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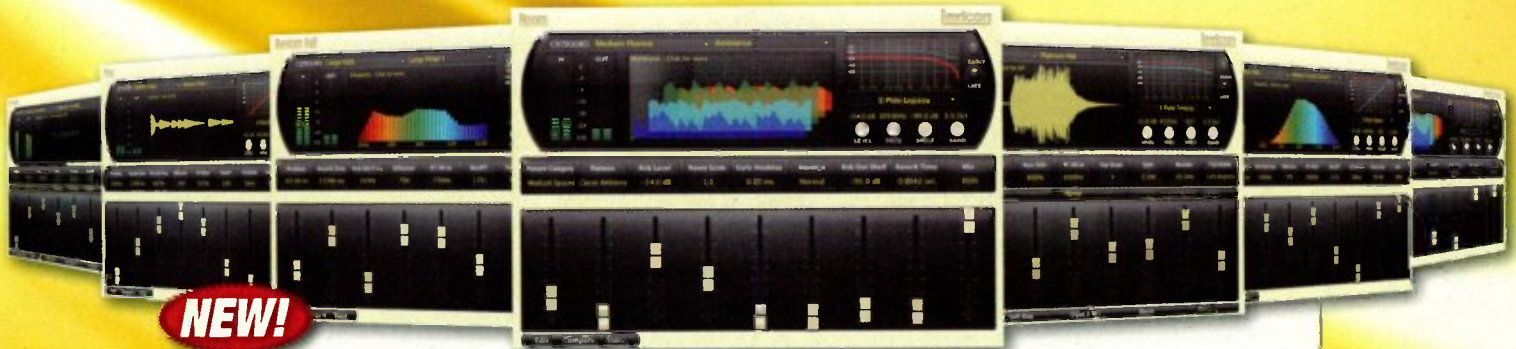
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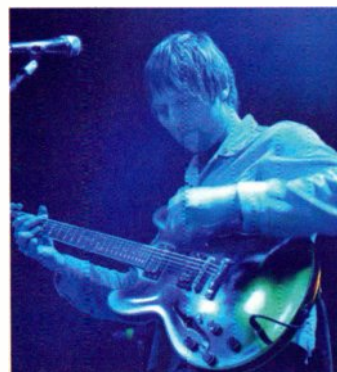
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All Together Now

On the Cover: Frank Liddell, LeeAnn Womack, Chuck Ainlay, Gordon Kerr, Nick Autry and Warren Rhoades at the SSL 9000j in the renovated Front Stage Studios, Nashville. Photo: Robert Chavers.

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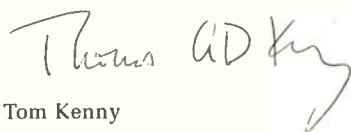
THE GREAT CONTENT SHIFT

I just got back from the National Association of Broadcasters Show in Las Vegas, and this year, more than ever, it became apparent just how massive the challenges are facing the broadcast industry. We think we have it tough in the music industry, and we certainly do: The music industry had to deal with the disruptions brought on by downloaded content and online piracy before the television and film industries. But everyone knew that broadcasters and content producers would be facing similar issues, on a much larger scale; they seem to be responding in a very active way, though it is evident that they are smack dab in the middle of the transition.

The NAB is big on slogans and themes for their conventions, and one of the many this year was "The Great Content Shift," which can mean one thing to a content producer and another to a distributor, whether that distributor is one of the Big Four networks or a fledgling cable outlet. For a content producer, say NARAS with the Grammys telecast or ESPN with one of its 2,800 live remotes a year, the challenge is to deliver a high-quality program regardless of playback device. HD content has to play back with discrete full-bandwidth 5.1 and scale down to a 2-inch speaker out of a micro-thin TV or a 3.5-inch smartphone screen and earbuds. And it has to play in standard definition, too. The protocols and procedures vary if working with NBC or CBS or Fox, and now they vary between output to Verizon and AT&T, as well. Monitoring of the audio signal, not to mention the video output, is a constant and absolutely necessary task. Things can go wrong at any of a dozen points once program leaves a truck or a post house.

And if you think record labels have been under attack and feeling the pressure from indies on the production side, and the Internet on the distribution side, take a moment to reflect on the TV networks. DVRs have made it easy to skip the advertisements, Hulu and countless other sites have provided alternatives, even to the point that Netflix has begun producing original shows, and On Demand content is the norm, not the exception, for nearly all programming. The response initially was to restrict content, same as in music. Today the producers, networks and cable outlets all seem to be joining the online party, offering streaming services over cable, satellite or mobile. I can watch *Game of Thrones* at 9 o'clock on Sunday night when it airs, the next day On Demand or next year from a hotel room in New York through *hbogo.com*. I often joke to friends that my college-age daughters watch more TV than I do, and they don't own a television. It's true. The game has truly changed.

Content delivery is a moving target, whether we're talking about music, television, film or live events. The tools and solutions showcased at NAB this year made it clear that the transition in production and delivery is well under way, and though nobody can predict where we will end up, it's clear that the demand is there for On Demand choice by the consumer. The broadcast industry knows this, you can be sure.



Tom Kenny
Editor

A note about Nashville: This month's feature story, "Ode to Nashville," represents a slight departure for a typical *Mix* story. Rather than list who was recording in what studio, or who put in what new console, we asked our former Nashville editor turned Grammy-nominated producer Peter Cooper to pen a piece on what makes Nashville special—in the style of E.B. White's *Here Is New York* or Nelson Algren's *Chicago: City on the Make*. We hope you enjoy it. Nashville is special.

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Current

COMPILED BY THE MIX STAFF

Dolby Bows Revolutionary New Platform



Nobody does a demo like Dolby. And the company's latest debut of its latest technology, formally shown to the world late-April at CinemaCon, just may be its best. It's certainly the most innovative—from both a creative and a playback perspective—from the company that made 5.1 part of the vernacular.

Mix was invited to the Dolby's San Francisco headquarters for a sneak peek at the company's revolutionary new Dolby Atmos format. The Dolby Screening Room—with 26 addressable JBL speakers (including six overheads), three behind the screen and subs front and rear—is both a test-bed and a showcase for multichannel development. But this time we were looking less at incremental steps in surround playback and more at an entirely new approach to film.

"Dolby Atmos is a platform, not a product, at this stage, as we want to ensure the industry is ramped up with a content pipeline an exhibition

has time to properly outfit their theaters," emphasizes Stuart Bowling, Senior Technical Marketing Manager, Cinema, Dolby. "We started talking with AMC back in 2007 about moving beyond 5.1. Digital Cinema specifies 16 channels right now, and we found that they were interested in the ceiling, in getting some height. We went back and forth for a couple of years testing different height elements, including 11.1 and 13.1. And

then about three years ago we decided to change direction and focus on object-oriented development, where we are able to marry the fundamental channel bed with an object-based solution. This helps to better separate the sound from the channel, allowing Dolby Atmos to move away from a definitive channel count and be able to play back in any type of theater configuration."

To truly understand the potential of the Dolby Atmos solution, you have to divorce yourself of the notion of discrete playback based on channels and amps and zones and arrays. These still matter, as Dolby Atmos is based on a 5.1 or, preferably, 7.1, or even a 9.1 mix and print master. Same as it ever was. But the platform includes the capability for up to 128 channels, 64 speaker feeds, of object-based sound design, separate from the bed and rendered in real time on playback in the theater, optimized for that particular space's amp/speaker configuration. Dolby is working closely with Harman Profes-

sional's cinema team—including JBL and Crown Audio—to optimize amp and speaker technologies and integration for the Dolby Atmos platform. "Every seat in the theater is improved, delivering a much larger sweet spot," Bowling says, "whether it's a showcase room or a 5.1 space waiting to upgrade. It's really a custom mix per room."

The demo on playback is impressive, especially in Dolby's theater with a clip that spotlighted precision placement and smooth movement in the rear and sides and delicate use of the ceiling, even with the space-age vehicles that begged for gimmicky effects but instead just felt like they hovered and dropped. Things that moved, moved toward the center smoothly. The footsteps and arm swooshes and falling leaves and hovercrafts "objects" definitely added dimension and vibrancy to the 7.1 bed.

For editors and mixers, the possibilities seem limitless, a classic example of putting the tools in the hands of the creators. Dolby has written the panning software and demo'd a rather primitive but effective GUI for real-time visual monitoring of the "object" audio movement. Re-recording mixers often speak in cooking metaphors when discussing a project; here they are truly able to add spice to a track. And they don't need to think about channels, only the space. As Bowling says, "We want them to think as a mixer that anywhere they want to put a sound, just pretend that there is a speaker there, and regardless of the room, it will play back as intended."

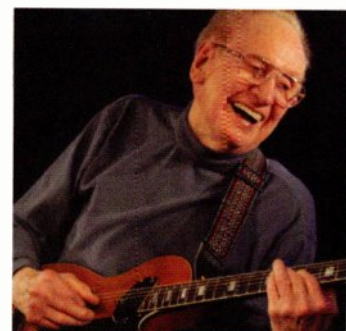
—Tom Kenny

LES PAUL ESTATE GOES UP FOR AUCTION JUNE 8-9, 2012

Julien's Auctions and the Les Paul Foundation have partnered to auction the property and collection of guitars, audio equipment and musical artifacts belonging to legendary musician, engineer and inventor Les Paul on June 8-9, 2012, at Julien's Auctions in Beverly Hills. Proceeds will benefit the Les Paul Foundation, an approved IRS 501(c)3 organization whose mission is to honor the life, spirit, and legacy of Les Paul by supporting music education, engineering and innovation as well as medical research.

Highlights of the auction include a late 1960s API recording/mixing console, 16-track Ampex MM1000 2-inch tape machine from the early 1970s, Les Paul's touring rig, and several of his prized guitars, effects processors and 1955 Steinway & Sons Grand Model B piano.

Registration is required to bid in this live auction and can be done either in person at the exhibitions and auction, or by visiting JulienLive.com before the sale, or by calling 310/836-1818.



DTS Announces Purchase of SRS Labs

On April 17, DTS Inc., a leader in high-definition audio, announced that it had entered into a definitive agreement with SRS Labs Inc., a leader in audio processing and enhancement technologies, under which DTS will acquire all outstanding shares of SRS Labs in a cash-and-stock transaction valued at \$9.50 per share, or a total of approximately \$148 million in aggregate equity value, including acquired net cash of approximately \$38 million as of December 31, 2011. The transaction brings together DTS' suite of audio solutions and SRS Labs' range of audio processing technologies.

"This transaction represents an exciting extension of our strategic focus on the compelling long-term opportunities being driven by cloud-based entertainment delivery and the proliferation of connected devices," says Jon Kirchner, DTS' chairman and CEO. "SRS Labs and its strong portfolio of audio processing technologies are a natural strategic fit for DTS."

"As consumers increasingly demand higher quality audio experiences everywhere from their mobile devices to their homes, this combination benefits our customers and employees by creating significant scale and penetrating new markets," says Thomas C.K. Yuen, SRS Labs' chairman, CEO and president.



SPARS Sound Bite

Regional Renaissance

By Kirk Imamura



We applaud *Mix* magazine's effort to host Mix Nashville. With its 180 recording studios, 130 music publishers, 100 live music clubs and 80 record labels, you would expect more industry events to take place in Nashville.

For professionals or those starting out in the industry who do not live in proximity to Los Angeles, New York, Nashville, San Francisco or even the secondary markets, the opportunity to attend industry events does not come easily. Yet there exist sustainable levels of business in various regions throughout the country, as we found in North Carolina recently at the urging of our immediate Past President, Eric Johnson.

The state boasts a burgeoning video game sector and increase in feature film work thanks to a new tax incentive. Asheville in particular is a progressive city and an emerging creative community, only a couple hours drive from Charlotte and not that much farther to Atlanta and Nashville. There's also the faculty and students from the University of North Carolina, Asheville (UNCA), Appalachian State University and Western Carolina University. Looking at all this, SPARS held the Asheville Studio Summit on March 31.

The venue, Echo Mountain Recording Studios, managed by Jessica Tomasin, is a well-equipped and sizable API facility that serves as an anchor studio in the region. We sold out at a hundred people, as we wanted to maintain the intimacy and allow for one-to-one interaction, especially for our popular Ask SPARS speed mentoring session, with career advice given by industry veterans from North Carolina, Atlanta, Nashville, Los Angeles and New York.

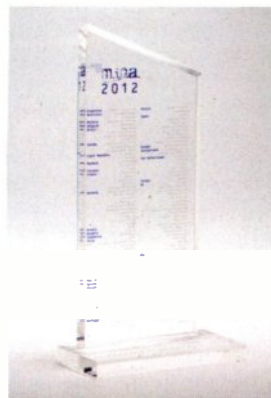
The Summit also include a studio tour, a presentation by Sean O'Connell, CEO of Music Allies/Creative Allies, titled "Specialist or Jack of All Trades," and a rare glimpse into Microsoft's Production Studios, to go with panel discussions on audio production and the recording business. Based on the event feedback, we believe the Summit was a great success and proved that this type of regional event is not only needed, but serves as an invaluable educational opportunity for the next generation of talent entering our industry.

2012 MIPA Awards

The following products won 2012 MIPA Awards in Frankfurt, Germany, during Musikmesse/Prolight + Sound on Thursday, March 22, 2012:

Pro Audio (Live)—Portable Sound: Yamaha DXR and DXS Series loudspeakers; P.A. System: JBL VTX Series line array systems; Live Microphone/IEM/Wireless Systems: Sennheiser SK5212; Sound System Technologies: Yamaha StageMix/iPad; Mixing Desk (Live): Midas Proz.

Studio—Studio Microphone: Microtech Gefell M930TS; Studio Monitor (Near-field): Focal SM9; Recording Software: Avid Pro Tools Version 10; Recording Hardware: Universal Audio Apollo audio interface; Mixing Desk (Project Studio): PreSonus StudioLive; Field Recorder: Zoom H2n; DAW Controller: Akai MPC Studio.



Visit the Musikmesse International Press Awards at www1.mipa-award.de.

MIXBLOGS



TechTicker

I haven't seen attendance numbers this year, but NAB seemed busier than ever. Every hall was jammed with attendees on hand to see what exhibitors were offering.

>>blog.mixonline.com/mixblog/category/techticker



Robair Report

Nobody likes rejection. Yet a thick skin is imperative if you want to survive in the music biz, whether you're doing work for hire or your own projects.

>>blog.mixonline.com/mixblog/category/robair_report



Ask Eddie

I recently had my students check out the Chris Lord Alge Classic Compressors video—primarily because it showed what he is listening for, one facet of Ear Training exercises that lead to the acquired skill set that eventually defines a mix engineer.

>>blog.mixonline.com/mixblog/category/ask_eddie

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Cool Spin:

Risa Bender: *Paper Heart*
(Warehouse Records)



Though singer/songwriter Risa Bender lives in Brooklyn, the Maryland native found the spark, the producer and the musicians she needed to cut her pleasing debut album, *Paper Hearts*, in Nashville. An airy synth pattern, snapping drum beat, quick and clean guitar rhythm and the arrival of Bender's lead vocal—up front, in your face—on the album's opening track, "You Made It Rain," immediately announce that this is no Nashville country record. This is smart, infectious pop music, tastefully produced by Marshall Altman (Natasha Bedingfield, Matt Nathanson) to showcase Bender's appealing voice and persona.

