum removal) and MR Gate (expander/gate).

Waves

Waves (waves.com) offers a wide range of audio

restoration plug-ins for TDM and Native users, ranging from its WNS Noise Suppressor (noise reduction for cleaning dialog tracks) to the Restoration bundle, which includes Z-Noise, X-Click, X-Crackle, X-Noise and X-Hum tools.

The latest entry is the W43 noise-reduction plug-in, which was inspired by the long out-of-production Cat. 43 hardware noise-reduction tool. W43 delivers minimal-artifact, 4-band noise suppression controlled by four faders to handle ambient noise problems like hiss, hum, traffic noise, wind and air conditioning. The Mac/PC-compatible plug offers TDM, RTAS, AudioSuite, VST and AU support, and is offered individually or as part of Waves' Mercury bundle.

But from an audio restoration standpoint, perhaps the biggest news from Waves is the company's new online rental store. This allows users to download time-limited versions of any of its software products and pay for a week's or month's usage, with prices starting at just \$15 to \$20 per week for simple apps and more for comprehensive top-end bundles. III

Mix executive editor George Petersen's recent projects include co-producing *VoodooVille: A Celebration of New Orleans*, a surround audio DVD featuring jazz, funk and blues from *The Big Easy*.

WaveLab stereo or multichannel editing/mastering suite sports an improved GUI, new VST3 plug-ins and restoration tools, a DVD-A burning engine, full surround audio (up to 7.1) support, enhanced batch-processing capabilities and more. Among its 30-plus included plug-ins is the Sonnox VST3 restoration suite with DeNoiser, DeBuzzer and DeClicker for removing even harsh noises without affecting the ambience of the original material. A new and improved CD-burning engine is included.

Tracer Technologies

Now in V. 8.03, Diamond Cut (diamondcut.com) from Tracer Technologies is a stand-alone program intended mainly for disk restoration. The

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KEYS <small>08/2008 (Germany)</small> Test	C 214 "... very rugged... clear and open sound... an all-rounder which doesn't depreciate... good value for money."	media biz <small>07/2008 (Austria)</small> Test	C 214 "... clear, transparent sound... excellent transient response... an outstanding mic."
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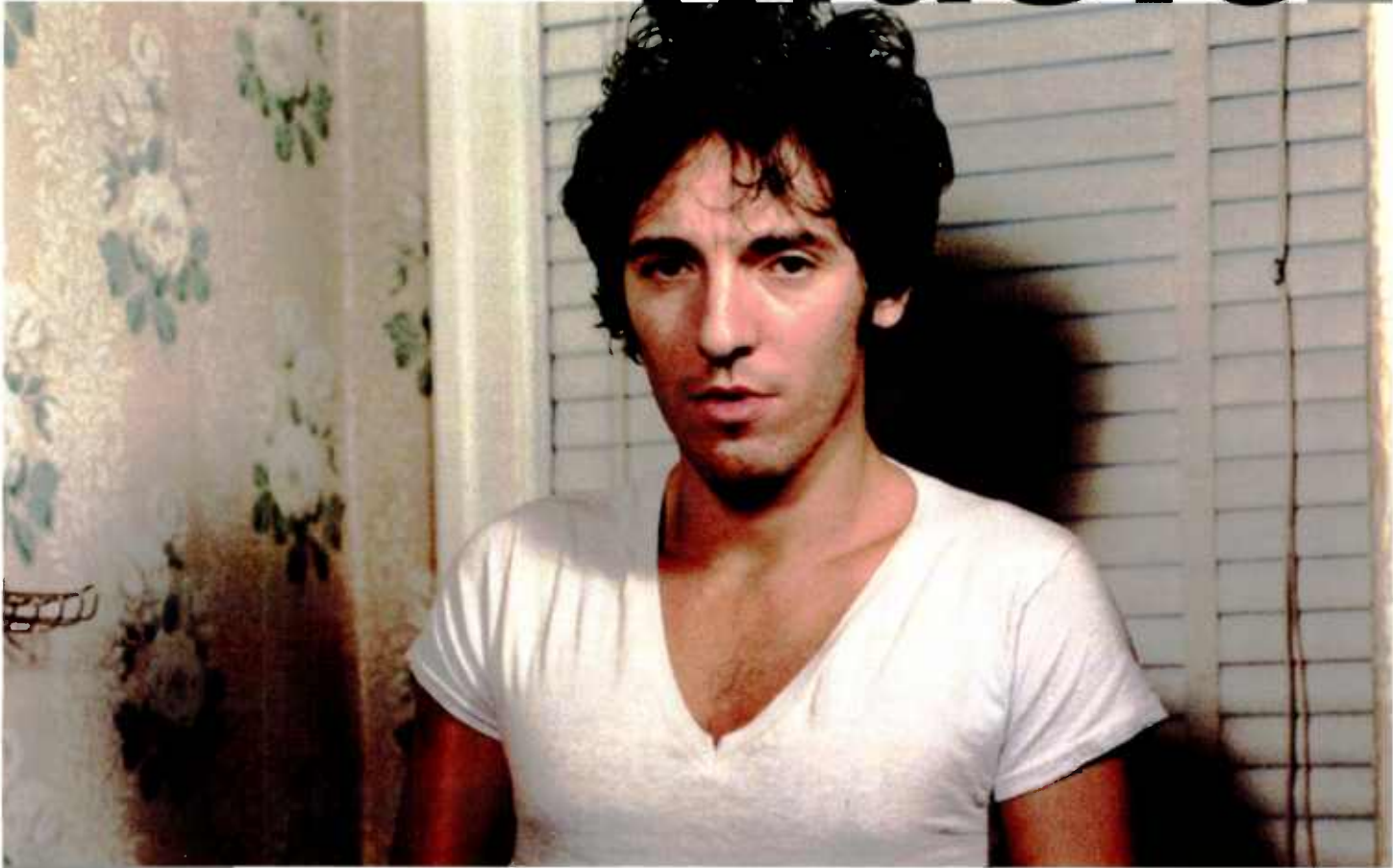


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By Barbara Schultz

Bruce Springsteen

REVISITING 'DARKNESS,' KEEPING HIS PROMISE TO FANS

Anyone who's seen Bruce Springsteen in concert knows that The Boss doesn't hold back; when he and the E Street Band are onstage, they're giving their audience all they've got. Why play for an hour when you can go for two—or three? Why fade out when there can be “One more time!”? So if Springsteen's going to issue a box set, it's not going to be an early LP wrapped up with a few bonus tracks and a taller booklet—his box is going to be *full*.

Case in point: *The Promise*. Released in mid-November, this “Deluxe Package” includes the remastered *Darkness*

on the Edge of Town album (first released in 1978); a making-of documentary (*The Promise: The Darkness on the Edge of Town Story*); a double-album's worth of previously unreleased songs recorded during the *Darkness* sessions (also available for purchase separately); and four hours of concert footage on two DVDs, including a full-length concert recorded in Houston in '78, and a unique live version of the *Darkness* album, performed front-to-back at the Paramount Theatre in Asbury Park, N.J., in 2009, in an empty theater—no audience, just musicians. And every disc has been meticu-

lously mixed and mastered to bring this embarrassment of riches fully to life.

It's important to note that the songs introduced on *The Promise* are not half-baked demos and outtakes. They're fully realized songs that could easily have formed another double-album release, though were never final-mixed after the recording sessions in '78. “This was all stuff that was left off the [*Darkness on the Edge of Town*] album simply because Bruce decides what suits the album,” says Bob Clearmountain, who mixed all of the “new” tracks and the Paramount concert. “He wants the songs he choos-

es to get certain ideas across. He's so prolific; he writes all these amazing songs and then hones it down to what is most relevant."

Like the original *Darkness* album, all of these bonus tracks were recorded at The Record Plant and Atlantic Studios (both in New York City) in 1978 with producer Jon Landau and (then) engineer Jimmy Iovine. "It was unusual to mix tracks that were recorded more than 30 years ago, but it brought back memories," Clearmountain says. "I started in 1972, so the recording techniques that Jimmy used were similar to what I was doing back then on analog tape, where the drums would be on four tracks as opposed to 12 as we do nowadays, for example. It was kind of nostalgic, even though I wasn't involved in recording the original record."

Clearmountain, who was provided with Pro Tools transfers of the original analog tracks, mixes on a 72-input SSL SL 4000 G+ in his Mix This! studio (Pacific Palisades, Calif.). He used the original *Darkness* album as a reference while shaping the songs on *The Promise*. "I tried to keep the general vibe of what they did then," he says. "I'd go through the *Darkness* album and find a song that was a similar tempo or mood to the song I was mixing, and I would actually A/B and try to keep the general atmosphere similar."

Clearmountain also used the two live chambers he has at Mix This! and the Audio Ease Altiverb Version 6 plug-in to help re-create the sound of '78: "Altiverb is a modeling reverb that comes with re-creations of many interesting real spaces," he says. "I really like that because it gives the mix a more realistic-sounding environment. Of course, back then, they used EMT plates and spring reverb, so I also have a spring that I use; it's a little Fisher Space Expander—just a cheesy little tube-driven mono spring reverb that really takes you back to that time period."

In a few instances, however, Clearmountain, who has been mixing Springsteen releases since *The River* (1980), applied a slightly more modern approach. "The snare drum was a really big deal in the '70s," he says. "*Darkness* was mixed well [by Iovine and Chuck Plotkin], but many of the mixes had an incredibly loud snare drum, which I find a bit distracting. So I also applied what I've learned mixing with Bruce and others over the years, so you're not going to hear this huge, bombastic snare drum on the mixes."

"But, of course, in any case, the ultimate gauge is the reaction of the artist, whether it's Bruce Springsteen or anyone else I mix for. If Bruce had said, 'Well, look, we really should have a big, bombastic snare drum,' then I would have done that, of course."

As for mixing the Paramount "concert" per-

formance, "It was an interesting thing because they played the songs live with no overdubs, and it's the original band, with the exception of [keyboardist] Danny Federici [Federici passed away in 2008]," Clearmountain says. "But there's no audience in the theater, so it's got sort of a dark vibe in that way; it's a little spooky. It's a more modern-sounding recording but the same instruments and the same 'cast,' so to speak, as on the album. We've mixed a lot of the band's live stuff with audiences, though, so I think he really wanted to do something different."

Clearmountain worked closely, and daily, with Springsteen and his personal engineer, Toby Scott, throughout the process. With Clear-

Bruce Springsteen The Promise



mountain in California, and Springsteen and Scott in New Jersey, they would "meet" via ISDN lines and video iChat. "His studio next to his house in New Jersey has the same console I have and the same speakers I have [Dynaudio B15A surrounds]," Clearmountain says. "So we can both be sitting centered between the speakers, listening, and not in each other's way and he's hearing exactly what I'm hearing."

After Springsteen had approved the mixes, Clearmountain sent a hard drive with the 88.2kHz/24-bit files to his longtime friend Bob Ludwig at Gateway Mastering (Portland, Maine). Ludwig says he received word from Springsteen's camp that the mixes of the previously unreleased recordings were on their way to him on a Friday, at which point he slotted time to begin work on them the following Wednesday. But then Scott phoned to say that Springsteen was going on the road Monday. Was there any way Ludwig could master these tracks on Sunday?

"Twenty-two tracks," Ludwig reminds us, laughing. "Fortunately, Bob and I have worked together since *Miss You* with the Rolling Stones, and it's one of the lights of my life that I'm able to work on quite a lot of his mixes. He's one of the best mixers in the world, and having worked on his things throughout the years, I can say the con-

sistency of his mixes is astounding to the point where Rachel Higgins, who does my scheduling, actually knows that if something's coming in that Bob mixed, I'm not going to need as much time to master as normal. Everything is well-done, consistent, super-organized, clearly labeled—pretty much a poster child for anyone who would want to emulate what good mixing is."

Ludwig listens on Eggleston Works Ivy monitors and masters in Pyramix, his platform of choice for the past six years. "When we got it, Pyramix was one of the few workstations that would allow you to do both PCM recording and Direct Stream Digital on the same workstation. It's also very transparent sounding and very flexible. One of its huge assets is that you can design it to be anything you want; you can design it to be similar to Pro Tools in its editing model, or you can design it to be source-and-destination, which is how we use it for mastering."

Like Clearmountain, Ludwig addressed the *Promise* tracks with the aim of preserving the sound and the vibe of the original recordings, but also giving them all the life and vibrancy that current technology has to offer. That was also his approach to re-mastering *Darkness on the Edge of Town*—for the second time. "I had gotten to re-master *Darkness* back in 1985, but CDs were still pretty new and obviously the quality of A-to-D converters was not what they are today by a long shot," says Ludwig, who has mastered all things Springsteen since *Nebraska* (1982). "Everything was 16-bit. Bruce hasn't remastered too much of his catalog in quite awhile now—not since the '80s, except for *Born to Run*, which I did a year or two ago—so it was great, 25 years later, to listen to this album fresh and to take advantage of the best converters that are out there. I also felt that this time I had a greater understanding of the record than last time I mastered it. It's subtle. I wouldn't be able to translate it into some EQ setting. It's just a vibe that I know I tried to put into the record."

Ludwig's fresh understanding of the songs on *Darkness* is also informed by Springsteen's more recent interpretations of these particular tracks, which are often darker and more intense; the Paramount DVD is perfect evidence of this. "This is Bruce and the band's take on *Darkness on the Edge of Town* in 2009," Ludwig says. "Bruce performs 'Adam Raised a Cain' on there, and it just gives me chills. Through the years, Bruce has developed a more profound sense of what even his own songs are about."

Ludwig felt he could work in subtle ways to bring out a more intense vibe from the 1978 recordings and certainly to help the mood break through from the Paramount performance—

particularly because the source material that Clearmountain provided was excellent. But subtle doesn't work as well when the source is a 32-year-old concert board mix, as was the case with the *Houston '78 Bootleg: House Cut* DVD that comes in the Deluxe Package. "That was mastering!" Ludwig says.

The Houston bootleg was documented in part because a company that was test-marketing the use of projection screens at concerts—a relatively new concept in '78—made Springsteen one of its guinea pigs. After the concert, the screen company provided the artist with a record of what the audience had seen.

"This was a fantastic show," Ludwig says. "Bruce loves this show and Jon Landau loves this show, but the original board mix was kind of ratty. It was made by the front-of-house guy, and he had a bus compressor on his chain, as a house guy would, but the way he was overdriving it, all of the verses are really loud, and when the big choruses come, it gets really soft!"

"When I mastered this, we got the original 48kHz soundtrack that was on the video, sent to us off of this little Betacam; that was my source, and we had to sync it all back up again. So we put that 48k digital track into Pro Tools. I did so much work in Pro Tools to resurrect this track; when you open the session up, it looks kind of scary. There are so many level moves: every verse within its proper place, every chorus expanded into its proper place. I don't have a final count, but I know at one point we were up to 500 ticks that had to be individually removed by hand. The original was so muffled that you didn't even hear these ticks until you used a massive amount of equalization to bring out the detail."

This challenging restoration job was mainly done in Pro Tools, but Ludwig also employed an arsenal of outboard gear and plug-ins, including various compressors and reverbs within TC Electronic's System 6000, the SPL Vitalizer and a Massenburg Design Works digital EQ: "I judiciously used reverb in certain spots where pieces had to be edited together and smoothed over," Ludwig says.