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SoundWorks Collection Update

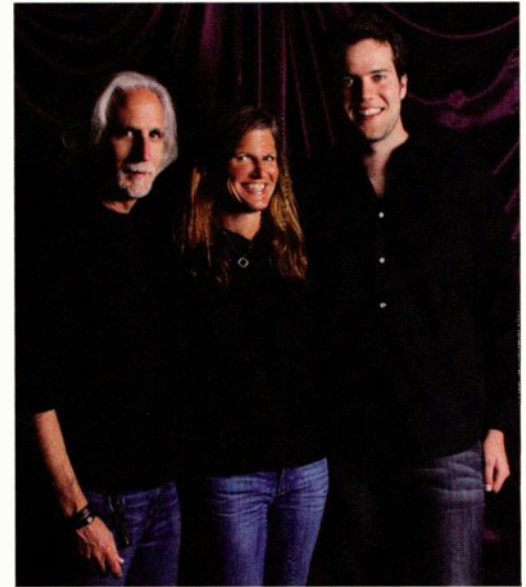
Dolby Atmos

DOLBY ATMOS
HEAR THE WHOLE PICTURE

The SoundWorks Collection is pleased to feature Dolby Atmos, announced at CinemaCon 2012, a new audio platform that revolutionizes cinema sound and delivers an end-to-end solution for the cinema. Dolby Atmos delivers a completely new listening experience, providing audiences an enveloping, natural and life-like sound experience by giving content creators unprecedented control over the placement and movement of sound within a movie theater. Dolby Atmos promises to revolutionize movie distribution by eliminating the need for multiple print masters: a single master will now play correctly in any theater.

>>mixonline.com/post/features/video_sound-works_collection

PopMark Media Update



Just what does the record label of 2012 look like, exactly? Austin's Playing in Traffic Records could very well represent the perfect model. Founded in 2009 by Austin area music executives, the group is not only doing quite a job signing well-known artists, but also bringing emerging talent to the national forefront. And somehow, they're doing it without compromising the very delicate balance between what audiences consider "indie" and what they consider "inauthentic." Check out the May installment of "Confessions of a Small Working Studio" to find out more.

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JIM EBDON AND ROYER LIVE

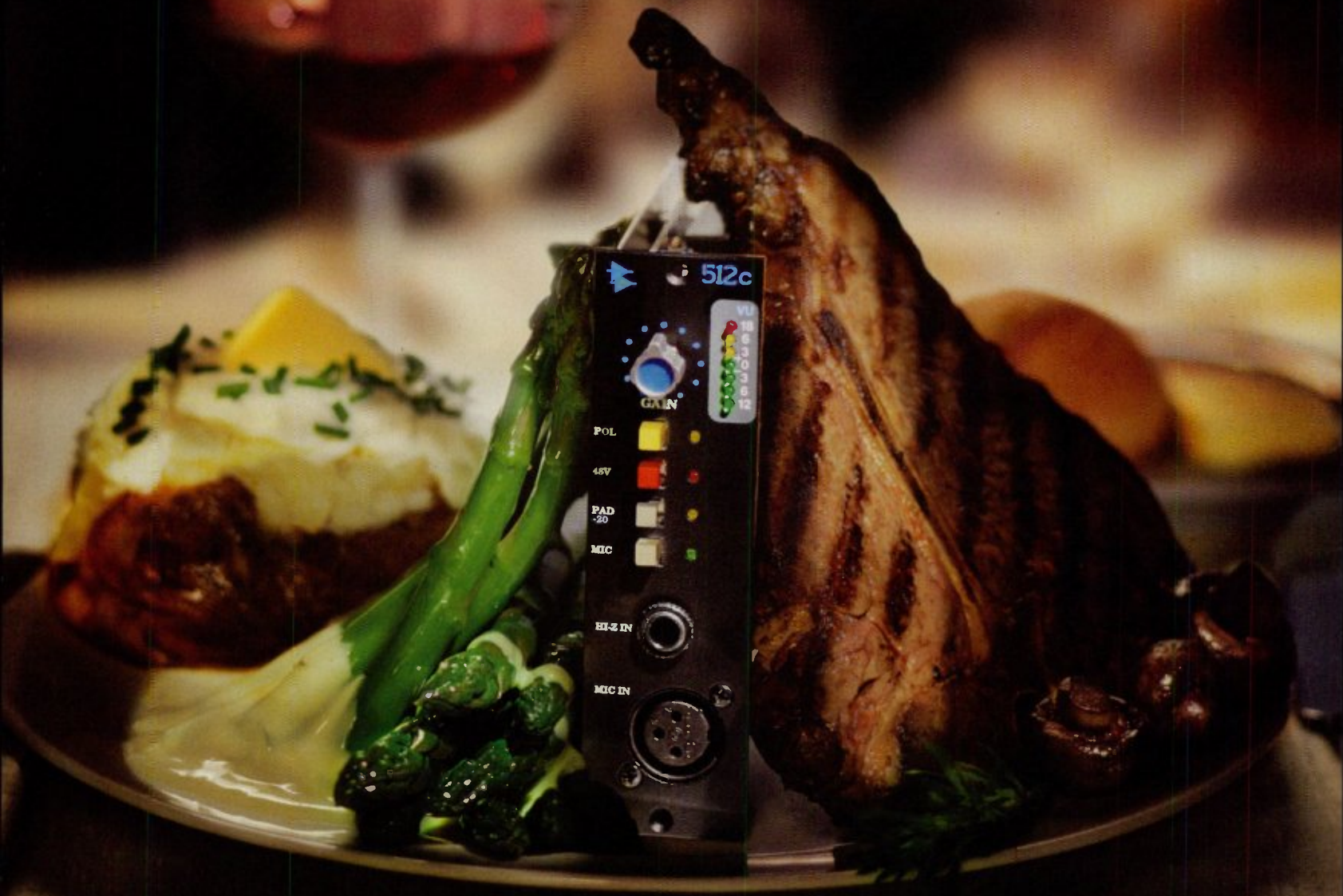
"Live guitars sound amazing with Royers on the cabinets - warm, natural, present and uncolored - and they stand out well in the mix.

I use a mix of R-101's and R-121 Lives with Maroon Five. The band loves the natural sound they get in their in-ear monitors."

Jim Ebdon
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On the Cover

By Blair Jackson

SOUND STAGE STUDIOS, NASHVILLE

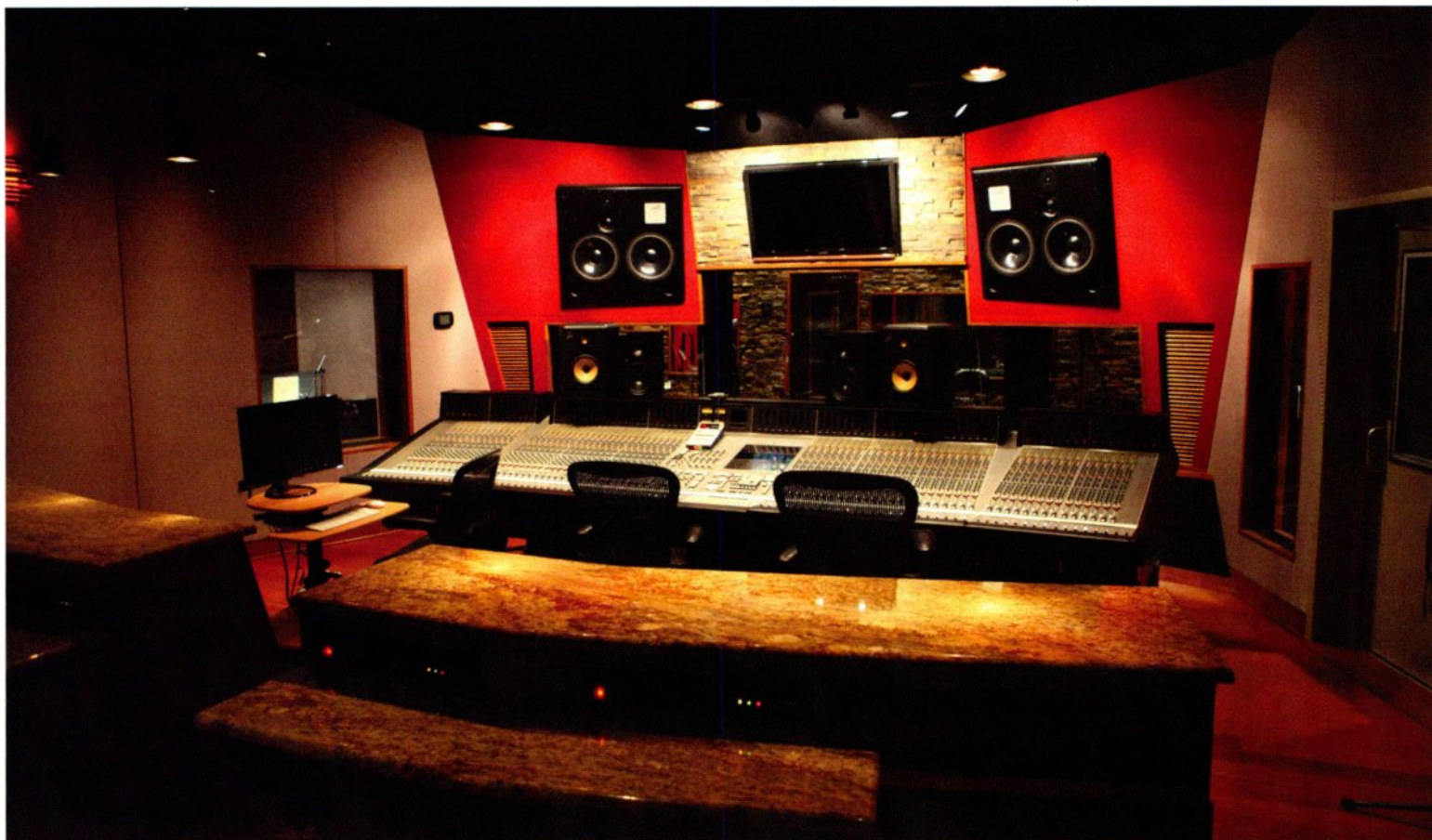


Photo: Mark Dreyer

Sound Stage Studios has been a fixture on Nashville's Music Row since it opened in the mid-'70s as the single-room Mercury Studios. More than 500 Number One singles and sales of more than 100 million albums later, the large Sound Stage Studios complex is still churning out the hits and projects big and small both for current country music royalty and artists from an assortment of other genres. The range of acts that have come through the studio's doors is staggering and includes such greats as George Strait, Lyle Lovett, Waylon Jennings, Merle Haggard, Dixie Chicks, Martina McBride, Wynonna Judd, Steve Earle (see this issue's "Classic Tracks"), Alan

Jackson, Sheryl Crow, Brooks & Dunn, Miranda Lambert, Lee Ann Womack and so many more.

Owned since the fall of 2010 by Black River Entertainment, Sound Stage recently completed an overhaul of its main room—Front Stage—and has made changes and upgrades throughout the four-studio facility, as well as the historic studio next door: Ronnie's Place, named for its former owner, country legend Ronnie Milsap. (When he owned it, it was called Groundstar, and before Milsap, it was Roy Orbison's studio for several years.) That building also houses the offices of Black River's record label, home to such acts as Sarah Darling, Craig Morgan, Due West and Glen Templeton.

The room now known as Front Stage was fairly successful from the get-go, but what really changed the fortunes of Sound Stage was the construction of the smaller Back Stage studio for producer and (later) record company mogul Jimmy Bowen. "All his projects were done there, like George Strait, Reba McEntire, Jimmy Buffett, Glen Campbell, and on and on," says engineer Chuck Ainlay, who has recorded hundreds of projects at Sound Stage and co-owned Back Stage for 12 years before Black River bought the whole facility. "They were all done in that little room in the back.

"Eventually Bowen got so busy, he had four or five different studios running all the time in



The Front Stage Tracking Room

Nashville, and he decided he wanted to have Front Stage Studio as part of his thing, too, so they re-did it for him," Ainlay continues. "He wanted the control room to be in the studio with the band, so for a long time there was no wall per se separating the control area. It was a hellacious nightmare trying to track. You'd have headphones full volume all day long and you'd walk out of there with your ears ringing. After he retired from the Nashville scene, they built a wall to separate the tracking area from the control room, but it was done on a limited budget and it got modified a couple of different times. Basically, the place needed a real serious overhaul."

Black River already had its offices at Ronnie's Place next door, "and we wanted to gain some more office and studio space, so we looked into Sound Stage and decided it would be a good investment for us," comments CEO Gordon Kerr, who, along with Terry and Kim Pegula, is part of the family ownership group that controls the company.

"Our desire is to be part of the Nashville community," says Kerr, who moved to Music City 18 months ago from upstate New York. "We believe in music and we believe in pursuing the best in whatever we do. When we looked at Sound Stage and the incredible history that it has, we naturally wanted to be a part of that and felt we could take this historic building and, more importantly, the people and the music that come from here, and try to provide an even better environment for those kinds of recordings to be made."

Continuity was important, and that's why Black River tapped Ainlay and the studio's current Head of Operations, Warren Rhoades—who had been working in various technical capacities at Sound Stage since 1991—to revamp Front Stage.

"Like most projects, when it started, we were just going to do a few things," Rhoades says. "We were going to redesign the studio drum area, but once we got into it there were more things we wanted to do. It was originally a Hidley room, and Hidley rooms take a lot of space—they have

more room and not as much trapping," Rhoades continues. "They like it a little live-sounding. So Chuck and I decided we would take out a lot of the baffling system and put in our own trapping system that didn't take up so much space. That gave us an extra eight to ten feet of ceiling height and probably another eight to ten feet of floor space for the drum room." A key feature of the room now is three sets of four motorized baffles in the ceiling "that look a little like airplane wings," Ainlay says. "You can open them up and they vent into trapping behind, so when they're opened, it deadens the room. Or you can close them to liven the room." Adds Rhoades, "You can change it easily from song to song, or adjust it just to affect the drums if you want; it turned out really cool."

Other changes instigated by Ainlay and Rhodes included relocating the machine room to give more space to the control room, and redoing the isolation between the different booths. "The Black River folks have been true to their word as far as making this a top-notch studio," Ainlay comments. "Just about everything we asked for, they let us do."

The 80-input SSL 9000J that resides in Front Stage's control room was the first of its kind in Nashville, and when Ainlay moved into Back Stage, he replaced the old Neve with a 64-input 9000J. "I came up on SSL 4000s, and when I got a chance to get a 9000, I jumped at it," says Ainlay, who estimates he still does about 90 percent of his work at Sound Stage. "If that board or the one in Front Stage needs parts, modules can be swapped, and this, that and the other. It's a lot easier to run a facility that's based around one platform. The other console upstairs [Up Stage] now is a 48-channel SSL 6000E—they

a lot of trapping and a lot of hanging baffles. We had this great big space but it had been designed so it was all baffled and deadened and turned it into a smaller space. That was the way things were done in the '80s.

"Now, people want

did have an [SSL] AWS, but that's gone. That 6000 is a nice little console that everybody can run, and it's a good-sounding room."

The other rooms at Sound Stage include Drive Thru, a smaller digital production studio based around a Pro Control, and Up Stage, which is pitched as a more economical alternative for smaller recording, mixing and editing projects. All four recording rooms are equipped with a slew of state-of-the-art outboard gear, microphones and the latest plug-ins available throughout the building.

"On our campus as a whole, we can cater to anyone, whether it be a local rock group, or an indie rock band from Portland, Oregon, or a country singer/songwriter," says studio GM (and engineer) Nick Autry, another holdover from the pre-Black River days. "You have to be able to provide for any level of songwriter or musician who's in need of recording. The beauty of having several studios at Sound Stage is in the ability to provide a specific studio to meet your individual needs.

"A lot of people say, 'Well, I just want to track the drums, it's all I can really afford,'" Autry continues. "But with so many people now, once they get in here and see what they can do in a studio like ours, they end up wanting to do more and we make sure we can figure out a way to make that happen."