"Having tooted my own horn about the work I did," he continues, "it still sounds like a board mix because that's what it is. When you put this thing on, your first impression is: This is a rough from 1978. But within 30 seconds, you're totally into the concert and that first impression fades. The show itself was great and so typical of Bruce throughout his career. He's just nonstop energy to where you're thinking, 'Oh my god, Bruce loves this audience so much that he's going to destroy his voice on us. And then, of course, he does the same thing the next night and the next.'" III



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Restoring Hank Williams

'THE COMPLETE MOTHER'S BEST RECORDINGS'

By Barbara Schultz

In 1951, Hank Williams was at the peak of his talent and his star power, and fans could hear him on the radio every morning at 7:15 on WSM-Radio's *Mother's Best Flour Show*, promoting baking products and playing a selection of country, standard and gospel tunes. Williams made all of these 15-minute programs over the course of a year, bringing his band into the radio studio whenever they were off the road. If Williams had lived and worked to a ripe old age, these performances from the Golden Age of radio would still be worth preserving. But because Williams died at 29, the *Mother's Best* performances are rare and precious.

The masters remained in WSM vaults for years until the radio station moved to another location. An employee helping with the move rescued the acetates—72 programs survived—and in 1981, Bob Pinson of the Country Music Hall of Fame wisely made flat-transfers of the recordings.

In the '90s, the masters were given to Jett Williams, Hank Williams' daughter, and after a long legal battle between Williams' estate and his former label (MGM, now part of Universal) over the rights, Williams' estate was able to begin revealing these treasures to the public.

Joe Palmaccio, working out of his studio, The Place...for Mastering, was brought onboard first to restore and master songs for a three-CD box titled *Hank Williams: The Unreleased Recordings* (2008, Time Life). "At that time, we assessed the state of the acetates and compared them to the tapes made

in '81; the originals were in really bad shape," Palmaccio says. "They had been handled too much. The sound on the tapes was much better."

The tapes also became Palmaccio's source material for *Gospel Keepsakes* (2009). But it was not until this past September that Time Life released *The Complete Mother's Best Recordings*: a 15-CD set containing all of the surviving original broadcasts, beginning to end. "This is the 'über set,'" Palmaccio says. "We presented the shows chronologically, the best we could tell, with no editing from the needle drop to the end of the last song.

"From a technical standpoint," Palmaccio continues, "it's important to note that I started over. Despite all the work I'd done on *Unreleased* and *Gospel*, I went back to zero because I had since adopted some of the Cube-Tec technology and I knew we wouldn't have sonic continuity if I stuck in the things I'd already done."

Palmaccio says the restoration work was "massive: lots of material, all of it was noisy, but there were varying degrees of noisiness. On some of it you'd hear the bacon-frying noise, but it was relatively good, considering the source. On other ones, the noise was as loud as his voice.

"There were common problems like the edges of the discs would be noisier because that's where they were handled. The inside cuts, of course, were more distorted because that's the nature of recordings that are made on flat discs: As you go to the inner diameter, the fidelity decreases. The

quality varied, and there wasn't any one piece of software or any one thing I could do to make it all go away.

"So I approached it kind of the way an archeologist dusts off dirt, one layer at a time, using three main tools," Palmaccio continues. "I used a Sequoia workstation as my main editor, and I would start with the Sequoia spectral-cleaning tool, which can take out large individual ticks or pops. Sometimes an auto program can leave artifacts, and I was trying to avoid that at all costs.

"Then I would use the Algorithmix Scratch-Free Pro program. That's a combination declicker and decrackler, each of which you can set up separately. Depending on the damage, I could use that up to three times, taking little bits every time."

All the while, Palmaccio was keenly aware of how important it was to maintain the presence of Williams' voice. "[Williams historian] Colin Escott, Jett Williams and I felt we heard a part of his voice we'd never heard before," Palmaccio says. "He's generally considered kind of a nasal singer, but in this group of recordings there's a lot of chest tone in his voice. My rule was that as soon as the de-noise process stepped on that, I backed away.

"After I went through those passes, I got into the Cube-Tec stuff, using a combination of declicker, decrackler, descatcher and Spectral Dehiss. I didn't use all of them every time, or at the same time, but one thing that was kind of a miracle worker was the Spectral Dehiss. There wasn't any hiss to speak of, but when we would take out all the clicks and pops, we were left with flat surface noise, and spectral could take just enough of that surface noise off. His voice was so forward then. It was like taking away the smudges or glare on a picture.

Next, Palmaccio played the restored shows back on a Steinberg WaveLab workstation into a Lavry MDA24 D/A converter so that he could EQ the recordings in his custom analog mastering console. "That was done mostly with an SPL PQ mastering equalizer. The other two pieces that were important were the Weiss EQ1 linear phase EQ and the Weiss DS1 Mk3 dynamics unit. Once I had it sounding the best I could, I would record that into Sequoia, where I would do my final editing, level tweaks, sequencing, references and create the production masters.

"These weren't high-tech recordings," Palmaccio says. "When they made them, no one ever planned on hearing them again. But there's something incredibly charming and sublime about the performances."

At a price of \$199, this miraculous-sounding set may be out of reach even for many serious fans, but anyone can stream one complete program at www.hankwilliamsmothersbest.com. ■

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World Radio History



SESSIONS



Le Lab Mastering specializes in analog mastering and features Focal Grande Utopia EM speakers.

Le Lab Masters Celine Dion Concert DVD, CD

Mastering engineer Marc Theriault mastered Celine Dion's 2010 DVD and CD release, *Taking Chances World Tour: The Concert*, at Le Lab Mastering (Montreal, lelabmastering.com), which Theriault and his partners, Denis Savage and Dominique Messier, opened in July 2009. Le Lab Mastering resides on the first floor of the M1207 Studio Complex and comprises a mastering room and transfer/archival space that houses analog tape, ADAT and DAT machines, and an oven to bake tapes. "We have all the machines you can imagine to transfer from," says Theriault, "but mainly we use half- and ¼-inch 2-tracks."

Le Lab's mastering room is floating, and Theriault says that it is "flat pretty much down to 20 Hz. There's no coloration.

You don't hear the room or the speakers. We have three racks—one in the middle and one on each side—all at special angles so there are no standing waves. Everything was designed for having the cleanest path between the engineer and the speaker." Analog equipment includes Ampex and Studer tape decks, and outboard units from Dangerous Music, GML, Shadow Hills, Manley Labs, Millennium Media and D.W. Fearn. On the digital side, Le Lab uses Lavry and Digital Audio Denmark converters, a TC Electronic System 6000 mastering and signal processor, and Pro Tools and Magix Sequoia DAWs. Vinyl acetates are played back on an Oracle Delphi Mk IV turntable. For monitoring, Le Lab features Focal's flagship Grande Utopia EM speakers.

Dion's release is based on performances recorded in Boston and Montreal in August 2008, and for this project Theriault and mix engineer Denis Savage relied on their many years of experience as Dion's sound engineers. "The project was converted to analog from 24/96 digital and then we mastered from that," Theriault says, noting that he worked with stems from Savage and used a Dangerous Music 2-Bus to combine the stems.

—Matt Gallagher



Mastering engineer Marc Theriault

Fran Healy Masters 'Wreckorder' at The Lodge



From left: Joe LaPorta, Emery Dobyns, Fran Healy and Emily Lazar

Fran Healy, frontman for the band Travis, was at The Lodge (New York City, thelodge.com/mastering) to master his latest solo album, *Wreckorder*, with mastering engineer Joe LaPorta and chief mastering engineer Emily Lazar. The tracks were recorded and mixed by engineer/producer Emery Dobyns, who Lazar says is "a real jack of all trades and definitely one of my favorite clients."

Lazar's studio is fitted with SonicStudio and Pyramix, a recent addition. "All of the plug-ins are getting better and better by the day, and they can be extraordinarily effective," Lazar says, "but I usually tend to lean more toward my analog chain. On this album, Emery bounced stems as well as main mixes for each song, which, when needed, allowed me a little bit of wiggle room to get the most out of the tracks without unnecessarily altering the integrity of the mix. With Fran's album, Emery created a uniquely lush soundscape with really deep organic tones that I tried to highlight as much as possible.

"Fran's music has this incredible intensity but is packaged in this delicate and graceful way," Lazar continues. "The most important thing was to keep the 'intensity' intact and not push or slam things at all. I really wanted to keep the focus on Fran's vocals to allow them to really communicate with the listener."

—Barbara Schultz

Introducing Blade Studios

Veteran pop/rock/country drummer Brady Blade and business partner Scott Crompton are moments away from opening a new multistudio complex, Blade Studios, in Shreveport, La. (bladestudios.com). With a design by Russ Berger Design Group, the facility is set to go online in mid-December.

Crompton is a musician with a background in advertising and marketing; he's done his homework on the business side and emphasizes Louisiana's rebates for recording projects as a big reason for believing that Blade Studios can beat the odds as a high-end commercial facility in a secondary market: "In 2005, Louisiana passed financial incentives to make your record here," Crompton says. "For every dollar that you spend, whether it's travel

or musicians or studio time or producer fees, the state returns 25 percent in cash. But a month after that program passed, Hurricane Katrina wiped out most of the studios in New Orleans, so the program never really got traction when it was introduced, but it's starting to get some traction now."

Blade Studios features a full-blown music recording space, Studio A, including a 1,350-square-foot tracking room; a 500-square-foot control room with an SSL Duality console and Ocean Way 7.1 surround monitoring; and four iso rooms, including a purpose-designed piano room and drum room. Studio B is suited to smaller ensemble/band recording with its 525-square-foot Avid ICON/D-Command-centered control room, Ocean Way sur-



Brady Blade (left) and Scott Crompton are happy to watch Blade Studios take shape.

rounds and two iso rooms.

The studios are also fitted with Webcams and wired for HD video. Crompton and Blade want clients to know that Blade Studios can accommodate everything from film scoring to band tracking and mixing, to ADR via ISDN lines to uploading custom video to the Web.

Visit mixonline.com for Blade Studios construction photos and updates.

—Barbara Schultz

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CLASSIC TRACKS



From left: Yoko Ono, John Lennon and Jack Douglas during one of the secret "Watching the Wheels" sessions



John Lennon and Yoko Ono "WATCHING THE WHEELS"

By Matt Hurwitz

John Lennon and Yoko Ono's Grammy-winning album *Double Fantasy* was released in November 1980, just weeks before Lennon's tragic murder. The disc spawned three Top 10 singles, including "Watching the Wheels," this month's "Classic Track," which producer Jack Douglas counts among his favorite songs on the album.

From the beginning, the *Double Fantasy* sessions were kept secret. "If word got out, the project was over," Douglas says. Though it's hard to imagine today, Douglas says that Lennon was insecure about his singing voice and songwriting abilities after a five-year absence from the studio, and he wanted to keep the project under wraps until he was certain it was viable for release.

Douglas was flown by seaplane to meet secretly with Ono, who handed him a bag of cassette tape demo recordings from Lennon, as well as some 5-inch reels of her own songs. "John's demos were really primitive," Douglas explains. "He would record himself playing and singing onto one Panasonic cassette boom box while [assistant] Fred Seaman was banging on a pot or something. Then he'd place that ma-

chine next to another Panasonic, and sing or play a harmony while the second machine was recording the first plus his vocal, allowing him to double-track himself." Most songs included brief spoken introductions.

Douglas' first task was to assemble a group of musicians to play on the sessions. "He didn't want to go with his old Plastic Ono Band guys," such as drummer Jim Keltner, bassist Klaus Voormann and others, Douglas says. "He wanted the New York sound—the sound of New York session guys."

The approach, as a whole, was to be a new one for Lennon. "He said, 'This is a play. It's between a man and his woman,'" recalls Douglas. "It was not going to be a rock album. It was going to be the sound of a mature 40-year-old man who was happy with his life, not a 20-year-old. It was to be a soft sound. He said, 'You know, we're going to get all kinds of grief about this, that I've lost my edge, et cetera, but the more we get, the more we'll have succeeded.'"

In keeping with the new approach, Douglas explains, "[Lennon] didn't want rockers. He wanted guys who were his contemporaries. His

music reflected the music of the '50s, and he wanted guys who could understand that."

Douglas' first choices included bassist Willie Weeks, drummer Steve Gadd and legendary keyboardist Nicky Hopkins, who first played with Lennon in 1968, performing the piano solo on The Beatles' "Revolution" single. "Willie and Steve were not available, and Yoko didn't want to go with Nicky because she said he and John were trouble together." Any potential player, in fact, had to pass Ono's litmus test: numerology.

While Lennon trusted Douglas' player choices, he wanted at least one musician whom he knew personally, so the producer suggested veteran session guitarist Hugh McCracken, who had played on Lennon and Yoko's 1971 "Happy Xmas" single, as well as on McCartney's *Ram* album that same year. For bass, Douglas suggested Tony Levin, who had worked closely with both Douglas and McCracken from their earliest days recording jingles together in New York. Another veteran session player, Andy Newmark, would handle drums, with percussion by Allen Jenkins Jr., who had worked on several previous albums by Lennon and Ono. Keyboards were played by both Lennon and George Small, a suggestion of Douglas' business partner, Stan Vincent.

A second guitarist would also play, though he would not appear until the first day of recording. "Earl Slick had played with Bowie—on 'Fame,' in fact, which John wrote," Douglas explains. "But Earl was my wild card. I knew I wanted to bring in one guy that, when he got there, wouldn't know anything about the recording whatsoever. And he's very creative and would come up with stuff that was a little off, so it wasn't just a straight New York session group."

After a number of telephone conversations in which Lennon gave Douglas specific production

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World Radio History

Jack Douglas (right): "I was like a race car driver. I just wanted to go fast and rock. John would always pull me back, saying, 'Not too much, not too edgy.'"

ideas, Douglas and arranger Tony DeVillo created parts for the players and final charts, and scheduled two weeks of rehearsals at S.I.R. New York for late July/early August. "It was still a secret who the artist was, so I sang," Douglas says. "They, of course, cracked up laughing, and saying, 'C'mon, when are we gonna see the real singer?'"

After each day's work, Douglas would meet up with Lennon at the Dakota apartments, Lennon and Ono's famous New York City address, to listen to cassette recordings of the band and fine-tune the arrangements. "It was a blast because John liked to work in bed," Douglas recalls. "He had a giant bed, which was surrounded with toys: pianos, organs, synths. And above his headboard there was an acoustic guitar, a Hummingbird, and an electric guitar, a Flying V copy called The Sardonius. He could just reach behind himself and grab one of the guitars without looking." Douglas would record whatever part Lennon would add, and then incorporate that into the next day's rehearsals.

Eventually, based on the style of the music they were playing, the band began to guess the artist was a Beatle, especially once they were given the address where the final rehearsal day would take place: The Dakota. "It was mainly just getting together and talking through the music, playing a little bit [in another part of the building]," Douglas says. "Then we went into the residence and just sat and talked for a few minutes."

The following day, Douglas and the musicians met up at The Hit Factory—a curious choice for Douglas given his longtime association with The Record Plant and his engineering guru there, Roy Cicala. "I chose it because I had to find a place that was off the beaten path, where the fans wouldn't be looking for us."

However, Douglas had to be cautious, given the politics of studio alliances. "Ed Germano, who ran The Hit Factory, had left Record Plant with some clients, and he and Roy became enemies," Douglas says. "I had to explain to Roy, 'I have to do this because he wants to be working in Midtown. I have to be there now, and you just have to be okay with it.' It was difficult."

The studio was booked under the name Rich DePalma—an employee of the Lennons, according to Ken Sharp's comprehensive new oral history of the sessions, *Starting Over* (Gal-



PHOTO: DAVID M. SPINDEL

lery Books/VH1). The sixth-floor studio was only accessible by a secure elevator.

The band arrived on the morning of August 7, 1980, along with engineer Lee DeCarlo. Once the tracking got started, "I was like a race car driver," Douglas recalls. "I just wanted to go fast and rock. John would always pull me back, saying, 'Not too much, not too edgy.' And Lee was able to make that happen for us, keeping the sounds very fat, very high-fidelity, which I really appreciated."

The room was set up with the two guitarists—McCracken and, now, Slick—facing Lennon, who was in the opposite corner of the room, in an isolation booth, allowing him to both sing live and play guitar, as well as have a direct sightline to McCracken, Slick and Levin. If Lennon was playing an electric guitar, his amp was situated in a smaller, adjacent booth. If he was playing acoustic, he was miked within his vocal booth.

Lennon had a tremendous guitar collection, and he brought all of them to the studio, including his famous ¾-scale black Rickenbacker. "You could see where the headstock had been repaired a number of times," Douglas says. "And he still had the Shea Stadium set list taped to the back!" Ultimately, Lennon ended up using his two old friends from above his bed—the Hummingbird and the odd-shaped Sardonius—for everything. "He would always go, 'Okay, which guitar should I use on this one?' He'd walk out to his guitars, open a few cases, and then go, 'Naw, I'll just use the Sar-



donicus," Douglas says with a laugh.

Lennon always sang live, miked with a Neumann U67. "His singing drove that band," Douglas says. Often on *Double Fantasy*, Lennon's live vocal—with occasional fixes—is heard on the master, double-tracked in the way Lennon had preferred in the '60s at Abbey Road. The typical process included three or four live takes with the band, after which, as Douglas notes, "[Lennon] would get bored and want to move on," returning to an unfinished song another time.

"After we had a master take, he'd maybe do three more performances if there were any fixes needed," Douglas says. "Then he'd leave me alone to comp it: 'Okay, I'll come back when you have a vocal and then I'll double it.'" The studio had a side room in which Lennon would meditate, do yoga or get a massage. "He was one of the easiest artists I ever produced," recalls Douglas. "He did his job, and then he'd go

relax. If we had comps to do, he didn't sit there: 'That word's better. This word's better.' He went away, came back—"That's what I sound like."

Lennon was a master at the microphone, never failing to fascinate Douglas with his technique. "He'd work off to the side of the 67 on certain words to get a different sound. He'd work the side a little bit, then come back out. He'd do rhythms. Best technique I ever saw."

Lennon also didn't require a pop filter. "He showed me a trick that I've yet to see any other artist do: When he was doing his overdubs, he'd 'catch' his 'p's. His hand would go by his mouth, and he'd catch the 'p' and throw it away."

Once the double-tracked vocal was recorded, DeCarlo would compress the primary and doubled track together, using a Universal Audio LA-2A, and then run it through a Pultec EQ at about 100 Hz. "It put back a little of the bottom the LA-2A would tend to take out," Douglas says. The track then received a slap tape echo and some chamber reverb.

The Hit Factory's array of outboard gear, such as the Pultecs and Fairchild limiters, as well as the studio's collection of top-notch mics, were part of its draw. "We were able to use 67s as overheads on the drums," Douglas notes. "You could put a tube 47 in front of the bass drum and an old D12 inside, and an old Beyer on the snare."

Guitar amps were always miked with three mics: a Sony D30 (set to "M" for music, which added warmth), a Shure SM57 and a Sennheiser 421. "The Sony hung in the middle, and then the other two were arranged to point in, in a 'V' formation," Douglas says. "Then we'd work the phase until it was right."

McCracken and Slick played hollow-body and solid-body guitars, respectively, which gave them complementary sounds. Douglas recalls a joke the experienced McCracken played on "wild card" Slick on the first day of work: "Earl showed up on the first day and, of course, was really excited when he saw John," Douglas says. "The other guys had had the benefit of rehearsals and the formal sheet music, so I told Earl, 'You're fast—you'll catch up.'"

According to Douglas, McCracken asked Slick, "You read, right?" referring to the sheet music before him. Not wanting to appear unprofessional, Slick responded, "Of course!" But while Slick was momentarily distracted, McCracken reached over and turned his sheet music upside down, which, of course, Slick didn't notice. "We started running the song down,

and Earl was actually making believe he was reading it. Eventually he started struggling, so Hughie, who was laughing, told him, 'Ask Jack for a chord chart. It's just the chords.'"

"Watching the Wheels" features mainly Lennon on grand piano; George Small, who added the song's distinctive accented piano riff, on a Rhodes; and Levin on a fretless bass.

During the bridge, just prior to the song's "I just have to let it go" lines, Lennon wanted a "circular" sound, which Douglas immediately associated with a hammer dulcimer. "It always sounded like wheels turning to me," he says. The two quickly pulled out the Musician's Union book, but, alas, found no dulcimer players listed.

Two days later, while walking up Columbus Avenue, Douglas happened upon a young man named Matthew Cunningham playing a hammer dulcimer for dimes and nickels. "I said, 'You want to do a session? You'll get paid \$100. It'll be very fast,'" says Douglas. Cunningham agreed and soon found himself on the floor of the studio working the part out with Douglas. "I like this song," he told the producer. "I really like this singer," he added, completely unaware of who the singer was.

Lennon and Ono arrived shortly thereafter, and Cunningham asked, "Is that the artist?" Douglas answered, "Yes, that's the artist and his wife." "Oh." Excited about the dulcimer sound, Lennon came out into the studio and began working with Cunningham, who still didn't recognize him. Ono then invited him to join them for lunch, and the four sat together and ate sushi.

Cunningham was paid and sent on his way, but the next day he called Douglas, and said, "I just had a weird feeling. Did I just do a session with John Lennon?" Wanting to keep his sessions a secret, Lennon had Cunningham return to the studio. "He gave him two tickets to Puerto Rico and a paid vacation," Douglas recalls. "He said, 'Do me a favor—go take a vacation.' Gave him some money and sent him away."

After adding a few more overdubs—including Prophet 5 synth parts played by multi-instrumentalist and singer Eric Troyer—the song was mixed, as were most of the tracks, at Hit Factory. (Two were mixed at Record Plant.)

Upon hearing the final result of "Watching the Wheels," Lennon gave his thumbs up, satisfied that *Double Fantasy* was now a reality and that the press could be told. "He turned to Yoko," Douglas says, "and said, 'Mother, tell them we have a record.'" III

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PHOTOS: STEVE JENNINGS



Maroon 5

By Sarah Benzuly

FIVE-PIECE ADDS LIVE EDGE TO SHOWS

The last time *Mix* caught up with Maroon 5 was last year when they co-headlined with the Counting Crows. Since then, there's been a bit of a change: They've trashed the backing tracks, added a new keyboard player (PJ Morton), brought on a new monitor engineer and released their latest, *Hands All Over*.

"All the backing vocals are gone; they're singing live and they're playing very live," says front-of-house engineer Jim Elxdon, who held the FOH position during the co-headlining tour, then headed off to mix for Aerosmith and is back with Maroon 5. "I didn't know what to make of that because, for me, Maroon 5 was that really tight studio, Pro Tools-y track band. But now the band has evolved and become more of a live act, with more dynamics in

the performance, and I'm really enjoying the mix. And the more they're playing, the better it seems to be working. I'm really pleased with the way things have turned out. The two keyboard players [Jesse Carmichael and Morton] can manage pretty much most of the keyboard parts and sounds. Matt Flynn, the drummer, plays to a click track, of which he is in total control. There are a couple of songs on the new album that have loops, so he'll play along to those, but all the backing vocals are gone; they're playing very live."

Monitor engineer Steve Walsh, who started with the band in March, agrees: "It's much more of a band mix now. Back in March, when they were finishing the record [and playing one-offs and corporate gigs], they were trying to remember

their parts; now, they're playing together. I just try to help out with the solos and when certain keyboard parts drive certain songs—just make sure that everybody is hearing what they need to hear and paying attention." Walsh mixes on a Yamaha PM5D, a board that has been a staple on past Maroon 5 tours; he previously used the 5D on the 2009 Blink-182 tour.

Elxdon mixes on a DiGiCo SD7, a board he's used exclusively for the past two years. He says he was a D5 user literally from day one, "and that was my digital board of choice. They made the SD7, and it was the obvious choice to upgrade. It's an amazing console; I can't say enough good things about it. I like the sound of it and I get good results with it—well, I think I get good results with it. [Laughs]"

like to play with each other; nobody's too loud and everybody's listening to each other. It's pretty fun to mix because of that reason. They're really talking to each other musically on some of the jam parts; it's nice to facilitate that."

As for Ebdon's "mixing style," his mantra is mic technique, mic placement and having some

me on to the 101 and it's a spectacular mic. I'm enjoying getting a nice balance between that and the 57 on guitars." Bass goes DI with an Audio-Technica AT4050 on the cab. All vocal mics are Shure Beta SM58s, except for Levine, who sings through a regular 58 capsule. The Leslie sees two 57s on top and an Electro-Voice RE20 on the bottom.

Ebdon's careful mic placement also helps Walsh achieve his goal in mixing: clarity. "Things just shouldn't get lost in the mix," he explains. "You should have things quieter in the mix but not be buried. I achieve that with judicious use of EQ. I find that especially with digital, I use a lot of low-pass filtering. I'll take out a lot of information that

is beyond human hearing and roll that right off. I get less distortion that way. I'm trying to keep it as simple and straightforward as possible and let them play among themselves."

As with previous Maroon 5 tours, Ebdon has a 64-input Pro Tools HD2 Accel system for recordings. The system is straight MAD1 to an SSL DeltaLink MAD1 converter. "One of my [previous] recordings and mixes made it as a bonus track on the new album, so it's worthwhile doing. I've already been asked to come up with some mixes for whatever they're going to use it for. I love mixing this band, which is why I made myself available to come back and mix for them now." III



Sound crew, from left: system tech Craig Robertson, monitor tech Carlos Sallaberry and P.A. tech William Langford

musical awareness and artistic sympathy. "I tend to not do anything [in the mix] that isn't there," Ebdon explains. "I mix just to make sure that there's a good vibe going and you can hear everything. I tend not to overcompress anything or over-gate the drums; it's about getting a good balance and the vocal sitting right on top. My drum channels are extremely flat; I have no EQ in the tom-toms because they don't need it, and I think it sounds fantastic. I don't have to use compression or EQ just because it's there."

Drum mics include a 91 and 52 on kick; SM57 on snare top and an AKG 404 on bottom; KM18s for hi-hats, tom-toms and ride; Beyer Opus 88s on tom-toms; and a 57 on wood block. "My drum sound is largely based on the overheads with the kick and snare and everything else mixed in," Ebdon continues. "It's a big drum sound. I've actually been having a problem with his kick drum because Matt's gone to a 22-inch kick drum from a 24-inch, and we've had to increase the hole in the front because when he whacks it, the mic doesn't pick up [the air pressure] so it loses all of its low end. We've increased the hole to let more air out and chosen a better mic position for it, and suddenly we had all that low end back."

For Levine and James Valentine's axes, two cabs run simultaneously but with a different sound. Ebdon is trying out the new Royer R-101 ribbons on one of the cabs and places a 57 on the other to get a blend between them. "I've been using Royer 121s a lot on guitars—especially with Aerosmith, Matchbox Twenty and now Maroon 5. Royer just turned

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SOUNDCHECK



Lanois Submerges Toronto in Sound

Daniel Lanois brought his artistic vision to Toronto's Nathan Phillips Square with an all-night multimedia performance and temporary installation entitled "Later That Night at the Drive-In." Accompanying the layered video images and lighting effects was a Lanois-composed soundtrack of live and recorded music heard through 100 Meyer Sound self-powered loudspeakers mounted on 24 towers.

According to Lanois, "I've been dreaming about this for years. At some rock shows, if you're not in the lucky first 30 rows, you don't get full-fidelity sound. Here, no one gets a bad seat."

System design was handled by Lanois' longtime recording engineer and artistic collaborator, Mark Howard (left), who mixed the sound for the event through a 28.24 system. He devised a distributed, tower-borne layout using 12 CQ-1 loudspeakers and 60 UPA-1P and UPJ-1P VariO loudspeakers to create 24 "sound pods" scattered throughout the square. Low end was provided by 20 650-P and eight 700-HP subwoofers, with system drive from a Galileo loudspeaker-management system that includes five Galileo 616 processors. All Meyer Sound equipment was supplied by the Toronto office of PRG.



tour log



Roland Orzabal (left) and Curt Smith of Tears for Fears

Tears for Fears

Pop/rockers Tears for Fears recently played 17 shows on the East Coast, where engineer Doug Lemke mixed through house-provided P.A.s, trying to re-create studio engineer JB Blot's mix.

"JB is a fantastic engineer," says Lemke. "He's got the 'golden ears' of a great studio engineer, which is where he spends most of his time. He uses a stereo pair of Genelecs above the Avid Profile to hear cued instruments for treatment, but when he went back to the house P.A., the tone was quite different."

Lemke's solution was to mold each P.A. system into a giant pair of Genelecs. He used Metric Halo's SpectraFoo analysis software with an Earthworks M30 microphone, capturing traces of the Genelecs in SpectraFoo and then using a Lake Contour and Lake Mesa Quad EQ system to dial the house into the Genelecs' response. "The real-time spectrograph and spectrogram are so responsive and intuitive, I was very clearly able to discern what was happening sonically," Lemke says. "I also found a lot of technical problems in the form of blown components or misalignments. Fortunately, I detected them early on so we could either implement a fix or a workaround in time for the show."

Lemke kept SpectraFoo up during Tears for Fears' performances to tweak the response as it was altered by the absorption of the fans. "We recorded every show," he adds, "so there was a motivation to really dial in the perfect sound. I kept my eye on the FFT information, which has plenty of resolution to pick up room modes. Those modes often shifted in a packed house."

fix it

Modest Mouse Monitor Engineer David Campaniello



I've tried many different monitors and have always struggled with maintaining tonal quality at loud volumes. The [EAW] MicroWedge is the first monitor I've used that provides the volume that's required without compromising sound quality and natural tone. I use four MW12s on two mixes for singer, lyricist and guitarist Isaac Brock—an inside pair solely for vocals and an outside pair for an instrument

mix. Lab.gruppen 6400 amplifiers provide power to the MicroWedges. One pair of MW12s is actively bi-amped using the EAW UX8800 digital processor. I initially ran all four MicroWedges passively crossed over but then switched the vocal mix pair to active operation. The high end is smoother and more stable.

CCS Bets on JBL

A/V integration firm CCS Presentations Systems (ccsprojects.com) brought in an assortment of JBL Control Contractor loudspeakers for the audio system install

different rooms and surfaces, we thought we would have to go with several vendors to make it all come alive," says Rod Andrews, manager of engineering, CCS Presentations Systems. "However, during the design process, we realized JBL had a speaker for each of the necessary casino applications, which were all more economical and allowed us to meet the SPL requirements. We were able to produce the SPL more efficiently with less equipment."

In more than 100 zones, CCS installed a total of 1,131 JBL Control Contractor speakers. The gaming zone features 222 Control 47CT small-format ceiling speakers that incorporate JBL's proprietary RBI Radiation Boundary Integration. The conference center combines 154 of the 47CTs with four Control 26CT small-format speakers and 24 Control 322CT large-format speakers. The hotel area contains 197 of the Control 47CTs, plus six Control 25 AVs in those locations that required surface-mount speakers, and 52 Control 26CTs for lower-SPL and fill locations.

at Talking Stick Record (Scottsdale, Ariz.). CCS handled the sound "zones" for the 240,000 square feet of gaming, 5,000-square-foot/22-room conference center and 13,000-square-foot spa. Adding to this list, CCS had to contend with multiple surface types and ceiling heights, as well as the sound emanating from more than 800 slot machines. "When we initially examined the



load in



Powersoft amplifiers were used by Kingston Audio Services to drive the sound at the recent 2010 New Orleans Jazz & Heritage Festival and the 37th annual Telluride Bluegrass Festival.