Kerr comments, "Excellence is excellence, whether you're making a demo or you're recording Miranda Lambert or Lee Ann Womack, Thompson Square or George Strait. For us, it's all about partnerships and providing opportunities for people to be able to feel like this is their creative home." ■



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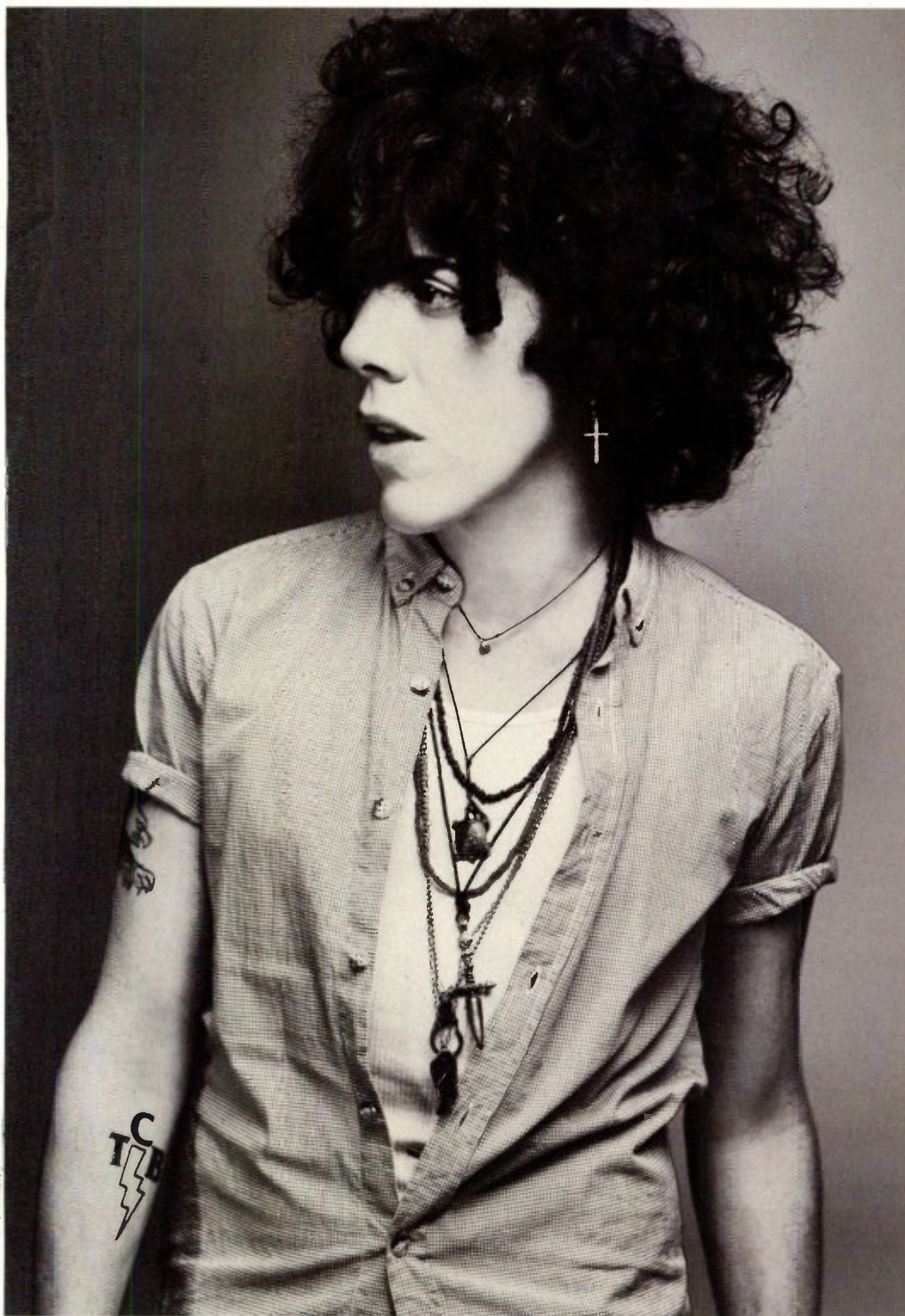
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LP AT EASTWEST

A New Model Rock Star

By Bud Scoppa

Standing on a stage surrounded by her band in the packed tracking room of Hollywood's EastWest Studios, LP looks like she's just stepped out of a scene in Todd Haynes' Bob Dylan fantasia, *I'm Not There*, as one of the film's multiple Dylans. A mop of Dionysian curls, a la the inscrutable figure on the cover of *Blonde on Blonde*, nearly hides her face, and her slender frame is encased in a snug black jacket and pants. She strums a riff on a ukulele, of all things, and launches into the opening number of her mini-set, which, like the four songs that will follow, erupts into a monumental chorus that recalls Bruce Springsteen in his mid-'70s glory days, her voice rising to hit impossibly high notes with jaw-dropping power. Even her moniker (it's short for Laura Pergolizzi) connotes a bygone era. But if LP's signifiers vividly evoke the past, her creative process does not.

That remarkable voice is already familiar from Citibank's use of the "Somebody left the gate open" line from her song "Into the Wild" in a ubiquitous TV spot. But LP gets her first widespread exposure under her own moniker on April 25, when Warner Bros. Records releases the performance as the CD+DVD *Into the Wild: Live From EastWest Studios*. The idea for the EP came from label chairman and house producer Rob Cavallo, hoping to capture lightning in a bottle before turning his attention to the recording of her full-length album.

Cavallo and Doug McKean, the producer's regular engineer for the past 10 years, consid-



Photo: Tamzin Brown

ered several studios before choosing EastWest Studio A for its combination of roominess, excellent lighting and top-end gear. McKean recorded the performance from the other side of the glass using the control room's 80-channel Neve 8078 running Pro Tools 10. Afterward, he prepared a Pro Tools session for the Warner Bros. in-house video crew, and staff engineer Adam Hawkins later mixed the five tracks to picture. LP, who favors Neumann and Blue Kiwi mics for studio recording, decided to go with a Shure PGX2/PG58 wireless because it allowed her to move freely around the stage. "It was a pretty flat microphone and she's a powerhouse singer, so it sounded pretty good," says McKean.

Like other so-called overnight sensations, LP put in years of hard work before being hailed by many as one of 2012's most intriguing new artists. "My perspective is somewhat unique because of what I've gone through," she says. The New York native was fronting an indie-rock band and playing 200 shows a year when her breakout performance at South by Southwest in 2006 led to a deal with Island Def Jam, whose then-head

L.A. Reid proceeded to put the youngster through songwriting boot camp. During the next year, LP focused solely and intensively on collaborating—or "bulk writing," as she puts it—with an assortment of pros before IDJ dropped her. She spent the next year on indie label, SoBe.

"Everything leads to something," she explains. "Through these label deals I met a lot of writers, and I kept writing with them. Then I got a publishing deal with Primary Wave, and they were hooking me up, and so was my manager at the time. I really hustled. I wanted to make a living as a songwriter; I loved the anonymity of it."

It was during this period that she began writing on the ukulele. "At the time I was writing a lot of urban stuff, and I'd take my ukulele to sessions, which threw a lot of people," she recalls with a laugh. "But I just fell in love with the ukulele; it gave me a completely different perspective from the guitar. The fact that it's a little bit 'off' makes you think differently."

In late 2009, LP's manager encouraged her to become a performing artist again. "I said, 'Okay, man, but I'm not changing shit. I'm playing the ukulele—this is it,'" she says. "Then, in mid-2010, RedOne signed me to a production deal, and I figured, okay, I'll be an artist, but he's one of the biggest producers in the world—I'll also start writing with his people. At the same time, I decided I wanted to play out again, but I was having trouble finding musicians."

That changed one fateful night in early 2011 when she stepped on the stage of Bardot in Hol-

lywood during one of the club's Thursday night events in which moonlighting session musicians and visiting vocalists tackle cover songs. "That was the night my band was born," she says, "because, after I sang a song, every musician on the stage and in the house gave me their card. I became a fixture, and A&R people started coming down to see me, which was totally unexpected. The first time I did one of my own songs, everybody flipped out. I realized I was onto something, so I ended the production deal. I said, 'Red, I found out what I want to do.'"

LP made the decision just as her writing career was taking off. Her co-writes included Christina Aguilera's "Beautiful People" from the soundtrack to the 2010 film *Burlesque* and Rihanna's 2011 hit single "Cheers."

"So I had this band," she continues, "but I didn't have material, and I wasn't interested in doing the artist thing without having songs I cared about. When I was writing songs for other people, I was editing me out of them, which is good—I was writing for them. But when I started writing songs for me, I decided to do whatever I felt like. I can sing really high and I enjoy it—I'm a belter—so I didn't hold back. And then the songs started coming, one after the other. I was writing because these songs went somewhere, and I started to get very in tune with what was working."

Since signing with Warner Bros. last September, LP has skewed the writer/artist formula in a radical way, penning her intensely personal songs in collaboration with the writer/producers she'd been working with as a hired gun—primarily the versatile PJ Bianco, Isa Summers of Florence + the Machine, and the team of Carl Ryden and Marc Nelkin. "I really enjoy bouncing stuff off someone else and tapping into their energy," she explains. "The way we write for other people's sessions carries over to my own thing," she says.

LP has come up with a new model for the writer/artist, discarding the traditional romantic notion of what is considered authentic self-expression in favor of a pragmatic attitude fueled primarily by her work ethic.

"I think of it as a job, but a cool job," she says. "Some people would say that takes the soul out of it. I don't find that. I feel very inspired by having to be there in the room. I'm just interested in the work. I feel like I have to do what I love. Songwriting is hard enough; if I didn't love it, it would be a bitch. But you have to go through it—it's the process. I didn't get into this because I wanted to be massively famous. To me, fame is a by-product of writing songs you love and doing great work. It'd be nice to be a pop star and a career artist. Why not be both?" ■

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Read Mix's "On the Cover" story on EastWest, and watch LP's video for "Into the Wild" mixonline.com/may_2012



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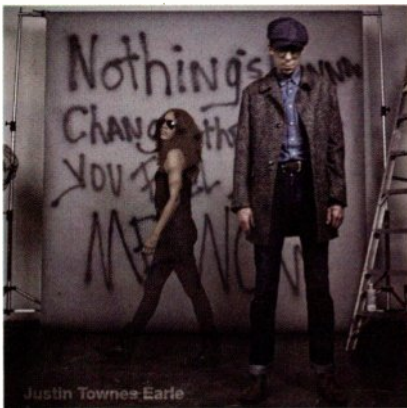
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MARTY STUART AT OMNISOUND

Mick Conley is equally at ease in the studio or at front-of-house. He has it both ways with Marty Stuart: "I'm crazy enough to do both, and it keeps me very employed," he says. Conley recorded and mixed Stuart's terrific *Nashville Vol. 1: Tear the Woodpile Down* in Omnisound Studios. He says he cut everything fairly flat, with no compression and just a little EQ on drums, into Cubase. Stuart and his band of top-shelf players make it relatively easy to get great sounds, but Conley says he always finds upright bass most difficult challenging.

"That one drives me batty sometimes; I call it the devil's instrument, especially live," he says. "In the studio, I used one old RCA DX-77. It sounds natural. I've done multimiking with good results, but this record needed to have a classic country sound. The RCA is full-bodied, and when you do any kind of slaps, the transients are tamed, so it doesn't sound harsh. We've been using more and more ribbon mics. Marty's got a gospel record in the can right now, too, and we used the AEA A440 on his vocals on both records, and it's just brilliant.

"On the backside, I knew I was going to use the Studer 800 UAD plug-in," Conley continues. "That is one of the huge sounds of this record—knowing I could manipulate 'tape' on a per-instrument basis." Conley also used the SSL Duende native bundle, which he says, "just blew my mind." He finds it to be a great advantage that, working with Stuart live and in the studio, he hears their songs at every stage. "They rehearse at shows and at soundcheck, and we tweak things along the way. It's an extremely collaborative process. Marty knows what he's going after, but all opinions are welcome." —Barbara Schultz



JUSTIN TOWNES EARLE IN ASHEVILLE AND NASHVILLE

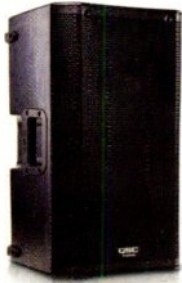
Engineer Adam Bednarik recorded Justin Townes Earle's latest album *Nothing's Gonna Change the Way You Feel About Me Now* with all nine band members live to a Studer A800 machine in Echo Mountain Studios (Asheville, N.C.). "We were in the room that's called The Church," Bednarik says. "The tracking space is humongous, with high ceilings. That room has a Neve 8068 console, and even better: It's all loaded with 31102 modules." When they had their take, Bednarik transferred his files to Pro Tools and brought them back to Nashville's House of David Studios; he mixed in Pro Tools, but broke it out on HOD's API console. "That's my favorite way to work," Bednarik says, "record through a Neve but mix on the API." The sound of the record is a beautiful, subtle evolution from previous JTE efforts, with atmospheric horn parts on every track. "I love that every record we do is different," Bednarik says. —Barbara Schultz

WACOS AND PAUL BURCH MAKE GREAT CHICAGO FIRE

For the Waco Brothers' latest cowpunk record, they went into the studio with labelmate musician/producer Paul Burch. "In Nashville [where Burch lives and works], you're very thoughtful about sounds, whereas the Wacos go in and bash it out," Burch says. "But I think the Wacos hoped I would help them make a record that would be a little more detailed. We ended up in the middle, where compared to their other records there's more detail, but we recorded the whole thing in about five hours!" The musicians tracked live to Pro Tools in the big room at Engine Studios (Chicago). Burch then mixed in his Nashville studio, Pan American Sound. It was trial by fire as he made his first foray into digital mixing: "It was more just balancing really," Burch says. "I turned the faders up and ran it through two inexpensive Mackies, and that's the record. I hope people like it. It was made out of friendship, really fast." —Barbara Schultz.



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Classic Tracks

By Blair Jackson



STEVE EARLE

“Guitar Town”

Steve Earle wasn't exactly Nashville's new kid in town when he shocked the country music establishment in 1986 by landing his debut album, *Guitar Town*, at the top of *Billboard's* country albums chart and the title track in the Top Ten of the country singles chart. The Texas native was 31 and had been kicking around Music City on and off since the mid-'70s, establishing a rep along the way as one of the better young songwriters on the scene—he'd had songs recorded by such artists as Vince Gill, Patty Loveless, Carl Perkins, Johnny Lee, Steve Wariner and Connie Smith. With influences including early rockabilly, The Beatles, his good friend Townes Van Zandt (“a real good teacher and a real bad role model,” Earle once said), Bob Dylan and Bruce Springsteen, he wasn't cut from traditional country cloth, “but I consider myself a country singer,” he told *Rolling Stone* in 1986.

In 1983 Earle signed with CBS, and over the next couple of years, fronting a spare rockabilly trio, put out several unsuccessful singles and an EP

called *Pink and Black*. This was a time when the Stray Cats were struttin' their rockabilly stuff, former punk rockers The Dils had transformed into the “cowpunk” Rank and File, and L.A.-area bands such as X, The Blasters and Lone Justice were fusing country roots with edgy rock 'n' roll. Earle even went to L.A. for a period to see if perhaps he might fit into that burgeoning scene, but didn't last long before returning to Nashville. By the middle of 1985, he had written a new batch of tunes that interested rising MCA producer Tony Brown, so with a small group of local players, Earle cut some demos in hopes of starting fresh in the record business.

The demo studio was a room in the Oak Ridge Boys' Silverline/Goldline Music building, and for that session Brown tapped Chuck Ainlay, who had been working out at Castle Studios, to engineer. The small band around Earle consisted mostly of transplants from the L.A. studio scene: “We were all not really country people that did the record,” comments Ainlay. “[Drummer] Harry Stinson had moved here from L.A. so he had this pop sensibility, and a great voice as well. [Guitarist] Richard Bennett had moved here from L.A. and he had been with Neil Diamond for many years. John Jarvis was another L.A. player; he played some keyboards.” Bassist Emory Gordy was from the South but had established himself in L.A., too.

“We actually moved to Nashville at Steve's encouragement,” Bennett says, “as well as some other people, like [MCA Nashville head] Jimmy Bowen, who I was working for back in L.A. when he was there, and Tony Brown and Emory Gordy, who were very encouraging. Steve had come to spend a week or so with us in L.A. just prior to *Guitar Town*, and we were sitting around the kitchen table having coffee one morning and he said, ‘You know, you should just move to Nashville.’ He was always very positive. So we just said ‘Yes!’