At Aerosmith's recent Fenway Park appearance, frontman Steve Tyler ran from the stage through a walk tunnel and up to the top of the "Green Monster" to play "Dream On" on a white grand piano. The tour's wireless coordinator, Chuck Bogard, used two RF line amps, a few splitters, three PWS Helicas, a pair of LPDA antennas and a bidirectional antenna, working with the tour's PWS GX-8 amp/combiner for their "wireless" run...More than 63 artists performed at 10 venues at The Vinyl Music Festival (Sarasota, Fla.). Tight AV was hired to handle production audio, lighting and projection, and called upon colleagues ESI Audio and Audio Systems Consulting for additional audio requirements. Yamaha mixers and Yamaha and NEXO speakers were used at all venues...Sound of Authority president/CEO Ernest Greene chose an L-Acoustics KUDO for New Life Covenant Oakwood Church's (Chicago) new sound system.

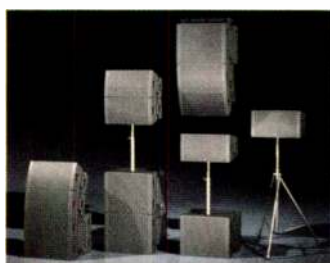
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The RM 510 is an interchangeable ribbon capsule head for beyerdynamic's Opus 900 and Opus 600 wireless mic systems. The cardioid capsule features an ultralight, 3-micron aluminium ribbon for

extended frequency response and excellent transient behavior, while a subtle attenuation in the 6.5kHz range suppresses sibilant sounds for a balanced and unobtrusive sound. The RM 510 will be available in Q1, 2011. www.beyerdynamic.com



Renkus-Heinz Point-Source Array

Designed for small- to mid-sized venues and shipping this month, the CF101-LA (powered) and CFX101-LA (unpowered) Modular Point Source Arrays from Renkus-Heinz offer the performance and pattern control of a line array in a compact system with the flexibility to be flown, ground-stacked or pole-mounted. Up to four of these 10-inch, two-way cabinets with 15-degree vertical dispersion can be arrayed for 90x60-degree coverage. Single or dual CF15S subs can combine with up to four CF101-LA cabinets to create a compact system rivaling a full-sized line array. www.renkuhsheinz.com

Midas VeniceF Analog Mixer



The VeniceF is a 16/24/32-channel analog frame "digi-log" console with FireWire multichannel digital audio interfacing and XL3 EQs. In addition to up to 32x32 FireWire capability for ease of recording or virtual soundchecking, VeniceF features 100mm faders, a dual 7x2 matrix and a reorganized master section layout. Third-party plug-ins can be run as channel inserts or routed via aux sends and returns, and all inputs, groups, auxes, matrices and masters can be routed to the FireWire interface. www.midascnsoles.com

ALL ACCESS

Photos and text by Steve Jennings

Rascal Flatts



Country superstars Rascal Flatts (Gary Levox, lead vocals; Joe Don Rooney, vocals/lead guitar; and Jay DeMarcus, vocals/bass) are touring in support of their latest, *Unstoppable*. The trio is supplemented with a wonderful set of backing musicians, including drummer Jim Riley, keyboardist Tim Akers, guitarist Jonathan Trebing, steel and banjo player Travis Toy and fiddler John Jeanson. *Mix* caught up with the act at the Sleep Train Amphitheatre (Wheatland, Calif.).



From left: Sound Image system tech/FOH tech James Burr, FOH engineer Jon Garber and Sound Image system tech/FOH tech Jeremy Peters

Front-of-house engineer Jon Garber is mixing on a Studer Vista, and says, "To pull up your EQ and move it just one dB and hear the difference is such a great thing. You don't have to really work on the input EQ as much so you can work on mixing. Onstage we have about 78 inputs and the Studer handles that easily. It has all the dynamics onboard, but it doesn't have any time-based stuff, so that gives me the option to pick out my own reverbs."

Rack gear includes a dbx 160 on snare top. The vocal chains see a dbx 902 de-esser through a Drawmer DL441 Quad auto-compressor limiter. Reverb units

are two Lexicon PCM 96s, three SPX 2000s, Eventide Eclipse Harmonizer, and a TC Electronic D2 and M5000. "Radial has really helped us out," Garber says. "We use Radial J48 on all of our DI's. They gave us some extra stuff like the Radial Phaser adjustment tool, which is awesome for electric guitar."

"We're fully endorsed by Shure, and Ryan Smith is another great person to work with. Any problems, and he's there to help us out. We tried most of the microphones on the market before we settled with the Shure SM58, which we're very happy with."





From left: crew chief Pete McDonough, monitor engineer Stuart Delk and stage tech Jeremy Moore

Monitor engineer Stuart Delk is also on a Studer board—a Vista 5 SR. “I am hardcore analog, but this desk has the sound I would compare to high-end analog with all the digital capabilities. All the EQ and comp/gates are on the channel strip, and it’s all touchscreen to get what you need. I have the inputs that are on the splitters—one to one in this screen—so I can troubleshoot by channel if needed without going over to the split.

“Studer does not have any onboard reverbs or time-based effects. I carry nine outboard reverb units, four TC Electronic 4000s and five [Yamaha] SPX-2000s. They sound great with new and old factory settings. Most of my reverbs are custom programs I have made. I can also input stereo and output stereo via AES connections, keeping the signal chain all digital and using two XLR lines instead of four XLRs for each unit.”

His other rack carries wireless and combiner amps, including eight channels of Shure UHF-R mics for all vocals, 14 channels of in-ear monitors, eight Sennheiser G2 IEMs and six Shure PSM Series. The ProWireless combiners give Delk 250 mW of power for all ear systems.



According to drum tech Craig Krolicki, all mics on Jim Riley’s kit are Shure. (He has a Shure mic endorsement). Mics comprise Shure 98s (toms), Beta 27s (toms), SM57 (snare top), KSM137 (snare bottom), KSM 137 (hi-hat, overheads), 57s (Octobans, 20-inch kick), Beta 52 (24-inch kick) and Beta 91 (24-inch kick). He sings through a Shure 58.

Bass tech Robert “Bucky” Huck (right) says that bassist Jay DeMarcus’ rig comprises an Avalon 737 through a Distressor EL8-X comp and an Ampeg SVT Classic through a Distressor EL8-X comp and a Palmer PDI-03 direct box. “It starts with three Shure UR4D dual wirelesses into an Amp Gizmo custom splitter I had them design with eight ins and four outs,” Huck says. “One out goes to the Ampeg side and one out goes to the Avalon side. I also have a second rig built in the rack for our pedal-steel player, Travis Toy. He plays bass when Jay is on keyboards. His rig is completely separate on the Avalon side, but they both share the Ampeg side with the use of a Tour Supply Amp Selector.”



Jonathan Trebing’s rig comprises a Sennheiser G3 wireless and a 100-watt Marshall Super Lead driving a 4x12 Bogner cabinet miked with a Sennheiser 421.



Rex Frazier techs for guitarist Jonathan Trebing, keyboardist Tim Ackers, John Jeason (fiddle, mandolin, guitar) and Travis Toy (pedal steel, banjo, guitars).

Joe Don Rooney’s guitar tech, David Graef (below), describes the guitarist’s rig as “a fun one. It’s a dry/wet/dry rig with a center 4x12 cabinet, with just the dry amp and two Mathers 1x12 cabinets for the effect left and right signals. We start with two dual Shure UR4D wirelesses that go into a line selector made by RJM Technology. From the selector, the signal goes to my pedal board, where I do the majority of his patch changes, and then returns to an amp selector that feeds signal to one of two Bogner Ecstasy 101B heads [miked with three Shure SM57s and a Royer ribbon, pictured], a Blackstar Series One 200 head and a Diamond Decada head, and then out to the 4x12 dry cabinet. I take a line-level signal and feed the outboard effects [TC Electronic D-Two, Fireworx and Reverb 4000]. They return to and are blended through a Midas Venice 160 console and sent to a VHT 292 amp that powers the two Mathers 1x12 cabinets onstage for the wet signal.

“We separate the dry amp and the wet left and right signals to maintain the cut of the guitar in the mix.”

There are two pedalboards, one of which Graef uses to control the rig through most of the show. On his board are the Ground Control Pro for all MIDI program switching, an RJM Technology Amp Gizmo for amp channel changes (via MIDI), a Micro POG, Diamond Tremolo, Xotic EP Booster, Boss AW-1 and an Ernie Ball VP Jr. Rooney’s pedal board onstage sees another Ground Control Pro, a tuner, Earnie Ball VP Jr. and a Dunlop Wah controller—all connected to the Dunlop Rack Wah for onstage control of volume and wah.



The Sound Image-provided P.A. comprises 78 JBL VerTec 4889s for high packs and 32 VerTec 4880s for subs. According to Garber, the arena shows have four stacks per side. Front-fills are Sound Image WideLine boxes, 12 across the stage. The system is controlled by three Dolby Lakes.

RASCAL FLATS

PHOTO: LOREY SEBASTIAN

Jeff Bridges plays Rooster Cogburn and Hailee Steinfeld plays Mattie Ross in Paramount Pictures' *True Grit*.



By Blair Jackson

'True Grit'

COEN BROTHERS BRING NEW LIFE TO WESTERN TALE

You never know what fascinating world directors Joel and Ethan Coen are going to visit. Their 2009 entry was the Oscar-nominated *A Serious Man* about an introspective Jewish fellow in suburban Minneapolis in the late '60s. The year before that brought us the wacky comic caper *Burn After Reading*. And in 2007, they made the dark and brilliant Best Picture-winner *No Country for Old Men*. Now, on Christmas Day 2010, the Coen brothers return with another completely different tale—the period Western *True Grit*, which, rather than being a re-make of the famous 1969 John Wayne film,

is a more faithful adaptation of Charles Portis' novel.

Skip Lievsay has been working with the Coens since *Blood Simple* in 1984, usually in the capacity of supervising sound editor and re-recording mixer. For the last four Coen films, he's been joined by sound designer/FX re-recording mixer Craig Berkey, and together they've fashioned a way of working that has streamlined the sound editorial process. The key, they say, is not delineating certain tasks as being for a temp dub and then re-doing things for the final, but creating a mix that goes through a progression.

When we spoke at the end of October, Berkey and Lievsay were just about to start work on the final at Sony Pictures Studios in Culver City, on the west side of L.A. Both sounded extremely relaxed about the task ahead because so much of the mix work had been done ahead of time. "Basically, about two-thirds of the elements are in hand—dialog and FX and backgrounds are already thoroughly understood," Lievsay says. "The new components are the score [by longtime Coen associate Carter Burwell], which they recorded last week, and which we've been working with from sketches,

Best Animated Feature and Best Picture

For your consideration



Best Sound Mixing

Supervising Sound Designer, Randy Thom
Re-Recording Mixers, Randy Thom • Gary A. Rizzo

Best Sound Editing

Supervising Sound Editors, Randy Thom • Jonathan Null

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Claudia Puig, USA Today



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and the Foley that Greg Orloff will mix. It's more efficient to wait for the Foley until you're deep into versions, so we shot that over the last three or four weeks. What we end up spending our time on [in the final] is working on the balance. We can look at the movie and hear all of the components playing together and figure out what's the best-sounding mix of all those things."

"The 'normal' way of working is you show up at the final with numerous sounds and you've got a limited amount of time where it's almost physically impossible to go through all those sounds so that everybody's happy," Berkey adds. "But the way we work, there's none of that. 'Oh, we had this sound somewhere,' or, 'Remember in the temp we had that?' Because it's a track that has progressed from the beginning of post with everyone working together, including the filmmakers; there's no big moment at the final where you're playing all this new material on an expensive dub stage and it can go great or it can go horribly wrong. We don't have those moments; instead, we have, 'Can you raise the cricket 2 dB?' [Laughs] I try to work this way on every film now if I can."

About the only controversy *True Grit*'s final was likely to engender was Berkey and Lievsay's decision to bypass conventional stage workflow in favor of working in Pro Tools all the way through with a Euphonix (now Avid) MC Mix fader pack. "The way we're working now is we have a keyboard and a trackball and this small fader pack," Lievsay says. "It's easier for us because we get to preserve our automation as we make changes." Berkey also brought down an essential tool from his home studio in Vancouver, B.C.: a Wacom Cintiq interactive pen display that helps him navigate among sound elements smoothly and quickly.

Not surprisingly, getting to that point where the final is comparatively easy takes a lot of hard work spread out over many months once the Coens start editing the film. Lievsay and Berkey did much of their early work in New York (where the Coens live) at Digital Cinema. "When we start the editorial process," Lievsay says, "we also start mixing and we start preparing tracks so we can have a screening whenever they want and be able to answer any questions if there's something wrong with a track. One concern we had is that there was quite a bit of weather [during the exterior shoots], so we wanted to get on the ADR really early, solve those problems and then have the ADR in our temps. I go through the dialog early and mix it as if it's the final mix." Most of the production recording was handled by Peter Kurland, another part of the Coen team since the early days.

"Craig generally limits his work in the early

Skip Lievsay with Avid MC Mix and computer at Sony Pictures Studios

stages to the big sounds, and Joel and Ethan also like to have backgrounds, so he will make appropriate backgrounds for all the scenes in the movie," Lievsay adds. "It helps them in their choices and judgments about takes and performances. They also like having gunshots and explosions wherever they're called for."

Berkey says that the backgrounds were a particularly challenging component of the overall sound design, as so much of the film takes place outdoors; the film was shot mostly in the high country of New Mexico and in Texas. "Joel and Ethan love a full ambient track, which is nice," he says. "They want you to be immersed in the atmosphere of wherever you are."

Working primarily from his own extensive library of winds, Berkey "spent a lot of time going through and making sure that they're all interesting winds and fit together from scene to scene. In some cases, you want to have a progression of different types of winds that go from a warm, blustery thing to a very different kind of environment—in this case, [the main characters] are heading up into the mountains and it becomes colder and colder, so you want to be able to communicate that somewhat through the winds. Sometimes I end up EQ'ing things, but the key is picking the right winds to start with, so I spend a lot of time listening and making mental notes about which elements would work together, because sometimes when you start putting too many winds together, they lose their character and they become a big mush because they don't have the sonic room around them to continue their signature. When we're doing this, I'm mixing at the same time and I'll put it in against whatever dialog track I have." Berkey mostly uses plug-ins for his signal processing work, including Altiverb reverb, and McDSP and Avid filters.

When it came to gunshots and explosions, Berkey again relied on his own sound library material, but for horses, Lievsay supervised FX recordist/editors John Fasal and Jay Wilkinson for a couple of sessions outside of L.A. at a movie horse ranch in Palmdale and a horse hydrotherapy pool in Los Olivos—the latter for a key scene in which a horse swims across a river. "One thing we learned," Lievsay says, "is that when the horse goes fully underwater, they dog paddle like dogs and there's no sound—the only sound is they breathe through their nose, and they're constant-



Craig Berkey and his Wacom Cintiq display

ly blowing their nose out to make sure they don't drown. It was one of those things where we had to do it to find out."

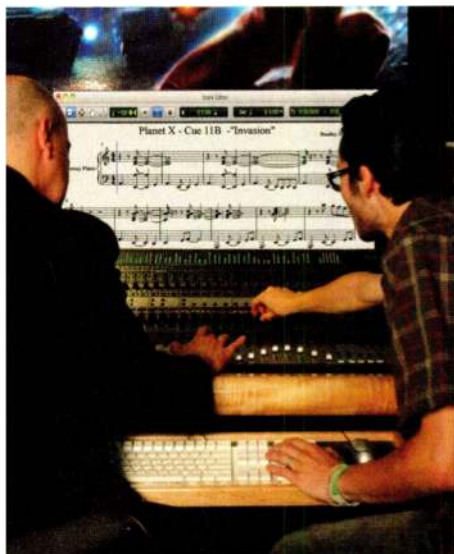
Again, with the mix going through a progression, Lievsay and Berkey added elements and made adjustments as they went along in close consultation with the Coens. "Early on," Berkey explains, "we end up with this first temp mix and then we keep adding to and conforming that mix, and Joel and Ethan listen to it with each cut giving us notes as we go along. We're starting the final now, but I've been getting notes the last few weeks that say things like, 'Maybe the backgrounds are a couple of dB too hot in this scene,' or, 'Could you add a crowd murmur here?' They've been listening to our mix in 5.1 in a theater in New York, so when we get to the final mix, it's about adding some new music cues, but they've heard every sound, they've listened to the mix and they know everything that's there and have made notes on it that we've executed. Essentially, our mix starts about four months before we finish the final."

Is it fair to say that the Coens, who work so brilliantly with words and images (*True Grit* was shot by the great Roger Deakins), are also quite sound savvy? "Oh, yes," Berkey replies without hesitation. "They're very particular, but they also like to leave room for us to put in interesting sounds and be creative. They definitely understand that sound matters." ■



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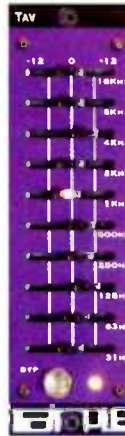
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PRODUCT HITS OF AES 2010

HOT TECHNOLOGIES FROM FOG CITY

By the Mix Staff

After celebrating its first World Series win, the city of San Francisco was still in a party mood when the 129th Audio Engineering Society convention (November 4-7) came into town. With the current state of the economy, a few regular exhibitors skipped this expo, but if there was a downturn in the industry, it certainly didn't show on the faces of the thousands of enthusiastic attendees that packed into the Moscone Center for four days of nonstop pro audio action. Here are some of the highlights.

The Big One

The big news at AES was certainly Avid's (avid.com) release of Pro Tools 9. Far more than a simple software update, PT9 users now have the choice of working with the DAW in a \$599 software-only stand-alone configuration or with a choice of Avid or third-party (Core Audio and ASIO) audio interfaces, and with Avid Artist and Pro Series controllers. The new software replaces Pro Tools 1.E and

spans upward to Pro Tools 9 HD TDM. All versions now include Automatic Delay Compensation and EuCon support. Other features include support for 96 mono or stereo voices in the new software-only version of Pro Tools (192 voices with Pro Tools HD systems), 256 internal buses and 160 aux tracks.

After years of operating within a closed environment, this announcement was warmly greeted, not only by interface suppliers at AES (including Apogee, Focusrite, Lynx, RME and Prism), but also by users who now have more options from which to choose. In other DAW news, Stanford Research Systems (thinksr.com)—known for its audio test systems—debuted Perfection 10, a Rubidium Atomic audio clock source. Priced at \$3,495, the two-rackspace unit has eight ultraprecision 10MHz BNC word clock outputs, all fed from an ultrastable rubidium oscillator with ± 0.5 ppb accuracy.

Consoles Rule

Solid State Logic (solidstatelogic.com) showed its next-generation AWS console/controllers, now in 24-input (AWS 924) and 48-input (AWS 948) variants—both using 24-fader footprints. Each AWS 948 channel has a single mic pre and two line inputs, a stereo insert and new stereo EQ with independent switching of each band between E and G Series tonal characteristics. Standard to both are motorized faders that follow DAW automation data, a new phase meter, LCD digital scribble strips, updated cosmetics and more.

The company's Nucleus is a \$4,999 desktop I/O and controller with two banks of eight channel controls, center section controls, 100mm moving faders, digital scribble strips, assignable V-Pots and softkeys, user-customizable key-command mapping and communication via HUI and MCU. Also featured is a SuperAnalogue output to separate +4/-10dB connections, a stereo USB record/playback path to DAW, two combo XLR mic/



Solid State
Logic Nucleus



Pulse Techniques'
re-creation of the
Pultec EQP-1A3



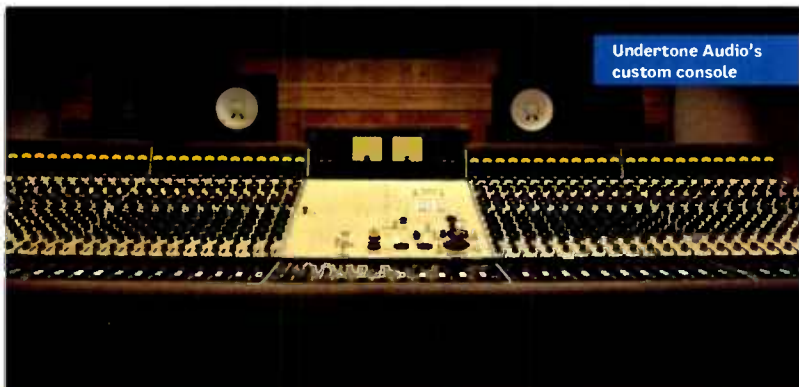
Avid Pro Tools 9



Pelonis Sound and
Acoustics Model 42



DPA Reference
Standard Mics



Undertone Audio's
custom console



Focal SM9

line/instrument inputs and a Duende Native Essentials plug-in bundle.

Allen & Heath's (allen-heath.com) GS-R24 analog recording console has optional motorized faders and MIDI controllers for DAW interfacing. It has 24 mono input channels (each with mic pre and 4-band parametric EQ), two stereo channels, two tube channels, six aux sends and four subgroups. Optional is a 32-channel FireWire interface module (with digital send/returns on all input channels and the master stereo) and an analog I/O-plus-MIDI module. The MIDI control section has switches, rotaries, two MIDI faders, 24-channel faders and a jog wheel for scrolling functions.

Malcolm Toft (pmiaudio.com) debuted his first new Trident console in 25 years. Shown in a 32x24 frame (40 and 48 inputs also offered), the Series 82 combines a flexible in-line and split monitoring design (96 inputs with EQ on remix), with expanded 4-band parametric EQ, sweepable HP filter, eight aux sends, classic Trident preamps with Lundahl transformers, full meter bridge, TT patchbay and D25 multipin interfacing to DAW or recorder. A 32x24 model is \$68k; automation is optional.

Producer Eric Valentine and designer Larry Jasper launched a new 24-channel console under the Undertone Audio (undertoneaudio.com) brand. All models are custom (up to 108 inputs),

but include 24 buses, six aux sends and 4-band custom parametric EQ with a Shape control to create customized tone-shaping contours. The design uses all discrete, single-ended, Class-A circuitry in the signal path; output transformers are optional. The mixer's Acoustically Transparent Work Surface™ is a patent-pending porous metal on the main console surface that's said to eliminate acoustical reflections and comb-filtering effects from reference monitors on the meter bridge.

Mics, Mics, Mics!

Every AES brings a load of new mics, and this show didn't disappoint. There were plenty of new ribbon models. Royer (royerlabs.com) showed its



With a lot to see at AES, selecting our Top 10 new products was not easy, but here (listed alphabetically) are *Mix's* selections for the Certified Hits of AES 2010.

- Avid Pro Tools 9
- beyerdynamic RM510 Handheld Ribbon Mic
- DPA Reference Standard Mics
- Focal SM9 Studio Monitors
- Pelonis Model 42 Studio Monitors
- Pulse Techniques Pultec EQP-1A3
- Royer R-101 Ribbon Mic
- Solid State Logic Nucleus
- Stanford Research Systems Perfection 10 Clock
- Undertone Audio Console

affordable (\$895) R-101, which started shipping last month. But the big AES news was *cardioid* ribbon mics. AEA's (ribbonmics.com) KU4 is a nod to RCA's legendary unidirectional KU3A, with the smooth sound of a 44, a wide sweet spot and less proximity bass boost than traditional figure-8 ribbons. Features include NOS RCA ribbon material, custom AEA transformer and a high-quality anodized/nickel-plate finish. The beyerdynamic (beyerdynamic.com) RM 510 is another cardioid ribbon design, but built into an interchangeable capsule head for use with the company's Opus 600 and 900 handheld wireless systems.

Mic designer Ben Sneesby brought his entire BeesNeez Microphones (beesneezmicrophones.com.au) line of Australian-made condenser mics. The construction is first-class throughout, using point-to-point wiring, Cinemag transformers and NOS European and American tubes. After a quick headphone listen on the show floor, we definitely want to check these out in the studio. Microtech Gefell's (microtechgefell.de) M 1030 features a cardioid pattern with a large-diameter capsule feeding a newly designed solid-state circuit topology. This transformerless design reduces the noise floor to a low 7 dBA while raising the maximum output capacity, resulting in a 135dB dynamic range.

Making its U.S. AES debut, the Schoeps (schoeps.de) SuperCMIT digital shotgun mic uses a unique dual-capsule design approach coupled with digital signal processing to minimize extra-

aneous noise, increase range and retain the transparency and integrity of the source audio.

DPA (dpamicrophones.com) launched its Reference Standard Mics, a new series of interchangeable mic capsules (omni/cardioid/shotgun/wide cardioid) and preamp bodies (compact, standard or standard with low-cut/high-boost switches). The range lets users create various combinations for specific applications (such as compact bodies for close-in piano miking) or simply have the versatility of having several capsules available without the expense of purchasing complete mics.

We love previewing stuff at AES that's months away. Cascade (cascademicrophones.com) showed a prototype of a large-body (about a foot long/3-inch diameter) tube studio condenser mic with a 1.25-inch capsule and custom output transformer. And Mojave Audio (mojaveaudio.com) offered a peek at the MA-300, a very 67-sounding, multipattern version of its popular MA-200 tube mic, due out next year.

Signal Processing, Analog-Style

Millennia Media (mil-media.com) launched the HV-35 mic preamp, a 500 Series module based on its HV-3 preamp. Speaking of 500 Series, Vintage King (vintageking.com) showed Neve's new 1073LB, which puts the discrete Class-A preamp from the classic 1073 (sans EQ) into a 500-format module. Also new is a reissue of Neve's 1974 2264A mono limiter/compressor, offered in horizontal/vertical D.L.I.-format modules, using the same architecture, components and hand-wound transformers as its historic counterpart.

Pulse Techniques—the creators of the original Pultec line some 60 years ago—is reborn by design engineer Steve Jackson and mastering engineer Dave Collins. Their new company—Pulse Techniques LLC (pulsetechniques.com)—unveiled a near-exact re-creation of the Pultec EQP-1A3 program equalizer, produced to the same specs as the original—except now with XLR I/O and removable IEC AC cord. Retail is \$3,495.

The Retro (retroinstruments.com) Power-strip puts the tone of a tube mixer, Pultec-style

EQ and British tube compressor into a two-rack-space chassis. Features include a Class-A tube mic pre with phantom power; industry-standard passive EQ; and transformer-balanced mic and line inputs, and line output to eliminate ground-induced hum and noise.

Monitor World

The Focal (focal.com) SM9 puts two independent speaker systems within the same cabinet. The SM9 features a 1-inch inverted Beryllium dome tweeter (100W), a 6.5-inch midrange driver (100W), 8-inch woofer (400W) and a passive radiator. The system boasts a 30 to 40k Hz (± 3 dB) response and can be switched into two-way mode, which shuts down the woofer and radiator but reconfigures the crossover for two-way use.

Neumann (neumannusa.com) has re-branded the Klein & Hummel speaker line and offers its first studio monitor. The Neumann KH 120 features a Mathematically Modeled Dispersion waveguide, flexible acoustical controls and analog/digital inputs. Two 50W Class-A/B amps power the 5.25-inch woofer and 1-inch tweeter, providing a 52 to 21k Hz (± 3 dB) response. A sub-woofer is optional.

PMC's (pmc-speakers.com) AML2 powered monitors supersede the AML1 model with an upgraded power supply and an enhanced cabinet structure. The AML2 combines a flat-piston, 6.5-inch carbon-fiber/Nomex woofer capable of extreme 33mm excursion with a 1.5-inch soft-dome tweeter driven by Bryston-designed Class-A/B (100W/80W) amps.

For a new slant on monitoring, the Pelonis Sound and Acoustics (pelonissound.com) Model 42 puts 4-inch, two-way dual-concentric drivers into compact, rhomboid-shaped enclosures fed from a rackmount DSP controller/crossover/200W bi-amplification unit. The angled front baffles point the speakers slightly upward in a desktop setup; downward when used on a high meter bridge; or inward toward the user when at ear level.

The TC TouchMonitor TM7 and TM9 from TC Electronic (tcelectronic.com) feature touchscreen display of consistent loudness and compatibility with domestic and international broadcast standards. The units come in six basic configurations based on connectivity (stereo or multichannel, analog/digital), feature sets and 7- or 9-inch screens.

More to Come

There were more product debuts and we'll present these in upcoming issues and online, including product demo videos at mixonline.com. ■

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M
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M
FOUR

Multi-pattern Tube Condenser Microphone

M
FIVE

High Performance Ribbon Microphone

NuGen Audio Stereo Pack Plug-In Suite

Innovative Stereo Imaging Tools With High Sonic Integrity

NuGen Audio, based in the UK, makes a range of stereo-analysis and image-manipulation plug-in tools such as the SEQ 1/SEQ 2 linear-phase EQ and VisLM-H/C loudness meter. NuGen's Stereo Pack suite (\$179) features three imaging tools that offer some interesting new processing ideas.

The Stereo Pack includes the Stereoizer, Stereoplacer and Monofilter. Having used other NuGen plug-ins with great results, I was excited to try this trio, which had recently become available. They handle very specific tasks and tackle some problems you didn't know you had, doing so with style and sonic integrity, and with engaging and user-friendly GUIs. However, these plug-ins can be CPU hogs, so Stereo Pack includes fidelity controls that let you better manage results in relation to available CPU resources.

The Stereoizer

Stereoizer is a mono-to-stereo up-mix plug-in. I've used these types of processors when restoring old vinyl records to improve the image on stereo playback equipment. In most cases, I've found myself tediously tweaking settings and eventually giving up, realizing that the end result sounds different, but not necessarily better.

For example, Logic's Stereo Spread plug-in has a fundamental flaw in which the processing does nothing to accurately re-create the actual experience of stereophonic perception. Instead, it pans a comb-filtered range of frequencies to

the left and right, with user control over the affected range. You twist the dials, listen and hope for the best, with the end result sounding "stereo," yet a bit odd and phasey. Other stereo-widening plug-ins require stereo source material and simply manipulate the ratio of identical information to unique information between the two channels. This effectively allows adjustments of the mid-to-side ratio.

The Stereoizer plug-in does a much better job of considering psychoacoustic cues based on reality. Our brain looks at several different qualities of sound to determine the directionality of a source and the way that sound travels through, and interacts with, a given space. The most notable are Inter-aural Intensity Difference (IID) and Inter-aural Time Difference (ITD). When sound is louder hitting our left ear than the right ear, it is obvious that that sound came from the left. Likewise, if sound is delayed in hitting our right ear relative to our left, we could draw a similar conclusion. Using this principle, Stereoizer takes mono sounds and creates believable stereo imagery that is comprised entirely of information contained in the original source.

The results I had with the Stereoizer plug-in are impressive and useful for subtly improving the stereo image in a complete, finished mix. Stereoizer is also great for negotiating space for drums and widely panned, doubled electric guitars in a mix. And even with its controls cranked to over-the-top values, the plug-in never produced weird or phasey artifacts, so the possibilities are really without limits. To help push your sound beyond reality, it offers modulation effects, which can be synced to the session's tempo for modulation of the stereo image. These effects are harder to predict but certainly add an interesting twist.

The GUI has intuitive controls for adjusting the frequency range and stereo width of



The Monofilter tightens low frequencies by forcing them to mono below the crossover point.

each of the perceptual cues, the IID and the ITD. All of the plug-ins in this pack offer great graphics, but Stereoizer is the most fun to look at. Its controls have a slick sci-fi feel. A quarter-circle display represents the stereo image, with the left-to-right range representing width, and the range from center to outside representing frequency. For a great sense of sonic control, you can set the range and width of the ITD and IID independently, and both the ITD and IID displays are coupled with a glowing, dancing representation of the energy distribution in the stereo field. The most equivalent product I've encountered in terms of design principles and sound quality is the Waves S1 Stereo Imager. Both plug-ins sound very similar, but it seems easier to get the desired result with the Stereoizer GUI.