It was kind of that simple. I'd grown up listening to country music

and sort of worshipping Nashville from afar, and then for a couple of years prior to us moving, had been commuting there and playing on projects and really began enjoying it from within. So I was ready for a change. I'd been friendly with Steve for a little while and I'd played on some of the things he was doing when he was an artist on Epic, just prior to MCA.

“We worked out a helluva lot of that album before ever setting foot in a studio to officially record it,” Bennett continues. “I'd say a good 90 to 95 percent of that was worked up in the demo studio; the arrangements and such. It was common to do demos, of course, but what was not common was to go in and rehearse an album that way. So when we went in to record the album, we pretty much knew what we were going to do.

“We didn't want to go in cold. We wanted it to feel more like a real band than a bunch of session guys. Once we went in and actually cut the record, things changed here and there and we were all flexible enough for that to happen, but for the most part we had the blueprint for that album.”



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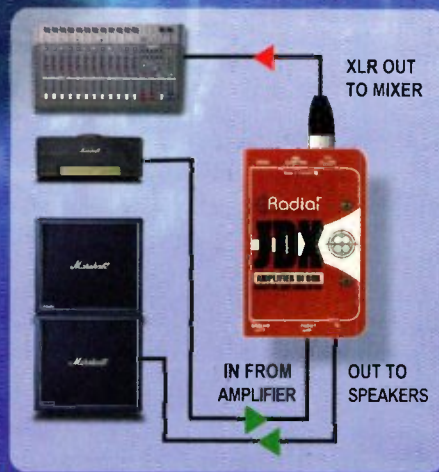
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Ainlay recalls, "Tony played the demos [including the song "Guitar Town"] for Jimmy Bowen, and though I'm not sure Jimmy totally bought into it, he said, 'Okay, Tony, if you really think this guy has it...' So, Tony ended up signing him," and then stipulated that the album be recorded at Sound Stage Studios' Back Stage room, "because it was a smaller studio than, say, Emerald was, or some of the other hip studios in town at the time. It had a beautiful old Neve 8068 desk, which I wish I had now, because it's still my favorite desk for tracking." (It currently resides in Nashville's Quad Studios.)

Part of Bowen's mission at the time was to make Nashville a hub for digital recording, and that was part of the reason he and Brown wanted to work with Ainlay. "Out at Castle, we had gotten the 3M machine, so it was the first digital studio in Nashville," the engineer says. "We also put in an SSL 4000, so we were ahead of the curve technically. Bowen came out there and I showed him how great it was to have VCA automation, as opposed to the NECAM II that was on the 8068—it took two hands to move the faders, so trying to do a delicate ride on the vocal is almost impossible. Then I showed him how you could comp on digital and there was no generation loss. That's what sold him on the whole digital thing. So he said, 'If you want my business, you have to have a Mitsubishi and an SSL. That's how Nashville became digital so quick.'" Back Stage didn't have the SSL (yet), but it did have a Mitsubishi X-800 32-track 1-inch digital recorder, along with then-fashionable AMS and Lexicon digital reverbs.

"The Mitsubishi sounded terrible; the 3M was much better," Ainlay says with a chuckle. "To my ears, I listen to that *Guitar Town* album and it's really kind of thinned out and it kills you with brightness. Digital sounds so much better today, obviously."

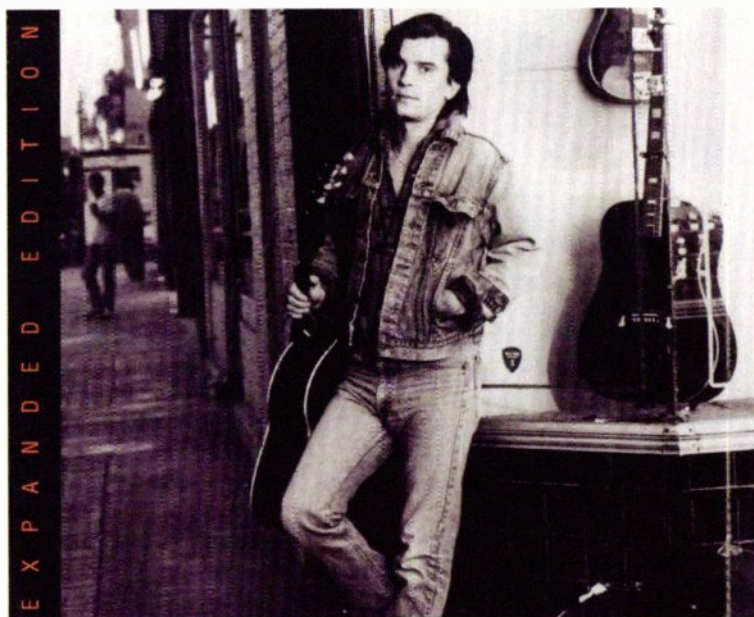
"It was a bit brittle," Bennett agrees. "I never coozied up to what that album sounded like sonically. It has nothing to do with Chuck. It was that machine."

Because the previously mentioned core band for the *Guitar Town* album—augmented by pedal steel player Paul Franklin and three different keyboardists (John Jarvis, Steve Nathan and Ken Moore)—was well-rehearsed and had largely worked out the arrangements, the recording was fairly straightforward. It was tracked live in the studio, with Earle singing and playing guitar with the band (though in an iso booth). "I used a [Neumann] 47 on his vocal, which later I kind of regretted," Ainlay says, "because Steve can really put out some volume, so on some of the tracks, if you listen closely, the vocal is a little overloaded. In the end, though, it gave it some attitude."

"That little room sounds awesome for drums," he adds, "but it's a tight, contained sound; it's not a big trashy room sound. That's part of the character of that album. It's tight, in your face, and all the sounds are kind of upfront."

"Basically we'd go in at 2 o'clock and track for two sessions—work until 10 or 11," Ainlay says. "Then in the morning Richard would come in and he and I would sit in the control room for three or four hours before everybody would turn up and we'd work on the guitar parts. One thing we did on that record is, I had bought this Drawmer 1960 tube compressor that had a guitar input. Rockmans were popular at the time, and my idea was to create a high-quality Rockman by using AMS and Lexicon delays and whatnot, and route the signal out of the guitar input and come back in and squash it all down like a Rockman did."

"Guitar Town" is a classic "road" song about an itinerant musician who



"followed that voice down the lost highway" and "got a two-pack habit and a motel tan." With its big, cracking drum beat, '60s-style organ and retro guitar sound, it resembles some of Bruce Springsteen's country- and rockabilly-flavored songs from that era—"Working on the Highway," "Glory Days," "Goin' Down"—and Earle has acknowledged that influence. Still, it feels original because the persona in the song (and throughout the album) comes through so strongly. "It also has this sort of hillbilly thing going on, which is very much Steve's passion and my passion, too," Bennett says. "Even though I come from L.A., my roots were '50s hillbilly music and earlier. I learned how to play guitar [by] playing '40s and '50s country music."

Of the title track, Bennett says, "When we were working up 'Guitar Town,' Steve and I came to the brilliant decision that because it was called 'Guitar Town,' the obvious thing to do would be to put a guitar solo in these holes in the song. But because it was obvious, we decided it was what we weren't going to do. So Ken Moore, who was the keyboard player on that, got a cool little party organ sound going. We thought, 'Good, that's what's going to fill that hole.' When we got to the studio and cut the track, everybody was thrilled, but Emory Gordy, who was co-producing, took me off to the side and said, 'Why don't you get a guitar and try something in there?' I said, 'Man, we decided that it was way too obvious.' He said, 'Yeah, I know, but just try it.' So I went off in a huff—I was pissed off, to be honest with you—and I went in and grabbed the first thing in my pile, which was a Danelectro six-string bass, and I said, 'Well, this'll show him!' I plugged it into a little Princeton amp, they put it in Record, we ran down a pass and that was that. It was just right. So, in the end, smarter people than I were correct," he laughs.

The single and album helped put Steve Earle on the map and established him in both the rock and country worlds. "We loved the record, but we were still surprised when it became a hit," Ainlay says. "We figured, because it was a little outrageous for Nashville, that the album would get some critical acclaim, but we never expected it to take off the way it did. In the end, I don't think it really sold all that many records. But everybody talked about it. It was one of those kinds of records. It was different." ■

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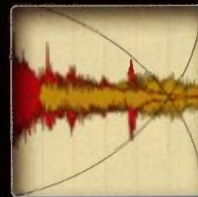
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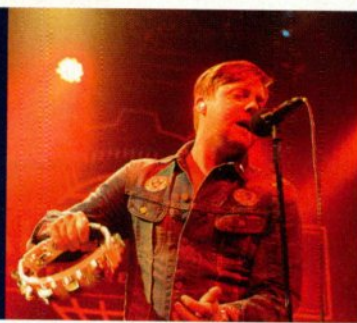
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Mumford & Sons, Old Crow Medicine Show and Jerry Douglas doing "Wagon Wheel" during Mumford's recent sold-out, three-night run at the Ryman.

Photo: Erika Goldring

THE RYMAN TODAY

New Stage for Historic Venue

By Barbara Schultz

A few months ago, Nashville's storied Ryman Auditorium went dark for three weeks while the stage was replaced. The old stage, in place since 1951, was showing wear, and the Ryman staff took advantage of the opportunity to add further structural support to increase the stage's weight capacity. The new Brazilian teak stage is beautiful and stronger than ever, but now there's a question on a lot of Nashvillians' minds: What are they going to do with the old wood?

"I never got so many emails from people," says the Ryman's chief engineer, Les Banks. "Everyone

requesting pieces of wood, pieces of history."

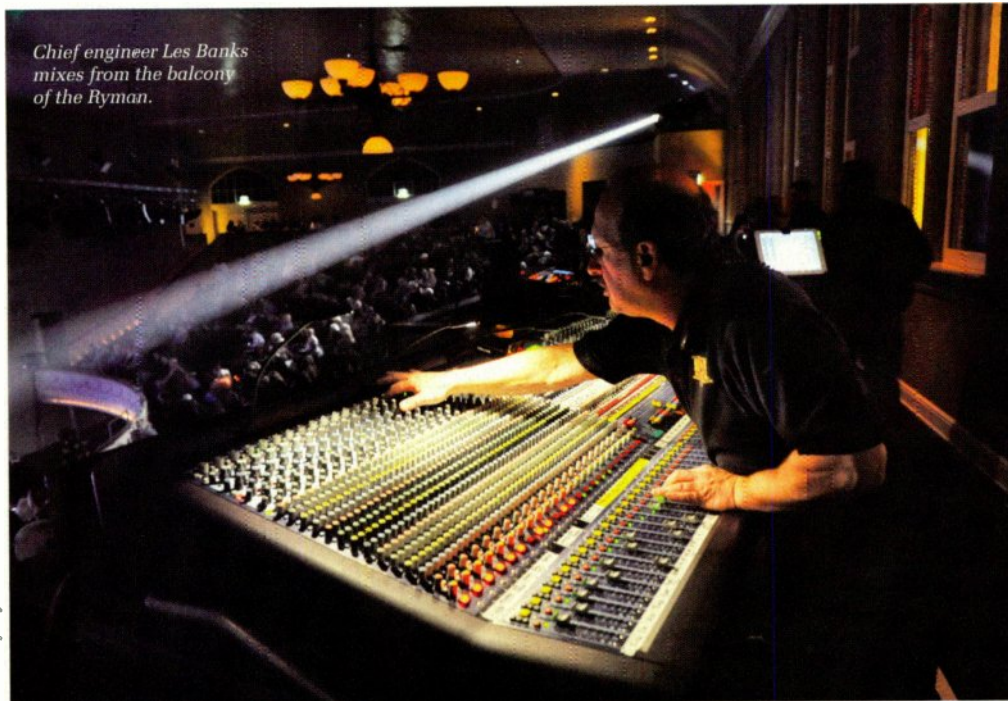
For now, the boards walked by legends from Hank to Elvis, from Patsy to Emmylou, are being stored at an undisclosed location. Banks says the wood was removed under strict security, and he speculates that pieces may be sold at some point, "like the seats from Yankee Stadium." But meanwhile, he says, "I was just told no one's allowed to remove any wood from the Ryman."

This sort of thing comes with the territory of working in a place where so much musical history has taken place. Banks has become something of a historian and caretaker, as well as occasional

front-of-house mixer, and—for 80 percent of the acts that come in—a technical expert and guide for visiting engineers.

"We're a museum open to the public," Banks says of the venue many call the Mother Church of Country Music. "People come by and ask what we do here, and I say, 'We do rock 'n' roll, country, weddings and sometimes funerals.' We've had open-casket funerals here for Chet Atkins, Bill Monroe and Eddie Arnold, and we had amazing memorial tributes to Johnny Cash and Tammy Wynette."

Banks, a 30-year concert sound man, has been the Ryman's full-time audio engineer since he came off the road in 2000, but he can tell tales about the Ryman's Opry days as though he'd been there. He will talk about how before the proscenium was added in '94, the balcony seats and pews ran all the way to the upstage wall, so in the days before the Opry moved to Gaylord Opryland,



Chief engineer Les Banks mixes from the balcony of the Ryman.

"You could hand your autograph book down to Hank Williams before he went onstage, and he'd sign it and hand it right back up to you." Or he'll tell a joke—doing a pretty good Little Jimmy Dickens impression—that he says is one of the same jokes the 91-year-old Opry veteran has been telling for decades.

"I absolutely love this place, and I'm proud of it," Banks says. "We have respect for history; we are history."

One of the most gratifying aspects of Banks' job is to help touring engineers manage the challenging acoustics of the 2,362-seat auditorium. "The seating is all original hardwood pews [dating back to the 1890s]," he points out. "There are so many reflective surfaces, and the biggest challenge is the absolutely phenomenal difference between the empty Ryman at soundcheck and a full house that night. It's night-and-day different; to this day I get freaked out by how loud everything is when it's empty."

Lesson one in coaxing a nice mix from the Ryman, Banks says, is to turn down the volume: "People will ask me, 'What's your dB limit?' And I answer, 'Common sense.' Just take a deep breath and be sensitive to the room. And while they're upstairs [at the mix position], I'll take the wireless [Dolby] Lake tablet and walk downstairs. I'm their assistant for the day, so they don't have to run around."

Most productions that visit the Ryman bring

in their own gear and simply tie into house stacks and racks. The venue is equipped with a Yamaha PM5D board at front-of-house and a JBL VerTec P.A. system. The visitor's console and house console are routed to a BSS Audio Soundweb London Architect matrix, which distributes signal to all zones; speakers are managed by the Lake system. Stage monitors are recently acquired L-Acoustics 115XT1Q wedges. The venue also keeps a large supply of mics from Shure and others.

Though much of the Ryman's gear doesn't see action daily, it's all very much needed during the holidays, when a popular Christmas program is put on at the Grand Ole Opry, displacing regular live shows/broadcasts. For those three months every year, the Opry comes back to the Ryman, as it did, unscheduled, when the Cumberland River overflowed its banks in May 2010.

"The river got as far as 3rd Avenue, and we're between 4th and 5th," says Banks. "So we got very lucky. But water in the Opry House got to be four feet high, and they were underwater for two weeks." Audio equipment, archived performance tapes and loads of other memorabilia were damaged.

"But as long as you can breathe, life goes on, and the show went on," says Banks. "I've got to give credit to my Opry colleagues, the audio and technical folks over there. The Opry radio show started in 1925 and in 85 or 86 years, they have

never missed a live radio broadcast. The flood was on a Sunday, and the next Opry was on a Tuesday. In 48 hours, the Opry had become a road show, playing at different venues around town. We hosted 48 shows for them during the reconstruction, and so many people came to our assistance. SIR provided all the backline we needed. Shure microphones replaced all the mics needed by the show."

Other venues that hosted flood-displaced Opry shows included David Lipscomb University, Two Rivers Baptist Church, Nashville's Municipal Auditorium, and the War Memorial Auditorium, which was actually home to the Opry from '39 to '43, before the program moved to the Ryman. But the Ryman was the logical choice for most performances—not just because of its historical relationship to the program, but because the venue has an in-house recording/broadcast studio that's Opry-ready.