Stereoplacer

The Stereoplacer plug-in offers frequency-specific panning within a user-friendly, intuitive GUI. Frequencies are laid out across a horizontal plot, with a horizontal "flat" line through the center. Clicking and dragging the horizontal line creates a breakpoint at that frequency, where dragging upward pans left and downward pans right. It feels like boosting and

PRODUCT SUMMARY

COMPANY: NuGen Audio

PRODUCT: Stereo Pack

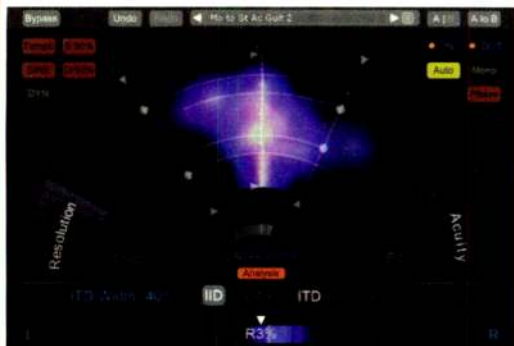
WEBSITE: nugenaudio.com

PRICE: \$199

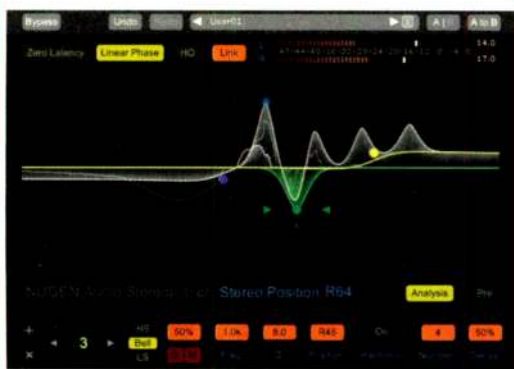
MINIMUM SYSTEM REQUIREMENTS: Mac OS 10.4.x; G4 1.4GHz or Intel Core Duo 1.66GHz; 512MB RAM; Windows XP or Windows Vista; Pentium 1.4GHz; 512MB RAM

PROS: Easy-to-navigate GUIs. Usable and musical processing results. HQ (high-quality) mode.

CONS: CPU-intensive, offering better results on powerful systems.



The Stereoizer is a mono-to-stereo upmixer using Inter-aural Intensity Difference (IID) and Inter-aural Time Difference (ITD).



The Stereoplacer allows frequency-specific panning with a simple click and drag.

cutting frequencies on an EQ plug-in, except boost and cut become panning left and right directionality.

My immediate thought was to use Stereoplacer to take a mono piano recording, split the stereo image in half with a high and low shelf, and send the highs to the left and lows to the right. I also started playing with the same effect on mono recordings of choirs and orchestras. Stereoplacer did an incredible job, precisely mapping the designated frequencies to the desired spatial locations. In every case, the effect was free of sonic impurities or phase-related artifacts, but the result was unnaturally clean. This was easily corrected by running the processed signal through the Stereoizer, which filled in the missing space.

With the precision of Stereoplacer, I could

take mono jazz records and remix cymbals to the left or sax solos to the right. I carved out certain elements of the overall mix based on their fundamental frequencies and redirected them to different places in the soundfield. In all honesty, I was surprised to find that things like that could actually work without sounding unmusical.

Monofilter

The concept behind the Monofilter is simple: As low-frequency energy is perceived with a lack of directionality, it's inefficient to push unique lows to each speaker in a stereo pair of speakers. Instead, summing all lows to mono and using the force of two speakers to push the bass in phase through two speakers creates the potential for a tighter and more plentiful bottom end. To that end, the Monofilter sums information below the chosen crossover frequency to mono.

From there, you can solo the stereo high frequencies—or alternatively, the mono low-frequency information—so you can make critical judgments about the overall effect. This is particularly helpful when it comes to implementing one of the plug-in's best features. The bottom of Monofilter's window displays phase correlation

across the broadband frequency spectrum. By listening to the mono-summed signal and referring to the visual feedback offered by this phase scope, you can make manual adjustments to shift the phase relationship of the two audio channels and remove potential cancellations. You can also apply automatic detection and correction. This not only helps make bass tight and punchy by locking in phase-correlated bass and pushing it through a pair of speakers, but it generally helps in correctly summing the mix to mono.

You can implement a very clean bass-management crossover by soloing the upper stereo information and mono-summed lows, each on separate instances of the plug-in processing the same material. Output from the stereo-solo'd

plug-in can feed stereo satellites, while you can feed the mono sum discretely to a subwoofer. Having the highs and lows on different channels also allowed me to compress the bass frequencies in a mix differently from the high frequencies. Whether I was treating the 2-bus of a mix or mastering a finished mix, this procedure became a no-brainer. I can't envision myself ever calling a mix finished without treating it with Monofilter. Plus, with Monofilter you can manipulate the output level of each signal and lows vs. highs. As a result, you can pump up the bass on the output in a way that sounds less colored than, say, simply adding a low shelf to the entire mix.

Once I started using Monofilter on my Logic and PreSonus Studio One mixes, I found myself hesitant to even mix music in Pro Tools for lack of an RTAS version. Thankfully, at the time of this writing, an RTAS version is on the verge of release and a beta version has been a welcome addition to my Pro Tools workflow.

A Triple Treat

Flatly stated, the Stereo Pack's plug-ins all work as advertised and exceeded my expectations. However, you'll need plenty of CPU power to run them in HQ mode. Even so, I found myself enjoying the quality of the plug-ins before realizing that I wasn't even running the high-quality option. Once I made the switch, I was thrilled to find that the HQ version sounded even better and it was difficult to turn back. In my tests, the combination of stunning visual feedback and high-powered sonic performance often proved more than my 2.26GHz Intel Core 2 Duo MacBook Pro could handle. My CPU easily started to choke running the HQ Monofilter across the 2-bus of a 20-track, 24-bit/44.1kHz mix. Bottom line: Bring your best CPU to this game.

Who would love these processors? As forward-thinking as this set of plug-ins is, I wouldn't classify them as geared toward audiophiles and mastering engineers. While they would satisfy the most critical listener, they are accessible enough to interest users at all levels of experience. Everyone from electronic musicians, beat-makers, mixing engineers and sound designers can benefit from these plug-ins. They sound great and offer musical results delivered in a creative fashion. ■■

Brandon Hickey records and mixes audio for independent films and teaches audio post.

Rupert Neve Portico II Channel Strip

Preamp/EQ/Compressor Offers Legacy Sound With New Twists

The audio artistry of Rupert Neve is fully realized in the Portico II channel strip, which features his unique thinking on circuit design in its mic/line/DI input, EQ, VCA-based compressor and output sections. The single-channel, two-rackspace Portico has a sturdy steel case with a thick aluminum front panel. All push-buttons have LED lighting with multicolor or 16-LED gain reduction, and output meters. Interior construction is excellent. A Motien DC-to-DC converter supplies phantom power. Additionally, the unit has a large toroidal output transformer and field-replaceable circuit board subassemblies. In what seems to be a tribute to vintage Neve-designed console channel strips like the 1073, the Portico II's switches and pots are mounted on a steel subframe that mechanically isolates them from the front panel.

Input Section

Microphone, line or direct source inputs are coupled through a custom input transformer. The mic input uses Neve's "Transformer-Like-Amplifier" topology and has a 10k-ohm, non-reactive input resistance that is said to load low-output mics in a nondetrimental manner. There are also front panel ¼-inch DI and thru input jacks for the 3-megohm discrete FET input circuit.

Input gain is controlled from 0 to 66 dB in 6dB steps by a 12-position rotary switch, and fine adjustments are made by a ±6dB pot. Push-buttons are provided for phase (polarity), mute and phantom on/off, and a signal-present LED glows green for -20dB levels (and higher) and red at +22 dBu. Last is a 20 to 250Hz, 12dB/octave active Bessel highpass filter that's switchable from the main signal path to the compressor sidechain. The back panel also sports



jacks for the sidechain send/returns and stereo linking.

Equalizer

The 4-band equalizer (±15dB each) has a pair of fully parametric midrange (LMF and HMF) sections and LF/HF shelving/peak filters. The LF and HF filters have four frequency choices each. Here, designer Neve has reused the "Accelerated Slope" design found in his 1064 and 1073 modules for the HF/LF filters. The LMF and HMF bands have continuously variable Q from 0.7 to 5, and a 70 to 1.4k Hz range for the LMF, and 700 to 14k Hz for HMF. There are in/out buttons for each of the HF and LF sections, and a single switch for both the LMF and HMF.

In what could be a design first, the de-esser circuit is built into the HMF section, where only that section's audio is reduced (in response to an "s") instead of the entire audio band via the unit's compressor section. And rather than simply hijacking the EQ's HMF section for de-essing, it's possible to boost/cut and de-ess at the same time. De-ess amount is controlled by a separate pot, and the Q and frequency choices that you make in the HMF are also used by the de-esser's opto limiter.

Compressor

Among the compressor's distinctive and useful features are the Blend control, which mixes the amount of compressed signal with the original, while a FF/FB button offers a choice between either a modern feed-forward compressor style or feedback style that is common in vintage compressors. A Pre/Post button instantly jumps the EQ's position in the signal chain to either before or after the compressor. The Silk mode emphasizes low frequencies, while Silk+ emphasizes high frequencies. A Texture control for the Silk and Silk+ modes adds saturation to the output transformer by reducing the amplifier's negative feedback.

The compressor uses a THAT Corp. VCA chip with 1:1 to 40:1 ratios, a -30dBu to +20dBu threshold, 20 to 75ms attack times, 100ms to 2.5-second release times, and up to 20 dB of make-up gain. An RMS/Peak button switches between RMS and peak detection, with RMS used below 250 Hz and peak on higher frequencies.

In II the Channel

The ability to have a mic, line and direct input always connected and ready to go is a big plus

PRODUCT SUMMARY

COMPANY: Rupert Neve Designs

WEB: rupertneve.com

PRODUCT: Portico Channel II

PRICE: \$3,249

PROS: The ultimate Neve channel sound.

CONS: Single channel.

for me: The mic pre handles up to +26 dBu and can function as a second line input without a pad. The unit's lighted buttons are excellent in dimly lit control rooms, as are the positive-feeling rotary switches and the tactilely reassuring center-detent EQ boost/cut controls. The LED meters, although compact, are bright and easy to read from across the room.

My first check was running audio through the Portico II without any processing. Channel strips have no bypass, so I carefully matched levels and the monitoring volumes of a source going into the Portico and coming out at the same time. Drums, vocals, bass and guitars all sounded bigger and richer simply by passing through the Portico II.

The mic preamp compares favorably to a vintage Neve module. On vocals using a Neumann U87, the differences were nil as compared with a vintage 1073 with the EQ switched out. On the Portico II, hum and noise levels were lower and the dynamic range was much higher than the 40-plus-year-old 1073. Percussive sources sounded warmer in the low frequencies, yet very open in the highs.

The DI was immaculately clean and fat sounding. My Fender Strat sounded exactly like it should; its passive pickups were not loaded down, and there is plenty of gain if you want to drive the Portico II's compressor hard. Routing the highpass filter to the compressor sidechain prevented unwanted gain reductions from inadvertent palm thumps. When switching from a mic source to the DI, I liked not having to call up another I/O channel in Pro Tools.

The EQ Pre/Post button is extremely useful, especially for heavy processing. If you are looking to both brighten and squash a snare, changing the EQ's position to post-compressor will compensate for losing attack brilliance, which is caused by compression with fast attack times. Without the hassle of changing patch cords, I could make a "Pre/Post" check when searching for a sound.

The FF/FB button is like having two compressors in one. Feed-Forward is the mode best used for more aggressive control, obvious compressor effects, or for harder and more insistent sounds. And at about the same compression settings, FB had a vintage, smooth sound when I wanted dynamic modification that was less strictly enforced—more compression with fewer artifacts. As I would expect in FB mode,

vocals were rounder and taller, using up more space in the mix; when using FF, the same vocal track became harder, more present and undeniable sounding.

Combinations of FF/FB and RMS/Peak modes make the compressor extremely versatile. In FF mode—at the same threshold setting as in FB—the RMS mode allowed louder attacks and deeper gain reductions on percussive sources like kicks, snares and tambourines. Selecting Peak in FB mode seems to speed attack times slightly by attacking more often, but it caused less LF compression. The Peak Detector mode was best for "peak stop"—type limiting for program mixes, pedal-steel guitar or loud singers with no mic technique.

The Blend knob is a great way to dial in the exact amount of overall dynamic control. No matter how much you squash, being able to add back the original sound to taste—all in phase—is an excellent feature. The equalizer is great for everything from subtle touch-ups on full tracks and keyboards to shaping individual guitar tracks to fit into huge "wire choir" stacks. The Q range is perfectly designed for extreme carving of poorly recorded tracks and subtly polishing an already great-sounding vocal track. When used in moderation, the de-esser was gentle and generally all I needed for most well-recorded vocal tracks with few sibilance problems. Because the de-esser is a dynamic EQ, it also works for de-emphasizing a band of frequencies; you can somewhat reduce peaky vocal or acoustic guitar resonances, or loud hi-hat leakage on a snare drum track with minimal collateral sonic damage.

Finally, Silk and Silk+ are two cherries on top. Silk works well to warm up any thin-sounding instrument track—a kind of low-frequency boost—while Silk+ is a very high-frequency glossy effect useful for dulled-out, heavily compressed sounds.

Modern Rupert Neve Sound

The Portico II Channel offers the epitome of the Rupert Neve sound in a unit that is super-flexible and powerful, yet simple to use. The Neve legacy lives on with this combination of his time-proven circuit topologies and newly designed processors for these modern times. ■

Barry Rudolph is an L.A.-based engineer. Visit him at www.barryrudolph.com.



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Cloud JRS-34 Active Ribbon Mic

Smooth Top, Prominent Midrange, Plenty of Gain

About a year ago, a new microphone company based in Tucson, Ariz., released its first product: the Cloud JRS-34 ribbon. The mic is made entirely in the United States and owes its engine to Stephen Sank, the son of Jon R. Sank, who designed ribbon mics for RCA from the late 1950s to the early '70s. The JRS-34 features the same ribbon used to refurbish countless RCA 44s, and promises high-quality, smooth performance. The mic is also available in a passive version for \$300 less.

Into the Studio

Out of the box, it took me a minute to get used to the mic. It was exceptionally lightweight, and although well-constructed, it felt unsubstantial as compared to what I'm used to in a transducer of this size and type. I noticed right away that the integral mount was very limited in range, making me question how I'd get the JRS-34 into tight spots without breaking it or going through some "interesting" mic-stand scenarios. However, the mic proved itself sonically and the manufacturer promised me that it is working on a new mount.

I first heard the mic placed closely in front of a Marshall cabinet while recording both clean and dirty guitars. I was immediately aware of the mic's substantial output, which negated the need for a lot of gain at the preamp. Next to a passive Royer R-101, the Cloud JRS-34 had a more prominent, up-front midrange that provided the track with some good edge. Used in combination, both the R-101 and JRS-34 were phenomenal, with the Royer bringing up the bottom end and the Cloud pushing the clacky edge of a cleanly played Strat right where it needed to be: in your face without being harsh. The JRS-34 excelled in a number of guitar ses-

sions, both on its own and partnered with other dynamic mics, but it proved a bit too dark for use with an acoustic guitar. However, in a situation where you have a guitar that is especially bright and lacking in personality, the JRS-34 could be an excellent choice. For me, this is what ribbons do best: tame harsh transients and offer a richness that no condenser can offer.