"We have ISDN and T1 lines directly to the radio station," Banks points out. "It's a fully functional studio with a Harrison Trion console, 120 tracks of Nuendo, Phantom Focus monitors, and we do live recording projects. We recorded Alan Jackson's gospel record [*Precious Memories*] here."

Even when the Opry is operating at full power, the Ryman hosts 200-plus shows a year. Recent visitors include Mumford & Sons (three sold-out shows), Snow Patrol, Merle Haggard, and the Tedeschi Trucks Band.

"The Ryman's not an easy room to mix," Banks says, "but even the most hardcore road crews come in and get mellowed out because they're honored to be here. It makes people happy, and when you look around and see 2,000-plus people smiling, you know everyone feels it. Some of our ushers are 80 years old, and even if we have a loud rock band in here, they'll say, 'Oh, Les, that was a good show!' When that happens, you know that everyone felt it. Everyone went along on the same ride, and that's why we do it." ■


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See the Ryman's interactive historical timeline that details important events and personalities. mixonline.com/may2012



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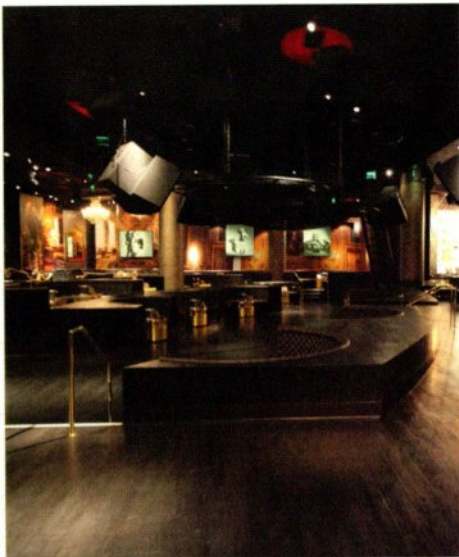
With more than three decades of drumming alongside notable acts such as BB King, Quincy Jones, Edgar Winter, Chuck Rainey and currently Juice Newton, among a list of others, Rick Latham relies on AKG Drum Set Groove Pack. It contains six high-performance microphones from Perception Live Series packaged in a protective aluminum case with clamps and adapters.

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World Radio History

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Most of the time, I don't have to do much EQ'ing on [Deborah Harry], but there are times when I have to. She [sometimes] sings off the mic, and on certain notes, she likes to eat the mic a little bit. Because of that proximity effect, as she moves into the mic, low end gets created and it needs to be taken care of somehow. Using the frequency-selective compression [on the DiGiCo SD8], I can compress those frequencies that tend to stick out, as she gets closer to the mic. That alone is a godsend and it changes the way I feel about her vocals. It's specifically incredible! My entire drum mix goes to two separate stereo buses, and both of them are compressed differently. One is compressed so that it takes the entire kit and levels the whole thing out super-smooth, almost too smooth for live. For the second set, I use really light compression so the drums really pop out. Mixing those two together gives me a drum mix that sits right in the pocket, yet still has a lot of life to it, with a punchy kick drum and punchy snare.



GALLERY'S JBL SYSTEM MEETS CHALLENGES

The new Gallery Nightclub in Las Vegas is a multiroom venue that has already hosted artists such as Nicki Minaj, Akon, Cee Lo Green, LL Cool J and others. Space is divided between the Gallery room, dance floor and the Pussy-cat Dolls Lounge for a total capacity of 1,000. R2W Inc. (Las Vegas) designed and installed the audio system, which includes more than 90 JBL AE Series and Control Contractor Series speakers, all powered by Crown amps.

"We had the opportunity to provide a system that was 100-percent new," says David Starck, director of engineering for R2W. "That enabled us to create an integrated system with JBL loudspeakers, Crown amplifiers and BSS processing—all working together and controllable via a simple user interface.

"We faced a number of acoustical challenges," Starck continues. "The main room [had] all hard surfaces. The only sound absorption is the thousand bodies that fill the room every night. The owners wanted the people paying for their tables to be able to hold a conversation, but still have a powerful system for the dance floor. This is typical for most clubs in Vegas now, and it's difficult to achieve this kind of acoustic balancing act, as there is no physical division between the tables and the dance floor. To overcome this, we designed a very focused, very high-powered system over the dance floor. The main clusters are angled down so the bulk of the speakers' output stays there when the dance floor is filled with people. We fill the rest of the room with sound by a ring of speakers that is aimed out and away from the floor. This also helps to keep everything time-aligned outwardly from the dance floor."

LUCERO: BIGGER SOUND IN BIGGER CLUBS

Justin Hess has been mixing Lucero's live sound for three years, and he's seen the group go from a four-piece roots rock group to their current incarnation as an eight-piece Memphis soul band, adding keyboards, pedal steel and horns. The increase in sonic volume and dimension has also led to a growing fan base. A few years ago, the band played 250- to 500-capacity clubs; now out supporting their recent album *Women and Work*, Lucero recently completed a run opening for Social Distortion, and they're headlining 1,200-person venues around the country. They've also been able to add a dedicated monitor engineer, Joseph Brown, to their crew.

"We have twice as many pieces onstage now," says Hess, who carries backline only on the road. "Lucero has a certain raw sound; that's their roots, and I kind of like to keep it that way, but since they started to change their sound a little bit, I do try to make their shows sound like the newer records. Ben [Nichols] sings into a Beta 57, and the main thing is for me to keep his vocals on top of everything, including the horns. They have some hardcore fans who want to hear all the words. The more they can hear the words, the more they'll sing along and the more energy there is in the venue, and the more fun everyone will have."



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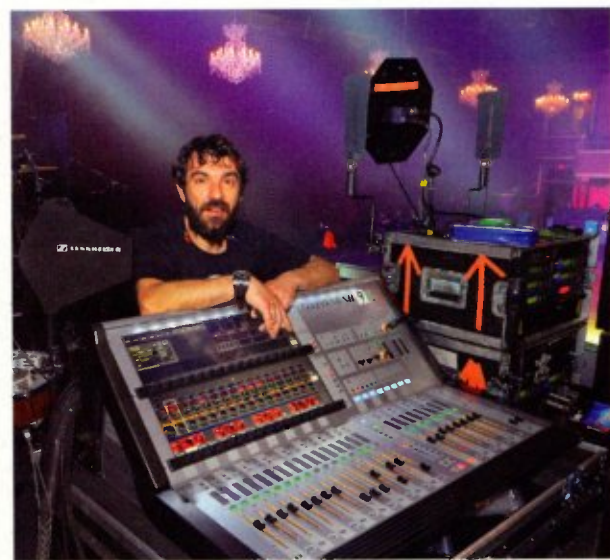
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KAISER CHIEFS



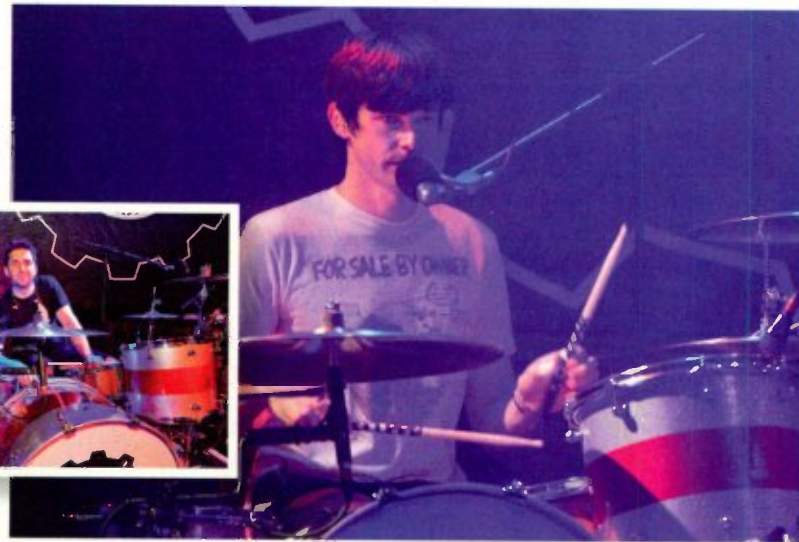
Lead singer Ricky Wilson

Indie rockers The Kaiser Chiefs—out in support of their latest release, *Start the Revolution Without Me*—touched down at San Francisco's Fillmore Auditorium in March. The band is fronted by **lead singer Ricky Wilson**, who sings into a Sennheiser e935 wired mic, a Sennheiser SKM935 G2 wireless or a Placid Audio Copperphone. Front-of-house engineer Chris Leckie mixes the band using house equipment and locally sourced equipment on the tour. For their recent Fillmore show in San Francisco, Leckie says, "I opted to use the house console—a Midas Heritage 2000. When given an analog desk and a rack of old-school outboard, I select equipment that I'm comfortable using. The dbx 160 and 166 compressors are as basic as you can find, but still work well and do the job; there still isn't a better gate than the trusty Drawmer DS201. In terms of reverbs, I admit to being stuck in the '80s and '90s; I like to see anything with SPX written on it!"



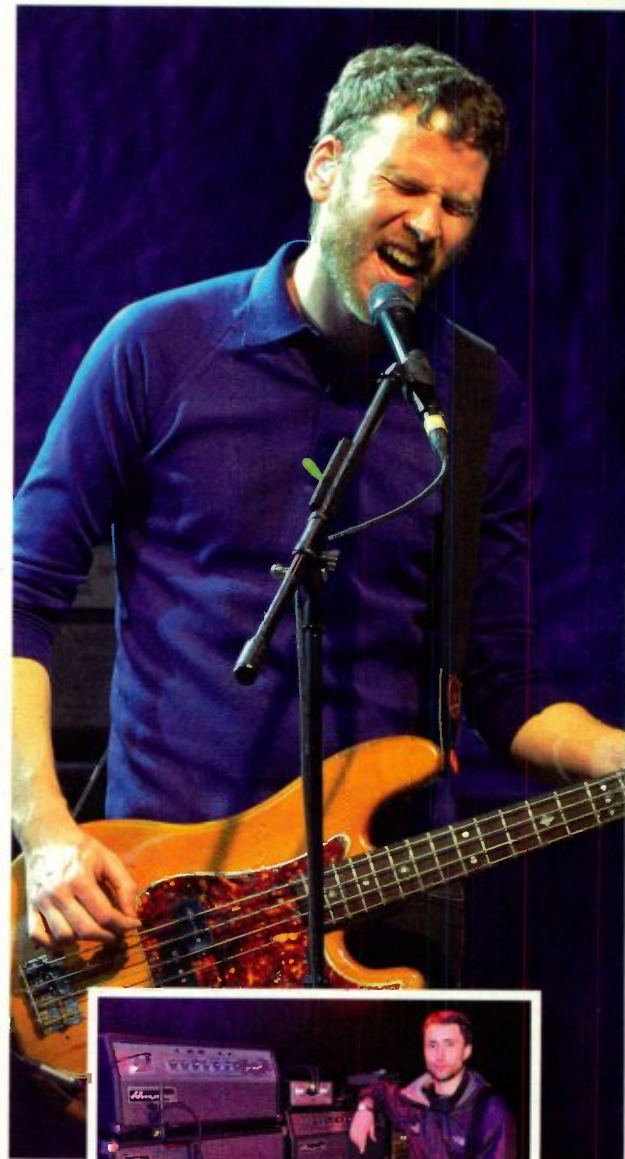
According to **monitor engineer Ilias Andrianatos**: "For our U.S. run I'm using the smaller Soundcraft Vi7 console. I was using the Vi6 on the UK tour in bigger venues. I like the sound and the flexibility of the console. Coming over to the U.S. for smaller venues with less space, it made perfect sense to me to use the smaller-footprint Vi7—it's 100 percent compatible to the Vi6.

"Lead vocalist Ricky Wilson is using a combo of Sennheiser G2 IEMs with Ultimate Ears molds and three wedges—mostly to run or jump on, but also as monitors when the molds come out of his ears." Nick Hodgson (drums/vocals) and Simon Rix (bass) use Sennheiser G2 IEMs with Starkey Audio ear molds. Keyboardist Nick "Peanut" Baines is using Sennheiser G2 IEMs with Ultimate Ears molds and a 2x15 sub, and Andrew White (guitar) uses a pair of wedges only.



Drum tech Barnaby J. Watson (inset photo) says that **Nick Hodgson's** drum kit is miked with Shure Beta 52 and 91 on the kick, a Shure Beta 57 on snare top and SM57 on bottom, KM 184s on hi-hat, ride and overheads, and Sennheiser 904s on rack and floor toms.

Guitar tech Paul "Willie" Williams says that **guitarist Andrew White's** two Marshall amps are Bluesbreakers 1962 reissues, miked with Sennheiser E 606s. His stompbox effects include a Seymour Duncan Pickup Booster, Ibanez T9 Tube Screamer, and several Boss pieces: TU12 Tuner, DD3 digital delay, RE20 space echo and an RE5 digital reverb.



Backline tech/stage manager James Hennin (inset) says **bassist Simon Rix** uses an Ampeg SVT VR amp with an SVT AV backup. After his effects pedals, the signal goes into an Avalon U5 DI/preamp, to the VR, then finally into an 8x10 AV cab.



Keyboardist Nick "Peanut" Baines' rig comprises two Novation Remote 6rSL MkII MIDI keyboards, two Novation Remote SL25 MKIIs, a Roland SH-808 Novamod custom keyboard and tuner (an extensively modified SH-101), and Mackie 1202-VLZ mixer, which he uses to create his own in-ear mix. Also in his arsenal: a Korg Kaoss pad MKII, Memory Toy delay pedal and Korg nanoKONTROL. It's all connected to a control rack: two Apple MacBook Pros with 4 GB of RAM and 128GB SSD drives, two MOTU Ultralite-mk3 audio/MIDI interfaces, MOTU MIDI Timepiece patchbay, two MOTU FastLane MIDI interfaces, two dbx 1046 compressors, Radial ProD8 DI strip, Radial ProDi DI and Radial ProD2 DI.

"I'm responsible for the day-to-day running and upkeep of our keyboard rig," says **keyboard/MIDI/Mac tech Roger Lyons**, "and I'm the 'official' Mac mender/fettler/updater for our touring party!".

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Engineer Damian Reynolds at the D-Command in Farm Group Hollywood.

THE FARM GROUP

UK Post House Opens Hollywood Studios

By Barbara Schultz

For almost 15 years, the Farm Group has been one of the busiest TV and film audio post businesses in the UK, housing four multiroom facilities in Britain with scores of credits, including U.S.-crossover hits *Downton Ab-*

hey and *Masterpiece Mystery's Wallander* series (both on PBS), and the UK and U.S. versions of *X-Factor*. It was the U.S. re-do of that blown-up TV talent show that drove Farm Group's management to follow through with a longtime goal and open a U.S. facility.

"The Farm had been looking at opening a Los Angeles-area venture for a couple of years now," says Jack Edney, COO of the new Hollywood facility. "I moved over in April of last year to oversee the build-out and run the facility."

The Farm Group Hollywood is situated in a former factory, part of which was already being used by a video-editing company called editgods. Farm Group invested in the existing picture facility and doubled the size of the build-out, adding two audio studios that share a voice-over booth, and a central machine room that serves the audio and video studios.

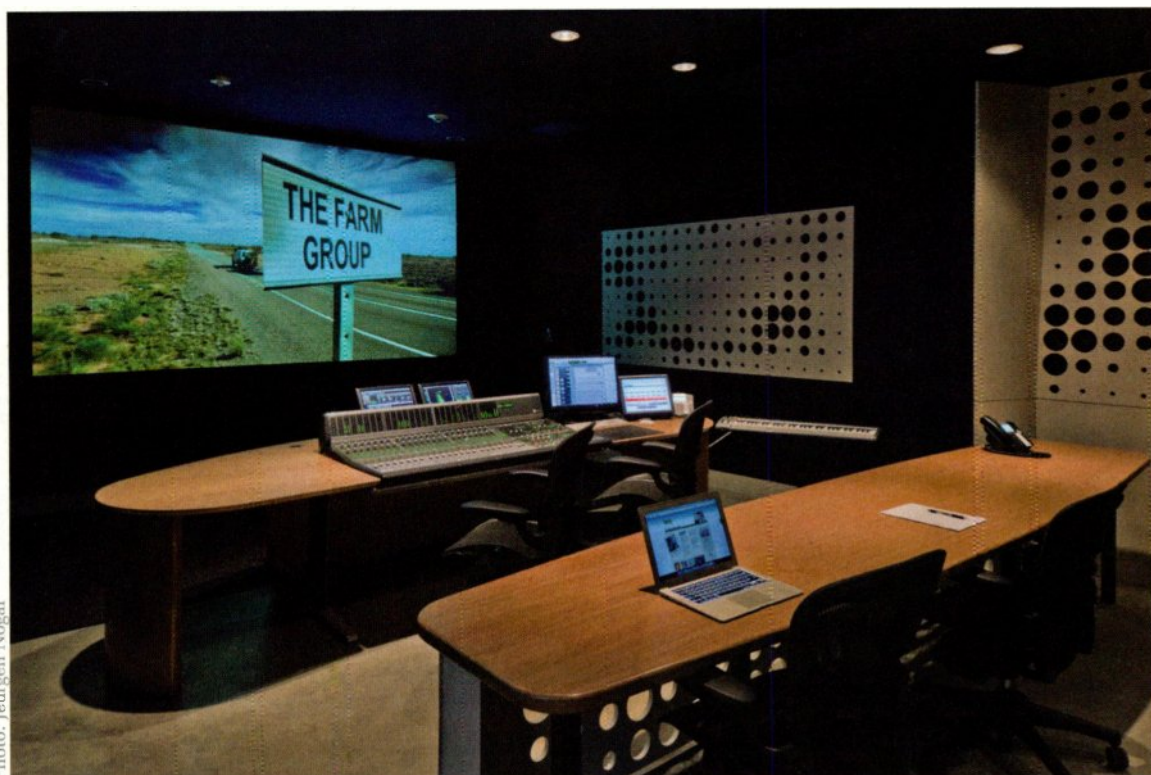


Photo: Jeurgan Nogai

The Farm Group's new Hollywood studios were designed by studio bau:ton to resemble the company's UK studios.

manufactured by AKA Design in the UK. "That's one of the few areas where these studios are different from the UK studios," Grueneisen explains. "[In the UK], they don't have a raised area with a client desk in the back. But here, most people are used to that, so we ended up doing a desk and couches in the back, to make it comfortable for people who are used to working here."

"We struck a balance between what people expect in London and what they might expect in Hollywood," Edney says. "So, the studios here are slightly bigger with large producer's desks and enough seating for 12 people."

The engineers' rigs in the U.S., however, are identical matches to the equipment in the UK studios. "At any point in time, we're up to eight simultaneous studios working on a project, in the UK and the U.S.," Edney says. "So it is essential that our systems are totally compatible and interchangeable."

Each of the Farm Group's new studios is running a system installed by Paul J. Cox, including Pro Tools HD Version 9, D-Command console and Logic (as a sound design platform). Their monitors are all Genelec 1032s. Each studio makes extensive use of plug-ins from Avid, Waves and Audio Ease, as well as the company's proprietary Morpheus sound effects library, designed by the UK division's head of audio, Nigel Edwards. The company also installed a Gigabit link between the U.S. and UK studios, and they use Source-Connect and ISDN lines; file sharing has to be fast, easy and uncompromised.

The Farm Group Hollywood went online last fall, starting off with high-profile projects including former President Clinton's *Decade of Difference* concert event at the Hollywood Bowl, and a *CNN Heroes* special, as well as *X-Factor U.S.*, and the studios have been a welcome addition to the Farm Group. "It's a different challenge in a great place," Edney says. "I've been involved in the build-out of all the Farm studios, and these are by far my favorites." ■

"We also upgraded all the infrastructure of the building and upgraded all the existing technology in the edit bays and machine room," Edney explains.

Peter Grueneisen of studio bau:ton and non-zero architecture designed the new rooms. "It's in one of those typical Hollywood warehouse or manufacturing buildings, with a bow-truss roof," says Grueneisen. "The half toward the street, which is about 3,000 square feet, was the video edit facility; then it was cut off with a wall and the back half was completely empty. We built the audio rooms—each about 24x30 feet—back there, and then tore down the wall and connected them."

Grueneisen worked with Edney and Farm Group founder/CEO Nicky Sargent—who relocated to L.A. temporarily—to identify and meet the company's requirements, which mainly involved creating facilities that would be almost interchangeable with the Recording Architecture-designed UK studios.

"We wanted the same look, feel and, most importantly, the sound to carry through from what we've established in the UK," says Edney, "because we like them, and so that we have good continuity to work on projects both in the UK and the U.S. simultaneously."

Grueneisen was tasked with creating rooms that would sound and feel the same to Edney and staff engineers Damian Reynolds and Jack

Meadows. Yet he wasn't about to copy another acoustician's project verbatim. So Grueneisen came up with his own creative, somewhat whimsical approach to replicating Recording Architecture's familiar acoustical signature:

"You can recognize Recording Architecture's studios," Grueneisen says. "They have these panels with regular round holes, on the walls and the ceiling. We wanted to keep a connection to those rooms visually, and be careful to control any reflections from hard surfaces, but we weren't going to just copy what they have.

"So we started with the idea of the Farm Group logo. If you look at their Website, they have farm animals running across the screen: a cow, a pig, a chicken and a sheep. We digitized those images and pixelated them and made them really big. Then we had a pattern; you can do things like this really easily now where you feed computer files into a machine and have them laser-cut to an exact size and shape."

So, if you stand back really far, and you know what you're looking for, you can see that the round holes in the acoustical MDF panels in the Farm Group's new studios form the shape of farm animals; behind the wood cutouts are fabric and then absorptive Fiberglas.

The same patterns were carried over to custom privacy screens on the front of producer's desks in the rooms, which were designed and

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JOE D'AMBROSIO

Ten Years of Taking Care of Business

By Dan Daley

It's not easy trying to make a living by producing music these days—just ask the handful of people who have taken the often daunting path of trying to manage producers and their careers at a time when music sales are down, record labels are consolidating, downloads and streaming are licensing and legal minefields, and revenues to producers, mixers and engineers are concomitantly off. Joe D'Ambrosio is one of those managers, but he's considerably more sanguine than some of his colleagues, though no less realistic. Despite starting his own business, Joe D'Ambrosio Management Inc. in 2002, just as the slide in CD sales was beginning, he's seen his roster grow to 17, including veterans like Tony Visconti, Hugh Padgham, Rob Mounsey, and Kevin Killen, with dozens of Grammy Awards between them. D'Ambrosio will tell you straight off that producer revenues were declining when he started and that they've slid as much as 40 percent in the decade since. But, he says, if you got into this business solely to make money, he's not a good fit for you.

"That's the first question I ask anyone: What do you want from life?" he says. "If your goal is just about making money, then you may be in the wrong business. But if your goal is to have success and you have the knowledge and acumen it takes for that, then you will be successful and the money will come from that."

Imagine Dr. Phil with a medium but still-assertive Bronx accent. D'Ambrosio wants to work with people who believe in themselves creatively; he'll get you through the nuts and bolts of the increasingly hard-to-parse business side, freeing you up to work. That commitment of support might have come from a background that includes a two-year stint as the bat boy for the New York Yankees when the Bronx Bombers themselves had just come out of a lengthy tailspin and won the American League championship in 1976 and then the World Series in 1977. D'Ambrosio was also influenced by a long association with producer/entrepreneur Phil Ramone, who D'Ambrosio worked for as an associate after the two discovered their shared affinity for the Yankees, working at various times as Ramone's production manager, director of operations for N2K, the label Ramone founded with Larry Rosen and Dave Grusin, and finally from 1999 to 2002 as personal manager for the 13-time Grammy winner.

Watching the Yankees come back after the legendary franchise had been a cellar-dweller for 15 years undoubtedly informs some of D'Ambrosio's persistent optimism about making a living in the new music industry landscape, but he acknowledges that it's a much more crowded place these days, one in which the term "producer" has become somewhat vague, as technology puts music recording into the reach of many more people. But, he adds, it's also



created tremendous opportunities. Among a few others, he cites producer Nathan Chapman, who worked closely with an unknown artist named Taylor Swift, as an example of how young producers make their way up the ranks. The tsunami of new artists unleashed by an indie music movement powered by app-based recording and Internet promotion has created a huge number of opportunities for such pairings now, as long as both parties understand that they'll likely be working for love more than money for a long time.

That said, the increasingly treacherous economic state of the music business has compelled major record labels to pull back on risk taking, instead focusing more resources on a smaller number of artists in search of better returns on investment. That's created a similar equation on the production side by increasing demand for a few super-producers like Dr. Luke as labels look for a sure thing.

"I beg labels to develop more new artists and use more production talent, but the business just isn't set up that way anymore," D'Ambrosio laments. "On the other hand, the indie market has plenty of new artists looking for talented producers. Younger artists may crave working with a Dr. Luke, but few of them can pay that kind of money."

The producer's compensation formula hasn't changed much in the last 40 years. In addition to a fee, those with track records still usually get between 3 and 5 of the customary 15 percentage points on retail that most artists' deals with major labels provide for, which is equally recoupable as an advance on royalties. Mixers, a classification that's expanded greatly in recent years (NARAS added them as an award category in 1999), in general receive a fee that's partially recoupable (usually 50 percent with the other half attributed to studio costs—which, of course, the mixer keeps if he or she owns the studio, as most do) against typically a 1 percent royalty that's prorated against the number of tracks on an LP (e.g., two mixes on a 10-song LP equals a 0.20 percent royalty).

But something else that hasn't changed is the chronic grumbling among producers regarding calculation of royalties. The historical opacity of major-label accounting has been exacerbated by sales declines; label consolidations have added new administrative layers to an already diminishing revenue stream. Concerns over accurate accountings can put producers and their managers into uncomfortable situations vis-à-vis their artist clients and their managers, as any questions about royalties have to go through the artist, because the producer's share of retail sales is nearly always predicated on the artist's.

D'Ambrosio says he's never had to demand an audit for any of his producer clients, something he attributes to longstanding relationships with label and administrative executives and artist managers, the value of which he says he learned from years working with Ramone. "You have to trust the numbers that the label provides to some extent, but I also look for information from as many sources as I can find," he says, including *Billboard* charts and SoundScan sales data.

D'Ambrosio says that what producers can do to enhance their chances in this changing market is increase their skill set, specifically by having writing chops and developing their technical abilities.

"Songwriting is another bullet in your gun," he says. "As a record producer, you're working for hire, but if you can co-write with the artist, now you're a participant in the work," which deepens the relationship artistically and financially. It's no panacea, though—D'Ambrosio notes that not every artist wants a co-writer and that producers known for that talent can sometimes induce creative anxieties in a relationship.

D'Ambrosio has also seen demand increase for producers who can track a session and mix the final product. "When I was sitting with Hugh [Padgham] in his studio in West

London five years ago, I asked him who recorded all those great Police, XTC, Phil Collins, Sting and Genesis records. [Hugh] just turned around slowly and smiled at me," D'Ambrosio recalls. "There are more mid-level bands than ever before and they're a good fit for producers who can record and mix, too."

When we spoke, D'Ambrosio had just come back from SXSW, where he says the mood for music's fortunes was more upbeat than in years past, D'Ambrosio's natural optimism extends to the future. He's hopeful that Grammy-led initiatives—including the Performance Rights Act, which would extend airplay royalty participation to musicians and producers—will finally see enactment, and he's encouraged by the turnaround in music unit sales (if not revenues yet) and the growth of new revenue sources like streaming services.

"We're just in the first quarter of the year and we've already seen an uptick in sales, and people are felling good about it again," he says. "As long as you're working for love, not money, it's going to be fine." ■

The advertisement features a group of five men standing in front of a colorful, abstract background. The text at the top reads "the JH 16 PRO" in large, bold letters, with "THE FIRST 8 DRIVER, TRIPLE BORE IEM" below it. To the right, there is an image of a custom earpiece. At the bottom, the JH Audio logo is displayed, along with the text "Hear no evil." and "CUSTOM IEMs 4 PROKSTARZ". In the bottom right corner, it says "JHAUDIO ARTIST YOUNG THE GIANT".

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RCA Studio B

Historic RCA Studio B is one of the most recording studios in the world. Country Music members Elvis Presley, Eddy Arnold, Dolly Parton, Charley Pride, Hank Snow, Roger Miller, The Everly Brothers, and Willie Nelson are just some of the countless performers who recorded here.

Nashville businessman Dan Maddox built and leased it to RCA the same year. Steve Cropper became RCA's Nashville recording chief, and Chet Atkins became RCA's Nashville recording chief, the facility they could control for scheduling and production. It is estimated that more than 35,000 songs were recorded here, about 1,000 of them becoming Top 10 hits.

Soon after RCA closed Studio B in 1977, the "Country Music Hall of Fame" became its caretaker and arranged educational tours of the facility. The Curb Entertainment Company bought the studio in 2002 and arranged for it to operate in partnership with Belmont University.

ODE TO NASHVILLE

By Peter Cooper

Right now, in the sound-compromised age of digital delivery. Amid the loudness wars and ear buds and shuffle mode. Blocking out the clamor and the distractions, as we work to construct a new model without an instruction manual.

Two years removed from a killing flood that resulted in the biggest single-event loss of musical instruments in history.

Right now, in Nashville, it feels just like a renaissance. A cut-rate renaissance for most of us, but a renaissance still.

The renaissance isn't about country music. Country music is a discussion all unto itself, and Nashville music has been about much more than country for the past 60 years, cyclically but certainly.

It's not about the gear, really. Not about the stuff we still have or the stuff ruined a couple of years ago by the

muddy Cumberland's rare but critical act of aggression. Nashville is still gear-rich, as slack-jawed visitors to Blackbird's trove find every working day.

But, with the exception of the unimaginable, post-space-age bounties of Blackbird and Soundcheck, and the notable historical treasures—Skaggs Place Recording Studio's Neumann 47 microphone that George Jones and Tammy Wynette used to sing into, or the API console at House of David that was once Val Garay's B-room desk at Record One in Los Angeles are just two among plenty—you can get gear in any



Photos Courtesy Nashville Convention & Visitors Bureau

town. You can get a compressor, a limiter, a guitar, an iMac or a plug-in shipped to Sheboygan, Spokane, Spartanburg or most anywhere. (Even towns without a single "S," like New York City.)

This Nashville renaissance is about the people who manipulate the gear into something pleasing. It's about the people who are drawn to Nashville (nobody is actually *born* here) because it is a place that makes it easier to make music.

The city is like a campus for the creatively inclined. If a player or engineer lives "way out of town," that means they might have to drive up to 40 minutes to get to Music Row, Berry Hill, East Nashville or any other haven of recording activity. In Nashville, 40 minutes gets you 40 miles. In L.A., New York or Atlanta, it might not get you 4 miles. At any point of any day in Nashville, hundreds of the continent's finest musical technicians are within a couple of miles of each other. If there's a gig tonight in Louisville or a 2 p.m. session today on the Row, you could find the players and engineers to fit the bill simply by walking into one of six coffee shops at 9 a.m. and scanning the room for caffeinated talent.

That world-class players wouldn't necessarily already have gigs today is an indication that our renaissance has not yet delivered anything remarkable in the way of profit margins. But that's coming, and Nashville players and studios are, by necessity, no longer dependent on the sometimes-lumbering mainstream country music industry to stay afloat.

"As record companies have shrunk rosters, there's less total work being done, and the days of making \$400,000 records are over," said producer Tim Smith, an executive with George Shinn, owner of Sound Emporium. "Until last year, we lost a million dollars a year in recording revenues for four years in a row. Last year, we only lost a quarter of a million. We've survived the worst part of the dip, but we've all got to be entrepreneurial and flexible."