I recorded various hand percussion instruments with the JRS-34, getting great results. Its naturally rolled-off top range took the edge off of shakers and a Vibratone, while the instruments' midrange frequencies were still prominent. No matter how hard or softly they were played, the mic offered natural tones from peak to valley.

Placed in front of the outside of a kick drum with a pop filter in place to protect the ribbon, the JRS-34 offered the perfect amount of chest-hitting, low-end thud. When mixed with a Beta 52 placed inside the drum, the pair gave both the "point" and bottom needed for a kick sound that was just right in the overall drum mix.

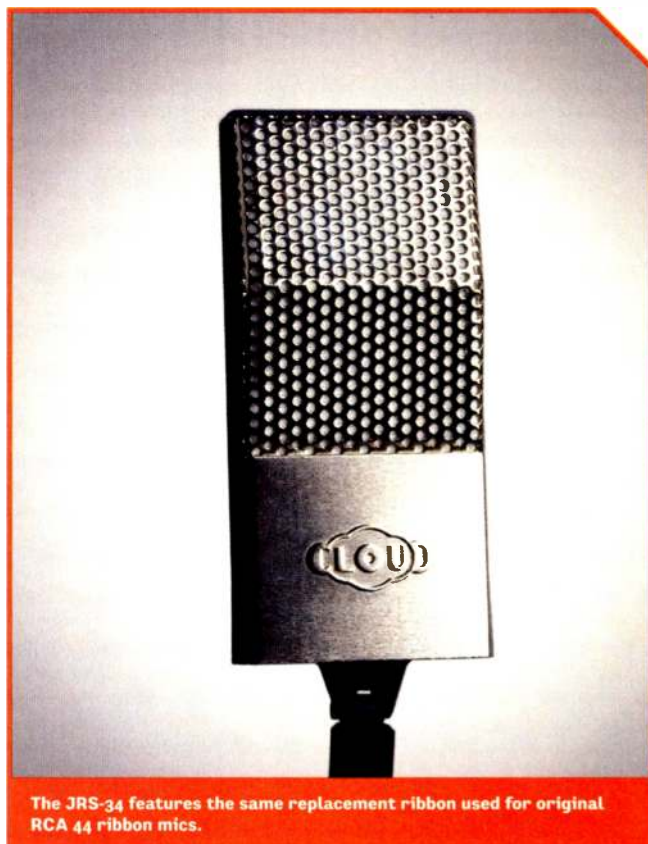
As a quick aside, I was able to use the company's Cloudfilter interface (\$289), which is designed for use with passive microphones. Cloudfilter is a simple, 2-channel in/out box with XLRs that gives any ribbon a clean +20dB boost and eliminates all worries of phantom power accidentally ruining a precious ribbon. I used it on several passive ribbons with great results. It is super-clean and brought the mics

up to the level of an active ribbon, allowing me to use less gain at the preamp, thus keeping the noise floor down. Highly recommended.

Is My Head in the Cloud?

I liked the Cloud JRS-34 across a number of applications; however, the mount left room for improvement and the price may exclude the buyer on a tight budget. The company argues that the U.S. build, sonic proximity to the 44 and BK-11 and two-year ribbon replacement warranty merit the price. I'll let you be the judge. For me, the JRS-34 uniquely offered a useable, edgy midrange that I've not found in other active ribbons. It has the personality to stand toe-to-toe with other mics in its category and would be a nice addition to any collection. III

Kevin Becka is Mix's technical editor.



The JRS-34 features the same replacement ribbon used for original RCA 44 ribbon mics.

PRODUCT SUMMARY

COMPANY: Cloud Microphones
PRODUCT: JRS-34
WEBSITE: cloudmicrophones.com
PRICE: \$1,799 MSRP (\$1,699 street)

PROS: Forward midrange, smooth top and good low end.

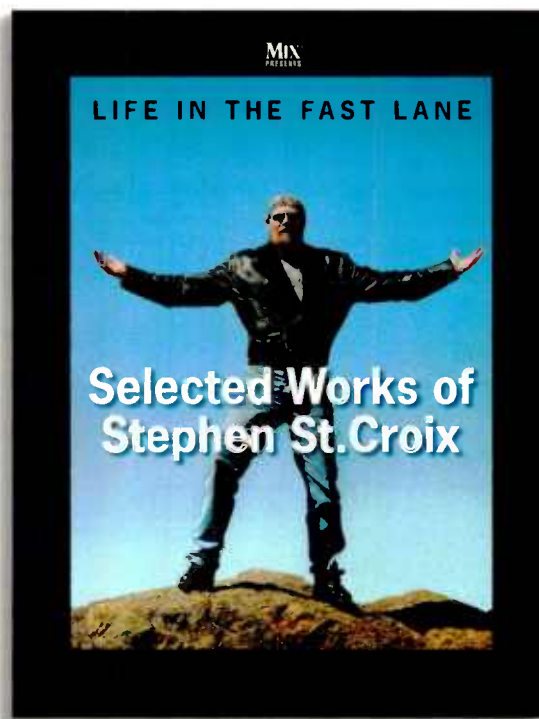
CONS: Integral mount offers only limited motion. Priced a bit high.

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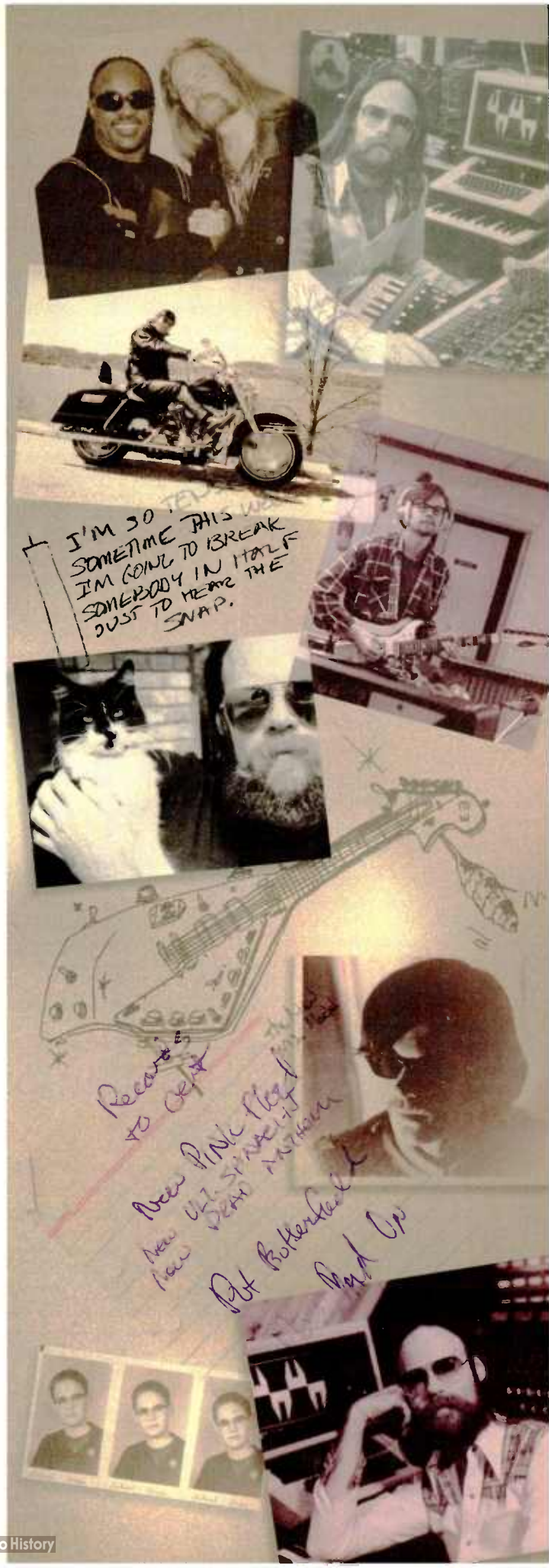
Stephen St.Croix inspired, provoked and educated *Mix* magazine's readers for 18 years in his one-of-a-kind column, "The Fast Lane." As an inventor, musician and engineer, St.Croix offered his audience a wealth of



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MIXBOOKS



Restoring Vintage Gear: The Quest Continues

Tube Mixers, Tube Mics, DATs, a Classic VCA Processor

Due to circuit simplicity and component size, vintage gear is more easily serviced than most newer equipment, which is one reason I'm constantly revisiting the topic. In the process of increasing functionality and complexity, miniaturization has made visual analysis—and heat dissipation—of audio equipment more challenging. Yet some of the same basic problems plague all gear regardless of its place in the evolutionary time line.

I recently wrapped up work on an Altec 1567A (a 4-input vacuum-tube mixer), an Eventide Omnipressor (VCA compressor/expander), a pair of Sony PCM-7030 DAT recorders and a Neumann SM 69 tube mic (a stereo version of the M 269, which is essentially the European version of a U67). This odd audio collection spans some 50 years' worth of electro-mechanical evolution. As viewed from the tech's perspective, the internal real estate ranges from luxuriously spacious—Altec and Eventide—to tediously cramped, as in the case of the SM 69 and the Sony DAT.

Getting Small

Such restoration/repair tasks necessitate a steady hand, a good light and assisted vision, like reading glasses. Working near mic capsules and DAT heads requires a hyper-awareness of their vulnerability, so I've made protective sleeves and covers to keep capsules and heads safe. A speck of hot solder or even flux landing on a capsule diaphragm will leave its mark as a crater or a hole. An accidental screwdriver slip can puncture a diaphragm, scratch a head drum or, worse, break off the head chip. Such potentially costly mistakes emphasize the need for preventive measures.

Inside the SM 69, most of the components are soldered to two circular circuit boards, including the vacuum tubes. For that reason, only known, good tubes should be installed because the circuit boards won't tolerate repeated tinkering. Many early circuit boards are similarly intolerant. I recommend Chem-wik Lite de-soldering braid (Chemtronics Part #10-100L, MCM Order #21-325).

Comparative Analysis

Once the PCM-7030 transports were rebuilt, I relied heavily on comparative analysis by swapping transport and circuit boards, and checking system default parameters until both units behaved identically. The last anomaly to be resolved was the length of time each PCM-7030 required to power up; a nearly 30-second difference implied that a future failure was right around the corner. The problem was localized

The PCM-7030 has multiple linear supplies and one switch-mode supply for Logic that conveniently hangs off the rear of the unit and for which no documentation is provided. There was no obvious heat fatigue. However, on a whim—and a hunch based on a similar switch-mode problem found in an Alesis ADAT PSU—I swapped out a few low-voltage caps around the regulator and—voila!—not only did the two units now power up the same, but a third dead



The thoroughly modernized Altec 1567A tube mixer

to the 5-volt power supply used by the logic circuitry (various microprocessors that deal with transport control, front panel display and user presets).

Of the two styles of power supplies, the linear type was found in conventional vintage gear like guitar amps, recording consoles and, with the exception of the Stephens, most analog tape machines. Switch-mode supplies, which have always been a key component in computers and cell phones, have been migrating into linear's territory. Switch-mode supplies are not only more efficient at converting AC to DC, but are also smaller and lighter. An Apple laptop's external supply/charger delivers 18 VDC at 4 amps if the line voltage is anywhere in between 100 and 240 volts AC. This is called regulation. The equivalent linear supply would be at least the size of a U87 storage case, be much heavier and require the user to set jumpers or switches to accommodate various line voltages.

supply was resurrected. (Google "uc2844 application notes" for a typical schematic.)

Electrolytic capacitors tend to be the problem children of the passive-component family. They are used in power supplies and in-between amplifier stages. Fortunately, switch-mode power supply requirements have forced component manufacturers to improve these mission-critical parts. Look for brand-name capacitors (Panasonic, Nichicon) with low ESR (Equivalent Series Resistance), low leakage and long life at high temperatures (2,000 hours at 105 degrees C).

Tip: As with guitar amps, switch-mode supplies can have hazardous voltages inside, even when unplugged. Always unplug the power cord and discharge the main reservoir capacitor before doing any work.

Did This Ever Really Work Well?

This question applies pretty much equally to the Eventide Omnipressor and the Altec 1567A



“Rather than simply use samples to replace drums, I prefer to supplement and enhance drum performances. With that, I've had a hard time finding a program that allows an easy way to audition and manipulate samples that play back locked and in phase. I'm not looking anymore... Trigger is amazing.”

Justin Niebank (Came Underwood, Taylor Swift, Rob Thomas, Bon Jovi)

“Trigger is a huge leap forward in drum triggering and drum supplementation. The phase accuracy is astounding. The ability to blend samples and reduce false triggers internally is very clever and powerful. I love to live by my motto, whatever works, and I must say, trigger really works!”

Ross Hogarth (Hoax Productions, The Doobie Brothers, Mr. Tambourine Man, Ringo Starr, Melissa Etheridge, Jonathan Brantley, Miley Cyrus)

“The NRG Recording Studio A room has been one of the most popular drum rooms in the industry. It's great to hear the sound captured in the Steven Slate sample library, and even better to use it with phase accuracy in Slate's TRIGGER plugin, which is now my go-to drum replacer.”

Jay Baumgardner (Gardner & Neumann, J. J. Cale, The J. Geil Band, The J. Geil Band)

“I consider Trigger the state of the art for drum replacement, it's exactly what I've been patiently waiting for to come around. Slate has an excellent sample library and some really great presets to start with. It's the best and most versatile program I've ever used.”

Michael Brauer

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mixer projects. The Omnipressor was one of the earliest VCA signal processors—circa 1975—existing at the same time as Allison's Memories Little Helper automation system and dbx noise reduction. In fact, versions of the Omnipressor used a dbx VCA.

As on all VCA-based processors, the signal path on the Omnipressor is very short: Input and output op amps interface the VCA to the outside world. These can be replaced or upgraded as needed. However, there are LM-301

op amps on the gain and attenuation limit controls that should *not* be upgraded, because they are in the sidechain wired as comparators. VCA circuits from that era typically have a distortion null adjustment; optimization via a spectrum analyzer is easier than it is if you are using a distortion analyzer alone.

A pair of LEDs can assist you in centering the processing around the hard knee, which is recommended, especially with the Omnipressor servicing as it can be wild and unruly. The

50-microAmp mechanical meter is failure-prone and the circuitry is a bit unusual—three different DC signals represent input, gain reduction and output levels. In gain-reduction mode, the meter should be centered.

On to the Altec

The Altec 1567A was sent all the way from Iceland, and it was clearly worse off than when it began the journey. The octal-socketed transformers had fallen out in transit, rolled around inside the unit and damaged the filter caps. I can't overemphasize careful packing emphatically enough. This includes separating tubes and other vulnerable un-pluggables into their own protective packaging.

This tube mixer has four transformer-balanced mic inputs, one unbalanced input and a balanced output with master bass and treble controls. Optimizing headroom and signal-to-noise is no picnic, but the 1567A was used in a wide range of applications, from sports events and other remote broadcasts to the original Woodstock music festival. Once the power supply and interstage capacitors were replaced, I brought this late-'50s mixer into this century. A 1U front panel was added with XLR I/Os, plus input pads, polarity reverse, a voltage tripler (to generate phantom power) and a few internal circuit mods.

The four input transformers each feed one-half of a 12AX7 voltage gain stage, followed by mixer level controls that passively sum together (via resistors). The common cathode 12AX7 was converted to cathode follower for current gain rather than voltage gain, allowing mixer levels to be turned up higher without fear of overload, improving both signal to noise and EQ network drive. To recover the necessary makeup gain, the feedback loop on the 6CG7 output amp was made adjustable via the master level control, varying distortion in the process but in a way that was far more controllably euphonic than the stock version.