That flexibility, now required of businesses, of musicians, of producers and of engineers, is Nashville's strong suit, and it's behind Music City's latest renaissance. It's a flexibility of sound and of spirit, an open-mindedness that allows for innovation and expansion and other qualities not always ascribed to my city. In truth, that openness is, for Nashville, a long-held value. Only in the cash cow 1990s did a preponderance of Music City studios and musicians work to hone their talents solely to fit into the booming (Thanks, Mr. Brooks) mainstream country scene or the profitable contemporary Christian world, at the expense of creating viable rock, pop, classical and R&B sounds.

Prior to the present-day digital transformation, Nashville's biggest challenge came in the 1950s, when Elvis and the rock revolution eclipsed country acts' popularity, and when the Ryman Auditorium would sometimes be only one-third full for Grand Ole Opry shows that only months before had been the toughest tickets in town.

The recording community's initial and incorrect problem-solving method was to send drawling country artists into the studios to try to replicate the new rock sound: Check out a 35-year-old

Webb Pierce's unintentionally comedic recording of "Teenage Boogie," a 1956 laughter that illustrates the failure that can arise from trying to be something you're not.

Turns out the answer came not in aping Elvis, but in broadening musical visions. Nashville players like Hank Garland, Harold Bradley, Buddy Harman and Bob Moore (who actually was born in Nashville!) brought their own distinct sounds to venues far beyond country. Garland's *Jazz Winds From a New Direction* continues to inspire



Photo Courtesy Nashville Convention & Visitors Bureau

guitarists who've never heard Garland's works with Jim Reeves, Marty Robbins and other country stars; and Presley himself called Garland the world's greatest guitarist. Engineer Al Pachucki was as effective capturing Presley at RCA Studio B as he was recording Charley Pride. Nashville studios adapted to suit the needs of rock 'n' roll acts like Presley, the Everly Brothers and Roy Orbison, and producers Owen Bradley, Chet Atkins and Don Law became architects of a smoother, pop-leaning "Nashville Sound" that brought Music City music to new environs.

Nashville's 1960s also featured much in the way of R&B. Etta James recorded her seminal *Etta James Rocks the House* album at Nashville's New Era Club, and Jimi Hendrix became a local hero, living here after his military stint in Kentucky and starring with the band King Kasuals. (Nashville's Billy Cox, a close friend of Hendrix's, would play bass for Hendrix at Woodstock and in Hendrix's Band of

Gypsies.) And while Nashville was not exporting much in the way of rock, it was importing plenty. That Elvis character worked at RCA Studio B, and Bob Dylan and The Byrds worked at Columbia Studios (Dylan relied on multi-instrumental wizard Charlie McCoy, while the Byrds sought out the always-innovative steel great Lloyd Green for their *Sweetheart of the Rodeo* album.)

In the 1970s, Norbert Putnam and David Briggs' Quad Studios was a rock and soul hotbed, where Neil Young cut "Heart of Gold" and Dobie Gray cut "Drift Away." Dan Fogelberg, Jimmy Buffett, Grand Funk Railroad, Linda Ronstadt and many others also worked at Quad. Music Row studios hummed with the sounds of Nashville country and plenty of pop, and while some people look back on the "Outlaw" movement of Waylon Jennings, Willie Nelson, Bobby Bare and others as anti-Nashville, most of the great Outlaw recordings (Bare's *Lullabys*, *Legends and Lies*, Jennings' *Dreaming My Dreams*, etc.) were recorded in town. The Outlaws weren't anti-Nashville, they were anti-conformity.

The 1980s were less about soul (in general, but also in Nashville) and more about country and pop, though country-punk band Jason & The Scorchers and quirky rocker Webb Wilder made national waves (Wilder even called his debut album, *It Came From Nashville*). And country labels signed up a crew of free-thinking song-poets, including Steve Earle, Nanci Griffith, Rodney Crowell and Lyle Lovett, who made the mainstream a more fascinating place.

THE RENAISSANCE ISN'T ABOUT COUNTRY MUSIC. COUNTRY MUSIC IS A DISCUSSION ALL UNTO ITSELF, AND NASHVILLE MUSIC HAS BEEN ABOUT MUCH MORE THAN COUNTRY FOR THE PAST 60 YEARS, CYCLICALLY BUT CERTAINLY.

And then came the '90s, when producer and label chief Jimmy Bowen blazed the trail toward big budgets, and when Garth Brooks, Shania Twain, the Dixie Chicks, Brooks & Dunn and others showed just what could be accomplished by selling country albums by the multimillions. There was great work done during the decade, some of which sold in great numbers, but there were also a lot of sessions where innovation gave way to aspiration and imitation, where "sounds just like that other thing" became an attribute and not a criticism.

There was also, especially on Music Row, a prevailing notion that a proper business model could be, "Let's throw a ton of money at this thing and see if it flies." Many studios became bloated, corporate and clumsy, which would prove problematic when the booming '90s became the busting oughts...when a bunch of studios went out of business, when consumers stopped paying as much for music, when radio consolidation bred homogeneity, and record company

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consolidation bred fear, and any music journalists who still had work wrote stories about the death of the music industry. Which brings us back to the renaissance of sounds and songs and styles that is Nashville in 2012.

Three of the past four Grammy Record of the Year winners were made in Nashville: Alison Krauss and Robert Plant's "Please Read the Letter," Kings of Leon's "Use Somebody" and Lady Antebellum's "Need You Now." That's an Americana version of an Everly Brothers' song, featuring a bluegrass singer and a golden rock God, a rock 'n' roll hit (from Nashville's second Platinum-selling rock band, after Paramore), and a crossover country smash. And that's "Record" of the year, a category that spotlights recorded tracks, rather than "Song" of the year.

In recent seasons, hit rock performers Jack White, Dan Auerbach (of the Black Keys) soulful blues man Kevin

Moore (aka Keb Mo) and Americana thrush Patty Griffin have each opened studios in Nashville. At his studio, White has produced records for a bizarre-but-fitting group of artists that includes Wanda Jackson, Insane Clown Posse and Stephen Colbert, and he produced Loretta Lynn's Grammy-winning *Van Lear Rose* album at Eric McConnell's place in East Nashville. Auerbach brought Dr. John to town for his critically hailed *Locked Down* album, and the Black Keys recorded their latest, *El Camino*, at Auerbach's Easy Eye Studio.

Then there's the party-rap success of Keshha, the seven-time Grammy-winning Nashville Symphony, the presence of what Art Garfunkel once told me was more talent-per-capita than any other musical city, and a community of engineers, players and producers committed to capturing an array of sounds and styles on tape or hard drive or anything else you've got.

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For a while, there were people in other towns selling koozies with "Nashville Sucks" written on them. And I have yet to find the Nashville they were talking about. The one where John Prine and Emmylou Harris and Bela Fleck and Keb Mo and Duane Eddy and Scotty Moore and Jack White and Dan Auerbach and Sheryl Crow live? The one where you can drive to some of the best, most vibe-packed and gear-jammed studios in the world in 10 minutes? The one where bass man Dennis Crouch does a bluegrass session one day and plays with Gregg Allman the next? Or where multi-instrumentalist Fats Kaplin plays with revered Americana singer/songwriter Kieran Kane and also with Jack White? The one where Vance Powell engineers works by Jars of Clay, Keb Mo, the Dixie Chicks, Buddy Guy and the duo of Jack White and Alicia Keys?

Nashville is a gas, a rush and a mystery. It doesn't suck, it breathes inspiration and inclusion and creativity. It won't be diminished by a flood or a downturn or a song on the radio that you don't like, any more than New York is diminished by a spotty Mets bullpen.



It is one city of music, that's flowering in hard times. One that's home to country music. And bluegrass. And rock and pop and rap and R&B and classical.

It is one city that's easy. One that's cutting-edge. One where you can get what you want, when you

want it, better than you thought it could be. One that's steeped in history, but not bound by it. One that's going nowhere, while moving everywhere. ■

Peter Cooper is a Grammy-nominated, Nashville-based producer and touring singer-songwriter.

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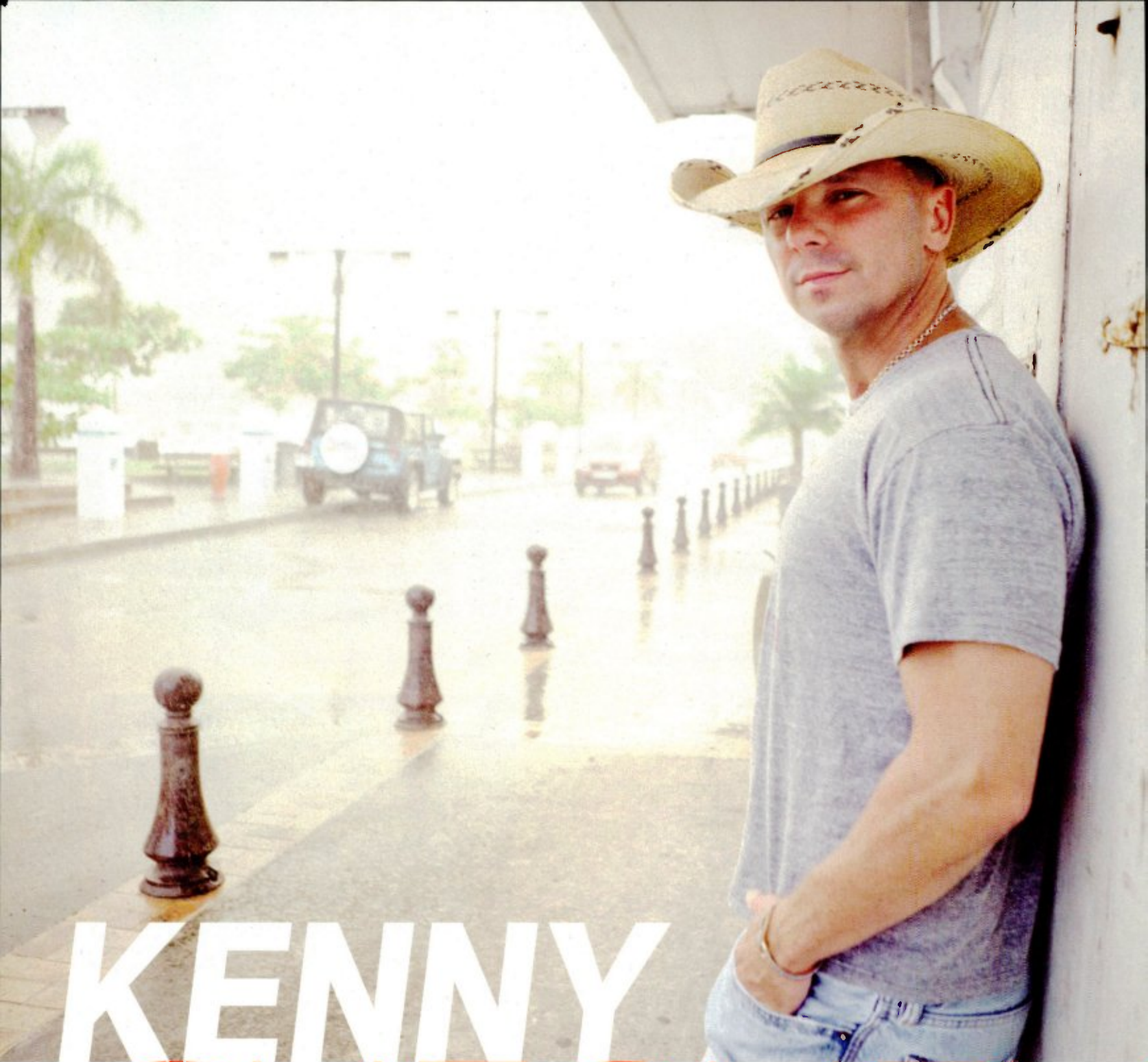
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KENNY CHESNEY

Recording 'Welcome to the Fishbowl' in Top Nashville Facilities

Engineer Justin Niebank, the mixer on Kenny Chesney's latest record, *Welcome to the Fishbowl*, has something he wants to get across about Chesney: "I've thought about this, and I feel like I figured it out," he says. "The thing that makes Kenny Chesney such a successful guy who fills stadiums is that he is not only the artist, but he is a fan as well. What I mean by that is he is the same as the people in the audience who are watching him. He understands them, and he makes sure that what he does onstage, and what he does on his records, will be something that will help them enjoy the experience of hearing this music."

Niebank's point sounds simple on the face of it, but obviously, a lot of talent, hard work and intangibles are wrapped up in this statement about what brings Chesney's fans back to stadiums summer after summer, and what goes into the essentially live studio recordings that have earned this artist 10 Number One albums in as many years.

GOING BIG IN NASHVILLE

Welcome to the Fishbowl is a strong, dynamic collection of rock-tinged country songs and fist-pumping anthems. The album was tracked with longtime producer Buddy Cannon, engineer Tony Castle, and a room full of A-list musicians in Studio A, the big converted church room, in Ocean Way Nashville; it's one of a generous handful of Nashville studios with space for all of the musicians to set up together.

"That big room sounds amazing," Castle says. "It was really fun to get on that big [Neve 8078] console—everybody spread out in the room, and really go for something big."

The lineup of musicians who play on *Fishbowl* evolved some, as the record was tracked in a few different sessions, but the initial setup included drummer Paul Leim and his kit near the back and to the left in the big room, with two electric guitarists—Pat Buchanan and Kenny Greenberg—on either side of the room (their amps were in an iso booth), and bassist Larry Paxton between them (his amp was in the studio's front vestibule).

"The B-3 was on the floor, too, and we had the piano in the booth," Castle says. "It's not uncommon to do two electrics, but to do two keys [live] is a little different and we do have to book a studio that's big enough. We used foam and just built a big doghouse for the Leslie. John Willis played acoustic in the booth behind the control room; and Kenny was doing his scratch vocal in the stairwell off the control room, to have easy access to Buddy in the control room and the band in the live room."

Tracking to Pro Tools, Castle took full advantage of Ocean Way's considerable assets—not only using every bit of space, but also running every instrument through the Neve.

"We have a vocal chain that we've used since I started working with Kenny—a [Neumann] U47 through an

The Legend Returns



Left to Right: Ken Scott, Malcolm Toft and David Hentschel. Photo taken at Paul Stacey's Studio in London, England




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Photo: Shaun Silva

Pictured at the vintage Neve 8078 console in the control room of Ocean Way St. Barth's, from left: Drew Bollman (second engineer), Buddy Cannon (producer), Kenny Chesney, Justin Niebank (mixing engineer), and Guillaume Robert (assistant engineer).

[API] 512 preamp and an LA2A—but everything else we ran through the console,” says Castle.

Castle says he miked up Leim’s large drum kit—which includes four toms and an alternate snare—with “all the extra mics geeky engineers like to put up. Ocean Way is such a cool-sounding room that I’ll put a close room mic where you would probably put a room mic in a normal situation—this was an AEA R88 into a Fairchild—and I put M50s on larger stands, up high,

of 57 and a Royer R-121. Piano took a C12 into an SSL stereo compressor; on the Leslie speaker, he placed an RE20 on the low end and a pair of 57s on top.

The title track was recorded in a separate session, however, at Sound Stage, this month’s cover studio. Castle says that Sound Stage’s smaller size actually fit perfectly with the tighter sound of the song, which is about the pressure of living with fame. All lead vocals for the album were overdubbed in Studios A, E and H at Blackbird, in-

which really catches the big room and gives a sense of size, with just a little 1178 compression to wake it up a bit.”

Another notable drum-miking choice: “I put a 57 on snare, and ran it through a Distressor, but I also mult the snare: I take a bottom mic and bus those together, and run them through an 1176 and spank that pretty good—just to blend in with the normal snare.”

Other inputs at Ocean Way: Bass went to a DI and a FET 47 on the amp, blended with a touch of dbx 160. Acoustic guitar was captured with a Sony C800G, which Castle says “really captures the sound of the guitar with minimal processing.” Electric guitar amps went into mostly 57s, though Buchanan’s cab is a blend



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cluding Tim McGraw's part of the duet "Feel Like a Rockstar," the single that the duo debuted on this year's ACMs.