There are times when the technician's goal is simply to fix what's broken. Other times, accumulated knowledge can be applied to make preventive repairs and "improvements." In this case, trying to preserve desirable artifacts while minimizing the annoying noises required a mixture of both art and science. III

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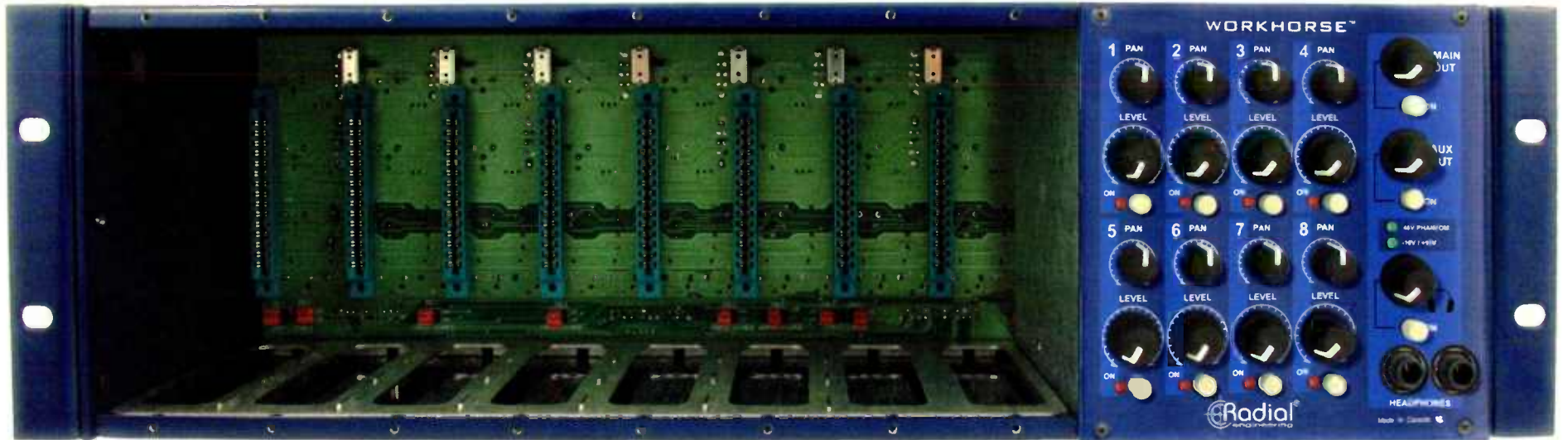


Komit™
The Komit combines old school diode bridge limiting with the very latest in VCA compression. Auto tracking for slow medium and fast transient response makes getting great compression easy.



Phazer™
Like adjusting the focus on a pair of binoculars, the Phazer lets you combine any two tracks and bring them into sonic phase. Think of it as moving your mics around the room by simply turning a dial.

Lunch Well Served...



The Radial Workhorse™ revolutionizes high performance analog recording by combining a 'plug & play' platform for Lunchbox® modules with a built-in mixer for incredible flexibility.

Equipped to handle up to eight modules, the Workhorse lets you mix and match preamps, EQs and compressors to create the ultimate channel strip. Modules may be accessed on the rear panel following the traditional API Lunchbox® format or be bussed to a master section for left or right signal panning, level control and muting. To add spice to your recordings, a unique 'feed' function allows you to configure the

Workhorse modules to feed each other in series to create the channel strip of your dreams! Odd and even card-slots may also be linked together in stereo by simply toggling a rear-panel switch.

Connectivity is extensive: each channel is equipped with traditional XLR input and output and augmented with 1/4" TRS jacks for balanced or unbalanced hook-up. An innovative feature we call OmniPort™ delivers module-specific functionality that can range from an extra output, ducking input, footswitch control or effects insert, depending on the module design. Inputs and outputs are also routed to ProTools compatible 25-pin D-Subs to further enhance flexibility while expanding signal routing options for live recording setups and cross patching.

For added control and flexibility, we've included master TRS inserts, separate monitor outputs and a headphone buss with two jacks (for sharing) and plenty of jam to drive headphones. For larger recording systems, you can link multiple Workhorses together using the built-in expansion buss.

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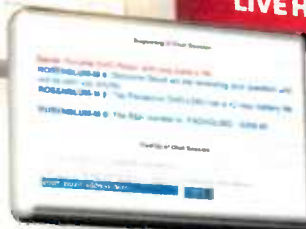
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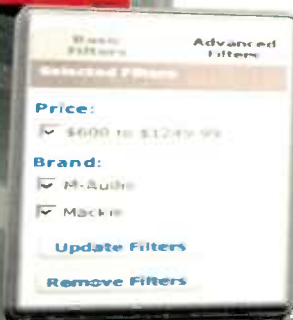
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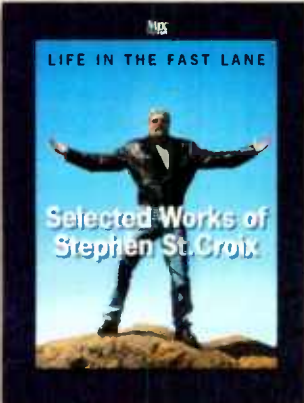



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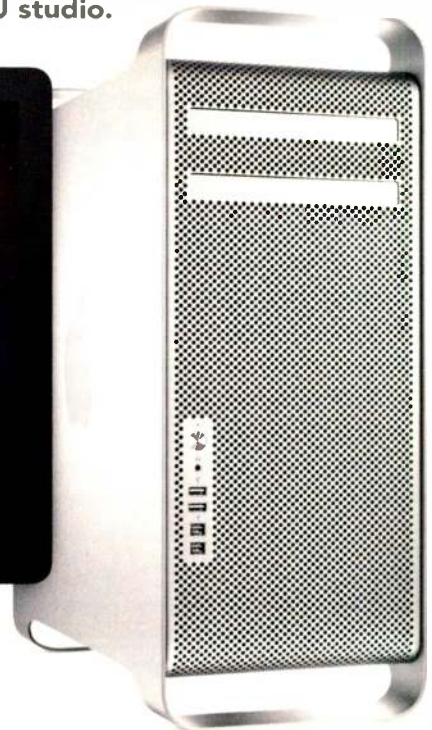
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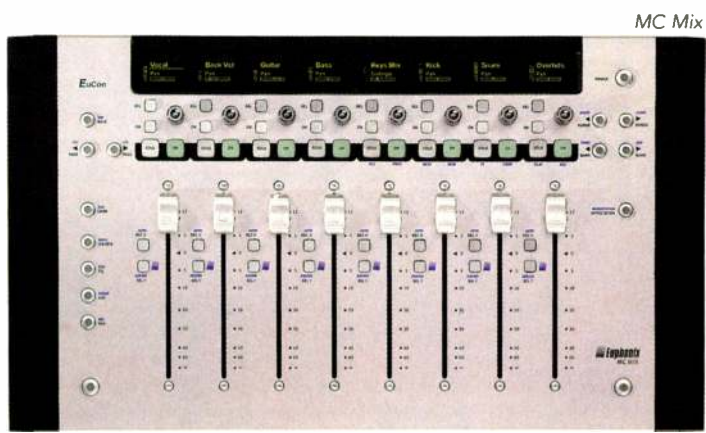
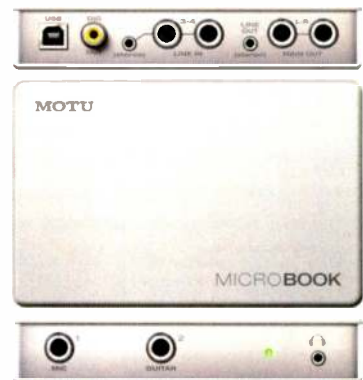
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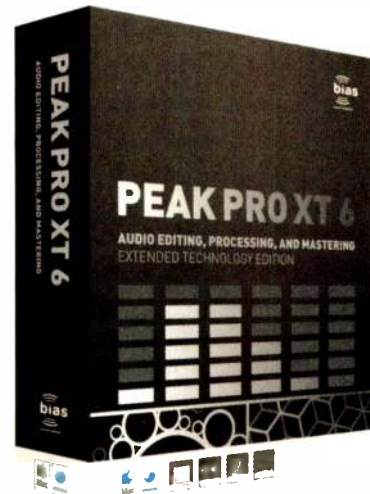
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Brian "Big Bass" Gardner

Longtime mastering engineer has a message for mixers.

You've seen a lot of changes in your area of the industry. I want to ask you some questions about what your business is like today.

Before we start, I want you to know that I won't be divulging any of my trade secrets.

That's common among mastering engineers because many, like you, work with proprietary equipment. So we won't go there. On a different topic, do you like the name "Big Bass"? Does it pigeonhole you?

Oh sure, I don't mind it at all. I used to worry about that, but I'm so used to it by now that I miss it when I don't see it.

Now that most engineers agree that converters and digital audio in general have improved, have you changed your way of working?

Aside from always upgrading and improving everything, basically it's the same process. Most of my gear is still hand-done. I have the same main Tannoy speakers. What's changed for me is we have new problems to deal with that have to do with levels. If anything comes out of this interview, I hope it could be mentioned that we're getting so many projects that are just slammed and that makes things difficult.

I want to make a plea to all the high-end engineers, low-end engineers, everybody: Try not to get pushed into a corner to make it hot. I can understand why the artist or the producer says, "Why isn't this mix as hot as this other CD?" Well, the answer is, "It hasn't been mastered yet." But they still push it anyway.

If they're going to do that, supply me with a mix that's pulled back as well, without all the processing, and let me try to maximize it. If I can't, then I can use their pushed version. When you get a crunched project or a crunched song, anything you add just accentuates whatever is crunched in the mix. Distortion gets worse. We're going in the wrong direction in this business and we need to start getting it back to good, punchy hi-fi sounds.

Is this issue pervasive across all genres or are



PHOTO: DAVID COCCIN

At Bernie Grundman Mastering (Hollywood), from left: Hollywood Records director of A&R Matt Harris, Plain White T's frontman Tom Higgenson and mastering engineer Brian "Big Bass" Gardner

some more at fault than others?

Pop and hip-hop are probably more the culprits, but I'm seeing this in all genres. I know I've been typecast as the one who makes it crunchy and loud, and that's fine, but it needs to be done properly.

So your point is that you're not necessarily opposed to creating a crunched or loud master; it's that if the mix is already pushed, it limits your ability to create something clean and musical.

No, I don't really object to things being loud. I just object to it crapping out: crunching, distorting. I do wish we could go back and make it a law that you can't pass a certain level, but that's not going to happen. Just give it to me without it being slammed because I make it punchier and cleaner and louder, for that matter, without getting into this world of distortion.

Recently, we've heard from a lot of mastering engineers that more is expected of them during that final step because smaller budgets don't allow for as much time to be spent on the front end, in tracking and mixing. Do you agree that this is an issue that has changed your job?

Right, yes. And they're also asking for a deal. Even the big boys are asking for deals. It's discouraging, but I guess that's just the sign of the times. Take hip-hop for instance: It seems not only to be increasing that we're having to clean up mixes, but we're also the ones being asked to create "clean" versions because they don't have

the money to do it in the studio. We're having to do those edits, clean up cursing, make radio edits, that kind of stuff. That's good for us, I guess. I shouldn't really complain because they're paying our rate. Actually, it ends up costing them more because it's a higher rate in here to do it, but a lot more of that is being put on us.

What are some of the big projects you're working on lately?

We did the Eminem album [Recovery], which is really encouraging to see become successful, to see that people will still buy. The Katy Perry album [Teenage Dream] has also done well.

Are you encouraged by what you hear in music today?

Yes, we're hearing real music again. Real instruments and real voices, and I'm hoping that the studios survive. Those of you out there who have studios, hang on, please! Because when real instruments are required, then studios are required.

Do you ever meet audio students who want to go into mastering? Do you have any advice for someone like that?

If they have that passion, there's always room for them. Those are words I've always remembered Bruce Swedien saying a long time ago: There's always room for somebody who really has the passion and the heart to do it. If they're in it to make a quick buck, it probably won't happen, but if they really have the desire, there's room. III

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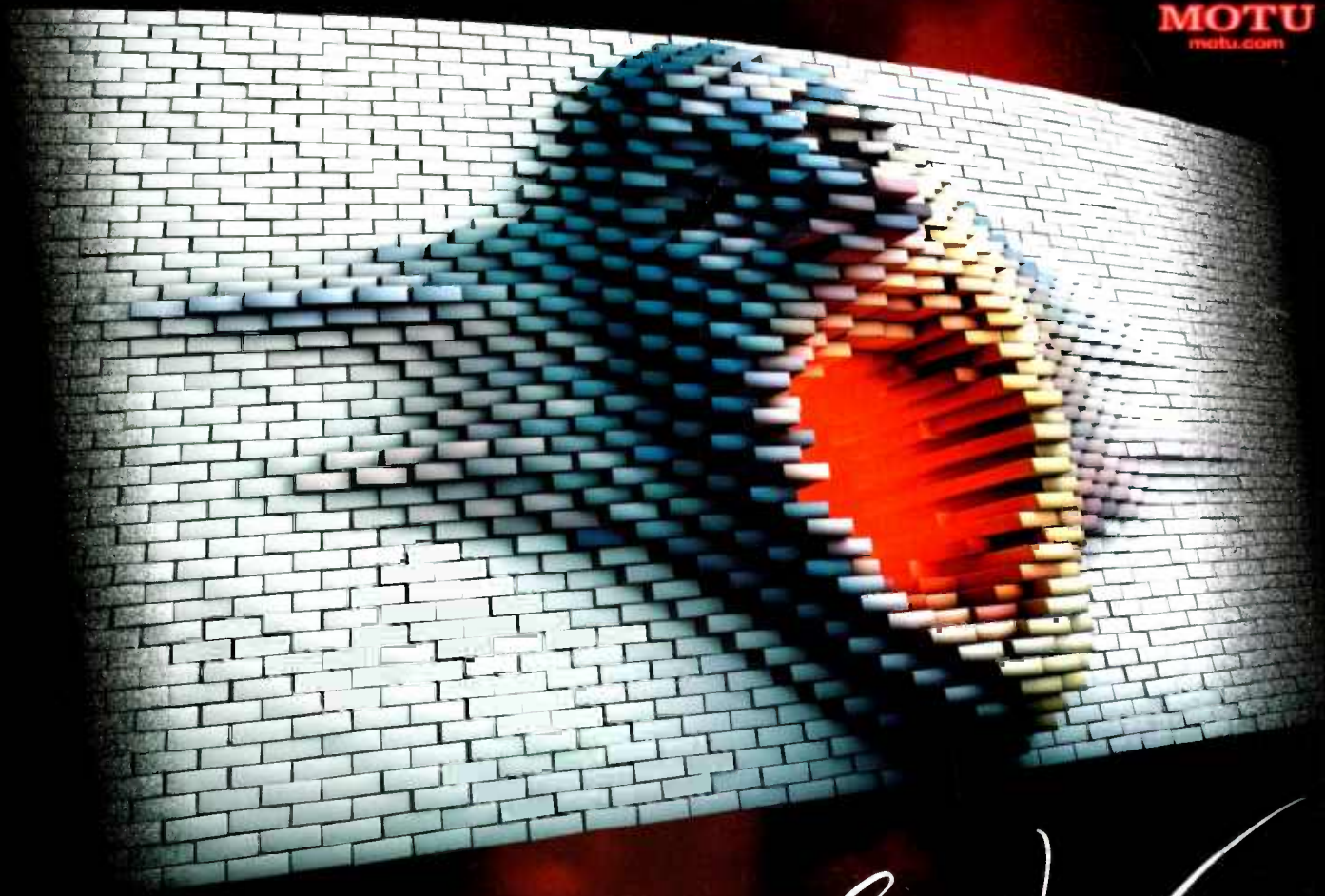
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