MIXING IN THE TROPICS

And speaking of feeling like a rock star: Chesney, Cannon and Niebank took Castle's tracks to Ocean Way St. Barth's for two weeks to mix. "Yeah, that was pretty awful for everybody," Niebank jokes.

Niebank broke out the Pro Tools tracks on the Neve 8068 console at the newest Ocean Way facility, and monitored on the big Allen Sides speakers. Niebank brought along a boot drive with his own collection of go-to UA and Waves plug-ins. He definitely has his favorite tools and techniques, but in discussing his approach to the mix he mainly focuses on the intangibles.

"Here's the thing," Niebank says. "I try on every project to give the artist a different approach every time. I loathe the template concept. I start every song fresh. And I'm always trying to be true to the instrumentation on the floor. I do a fair amount of sidechaining on stuff to give it impact without killing the transients and the dynamics of the original performance."

Niebank says he approaches Chesney's mixes with a lot of respect for Castle's roughs, but he's always looking to highlight "magic moments" to lift songs to their best level. One song he pushed a little was "Rockstar."

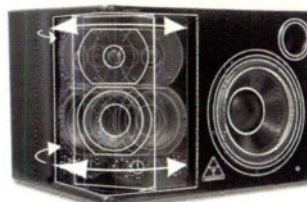
"Duets are the hardest to mix because you want each voice to tell its own story and be defined, and still work against the other person," Niebank explains. "You get one person sounding amazing, and then the other person's voice doesn't kill as much. There's a plug-in I love from Sound Toys called the Decapitator; it's basically an overdrive tube-saturation emulation.

"It's strange—as the technology gets better, and everybody's always achieving higher sonic quality, it seems the vast majority of the plug-ins I use are adding distortion and saturation. I have to laugh when I look at my sessions and see how much I'm doing it. I end up trying to bring back the anomalies of old consoles and tape. What I was going for on those vocals was some distortion behind it for impact—make it feel like they were up on an SM58 with a foot on the monitor and cranking it to the crowd." ■

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WHY, YOU KNUCKLEHEAD

BY MATT HURWITZ





What makes a Stooge sound like a Stooge? Like when Curly gets conked on the head with a pipe or when Moe pokes Larry in the eyes? A certain generation knows those sound effects so well that it proved a challenge for the sound design team to create an instantly recognizable soundscape for The Farrelly Brothers' new Fox release, *The Three Stooges*, that would consistently evoke from the audience the response, "Yup, that's our boys."

"We all have that library in our heads," says first-call Foley artist and multiple Motion Picture Sound Editors Golden Reel Award nominee Dan O'Connell. "We all know what sounds 'right' and what doesn't, when it comes to the Stooges." Picture editor Sam Seig adds, "The comedy just doesn't work with any other sound."

It's a dilemma faced by the *Star Trek* sound team, the *Bond* crew and any other number of editors/mixers who work in franchise properties that span decades: how to honor the past and yet make the new film sound modern. The Farrellys were decidedly looking for sounds that would evoke memories of those heard in the original Columbia shorts (produced from 1934 to 1958), but would also be relatable to 2012 audiences. Seig recalls that a first pass at the effects track didn't feel exactly right to the directors. "They were really well done, of course, but they were just a little too perfect, in terms of sonic quality," he says. "You have to remember, the originals were recorded by guys on soundstages with microphones, and they were recorded optically—which comes down to a blinking light creating a sound wave. And that's very hard to replicate." (For more information, see the sidebar "Classic Stooges.")

A huge part of the Stooges' comedy—and comedic timing—comes from the soundtrack. Columbia had released a library of sounds long ago, and while versions of the signature effects exist in many disparate forms today, the library hasn't been around for decades. Still, Seig and his team took a pass through the film, trying to place original Stooges sound effects in the track, to see how they would fit.

"The co-writer on the film, Mike Cerrone, was our resident Stooge expert, and he was able to guide us to one short or another for a particular type of Stooge hit that was similar to one taking place in our film," Seig explains. "We would look at that short, see what they were using there, and then dig through our libraries," sometimes using sound libraries containing some of the Stooges sounds. "There are libraries that have been floating around Hollywood that sound editors have had for years, and we would just comb through those and find what we'd need."

The resulting sound effects track for *The Three Stooges* is a medley of those sounds, as well as those created by O'Connell and sound effects editor Wayne Lemmer. "It's sometimes difficult to re-create the charm of the original sounds," Lemmer says. "If it doesn't sound authentic, it doesn't sound funny. So for each scene, it was just a matter of trying out what we recorded and hearing what they had placed in the track and seeing what worked best, what produced the biggest laugh."

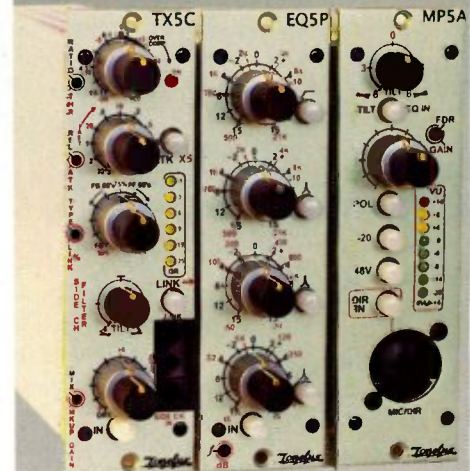
O'Connell, co-owner with John Cucci of Foley house One Step Up, records direct to Pro Tools and has developed a variety of miking techniques over the years. In a very general sense, he likes to use Neumann U87s on the larger, fuller-sounding effects, like bangs and bops, and a Sennheiser 416 for the smaller squeaks and "smaller" sounds. He has spent decades creating realistic sound effects for hundreds of live action films, ranging from *Natural Born Killers* to *Pirates of the Caribbean*, as well as animated features, such as *Kung Fu Panda* and *Alvin and the Chipmunks*. "For the Stooges' mayhem, they have to be funny sounds," he explains. "They send that message right away, that

Sound Design for 'The Three Stooges'

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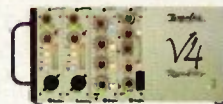
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Photo: Matt Hurwitz

Foley artist Dan O'Connell prepares to give Curly a knock on the head courtesy of a temple block.

CLASSIC STOOGES

What made those original Stooges sound effects so funny? Where did they come from? Oscar-winning sound designer Ben Burtt has been on the hunt for the originals since the 1970s.

"It's a lost library," he says. "Even back in the '70s, when I was looking, when Columbia still actually had some of its property in its vaults on the lot, it was not available."

The effects likely come from the Stooges vaudeville days, Burtt surmises. "They were probably slapping each other around, and, most likely, the percussion guys in the orchestra pit were making these sounds to augment what they were doing," he suggests. Once the team made it to the movies, "they caught onto the idea pretty quickly that they could use the sound department to emphasize all these things—and do it even more articulately. They could use bigger sounds, things you couldn't sync up in a live performance."

The team's effects development paralleled that of animated cartoons, which was taking place at the same time in the early '30s. "Once you started having sound cartoons, Disney and Warner Bros., in particular, started developing the use of sound effects for comedy, which meant the exaggeration of events, portrayed with sounds. Somebody gets hit, something falls on your foot, somebody flies across the screen—all of these things could be given great emphasis with sound. It amped up the comedy."

But the Stooges films had a different effect. "They were the same kinds of sounds, but it was the idea of the effects of those same things on people, because they were live action," Burtt says. "If you took a cheese grater and ran it down Curly's head, you could hear a scraping sound. If the sounds were real, it would probably just reveal the brutality of it. But putting these sounds in creates the illusion that it's not real, that it's for laughs. We laugh instead of cringe."

No one knows who created or recorded the sounds, though Burtt conjectures that soundman (and later Stooges director) Ed Bernds likely had something to do with it. "He started out as a Columbia sound recordist, doing all the [Frank] Capra films. He was the major recordist on the set. He would have been there, recording the dialog, and he'd have to have been aware of it, because the whole picture was centered around sound."

The effects were likely recorded on a soundstage similar in acoustics to the one used to film the action, he says. "They were likely miked from overhead, three or four feet away, with the mic on a boom, because you can hear a little of the roominess of those sounds, which is why they blended so well into the natural sounds of the production track. The sounds last a long time—like the pie hits, which sound to me like a gigantic wet mop full of liquid, slapped against something. The sound reverberates. The initial transients, the direct sound, are close in volume to the roominess," which, he notes, also has to do with the optical recording technology.

"The optical systems had a natural limiting and compression which is completely unlike magnetic recording, and certainly digital recording," Burtt concludes. "If you performed a slap or something that has a very high, loud wave front, followed by multiple reflections that are much lower in volume, in those old systems, all of that gets evened out. The spike of volume from the initial impact is compressed in volume, and the secondary reflections of the sound are relatively loud. You don't hear it the way your ear hears it, but it's the way the microphone and the recording system heard it. And I think that's the quality of those sounds that is hard to reproduce."

a clang on the head isn't hurting somebody—it's a funny clang."

Seig agrees. "Any other type of sound, and it turns into a horror film," something he observed firsthand. "One of my guys played around and temped out a version of one of the Stooges big 'slapfest' fights with real effects, and I was just, 'Ahhhhhh, stop hurting him!' These effects don't hurt."

As Lemmer explains, while sound effects are typically built of multiple layers of elements to create a hyper-realistic, detailed track, he notes, "When the Stooges were fighting, we went the exact opposite [way], using really simple sound effects played very boldly in the track."

"The idea," says O'Connell, "was to just take stuff we had around the Foley stage and use them to re-create those sounds—just use the stuff we've played around with for years for animation, and throw them into the mix. You combine them all together and see what ends up being the funniest thing. If something is high [frequency], and then something is low—and then something has a kind of a wobbly sound—that always creates comedy. Mixing and matching helps quite a bit."

A good old-fashioned Curly head knock—courtesy of a Moe hammer or metal pipe, of course—can be produced via dings with a sledgehammer on any variety of metal chunks O'Connell keeps on hand. "I have tons of different metal pieces, swords and pipes—things that clang," he says. "Each one makes a different tone. Originally, they probably just took different pieces of metal and tried out different things, until they got something they really liked—because that's what we do. You do it until you go, 'I recognize that sound; that's the right clang. That's the Stooges.'"

An animation staple, the temple block, also provides a good knock on the head. "I'm sure they used these, as well," O'Connell says, "because that sound is really clear in the original tracks. And when I do it, I crack up. Also, for Curly's head, clanking a good bottle produces a good 'ping' sound—if it doesn't break. We have certain wine bottles that I can throw down 100 times and they won't break. That's a good bottle!"

Crushing pine cones came in handy for those punishing nose-crunches Moe likes to deliver, something O'Connell learned on his *Pirates* work for ghostly bodies covered in seashells. And a properly plucked violin produces the trademark Stoooge eye poke. "You have to hold it correctly, to deaden the chord," O'Connell explains. "You don't want it to be a ringing tone. And you have to pluck it. So when you pull it together, and let it go, it does the 'boink,'" which he demonstrates.

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Foley artist Dan O'Connell finds the perfect sound for a Curly ear-turn, twisting a metal shoehorn against an old Honda car door on the Fox Foley stage.

Photo: Matt Hurwitz

Then there's the all-important Larry hair tear. The Foley artist uses a combination of a variety of wigs, a cloth or canvas tear, depending on the frequency desired—and a third special ingredient. "This stuff," he says, pulling out a large wad of green Easter basket grass. "If you pull it, it makes a really good tear," something he discovered on a more realistically violent project, *Heaven and Earth*, where a villain grabs a woman by the hair and drags her. "We did that and just said, 'Let's use that again later on.'"

Squeaks—such as when Curly sticks his finger in his ear to scratch an itch—are produced by squeezing and rotating the rubber tip on an

a pop, and that combination makes it very funny."

Dialog editor Dave Butler had his work cut out for him in such scenes. "I effectively had to carefully remove the production track sounds—all the slaps and hits, which had to be replaced with the Stoooge effects sounds," he explains. "It's quite surreal watching a Stoooge fight scene and not hear anything, save for the 'effort' grunts, etc., that remained."

The final mix was created in mid-February on Fox's Howard Hawks Stage, by a threesome of top re-recording engineers: Andy Nelson (music), Jim Bolt (dialog) and Anna Behlmer (effects). "It's not very often you get a three-person crew," says Bolt,

who normally handles music and dialog on projects. "It really allows you to focus on one part, to take your time and put in more detail. And you're able to enhance it with each pass through, which is nice."

The sound effects in the track, Bolt notes, are louder, in some respects, than in a more typical comedy. "In Stoooge fashion, there are plenty of them, but they're over quickly and then it's back to the puns," he says. "As for level, we try and stay out of the pain threshold; we don't want to hurt the audience because they'll disconnect. And, oddly, the apparent loudness is more than what the real sound pressure level is. A little compression and EQ go a long way toward enhancement."

While *The Three Stooges* places the boys in a modern setting, the sounds of their performance can only exist in their world. "The thing that was great about doing *The Three Stooges* was having the opportunity to do a live action film, but using the animation theory of sound effects," says O'Connell. "In animation, we get to do those crazy, funny sounds all the time. And to be able to them in a live action film was really a blast." ■



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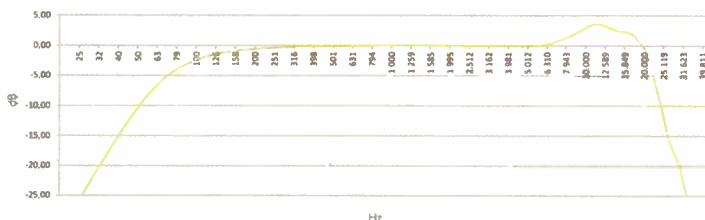
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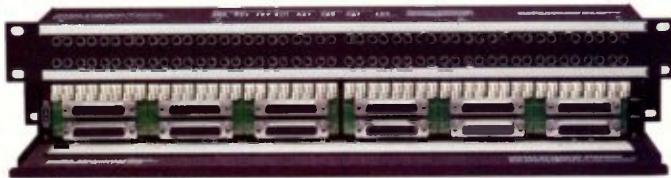
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The amount of outboard gear in a typical studio has dropped precipitously in this era of DAW-based recording, but there's one piece of hardware that can't be replaced in the box: the audio interface. Quality interfaces give you more than connectivity with your DAW and A/D and D/A conversion; they often have capable mic pre's, line and hi-Z inputs, plentiful outputs, mixing and routing software, low-latency hardware monitoring, internal mixers for routing—often controlled by software that you can edit from your computer—and some degree of built-in DSP.

Based on the features, build-quality, and component quality, interfaces truly run the gamut price-wise. You can spend under \$100 for a no-frills USB 1.1 model with one or two inexpensive mic pre's, or close to \$6,000 for a top-of-the-line, pro audio quality FireWire 800 unit with pristine converters, high-end pre's, and numerous and varied I/O options.


In the audio interface field, like in other areas, advances in technology are sparking design changes, and this is impacting the products being released. The goal here is to spotlight some of the intriguing new audio interfaces that have hit the market, to see how they fit in those trends, and to try to discern where the market is headed in terms of product design, connectivity standards and more.

Dual Role

One of the most talked about recording products at this year's NAMM show was the Universal Audio Apollo. More than just a high-quality interface, Apollo also has the equivalent of a UAD-2 Duo or Quad card built in, depending whether you buy the Apollo Duo (\$1,999) or Apollo Quad (\$2,499) model.

As mentioned, DSP is relatively common in audio interfaces. MOTU, RME, Metric Halo, Steinberg, Focusrite and PreSonus are among the manufacturers who have interfaces that include onboard processing of some sort, but the Apollo takes the concept into new territory by combining the power and flexibility of its hardware accelerator cards with the functionality and features of an interface. Both Apollo models come loaded with the Classic Analog Processors Bundle, which comprises five UAD-2 plug-ins, including several classic plug-in emulations, a reverb and a channel strip. You have to purchase the others separately, but you have Universal Audio's entire plug-in lineup to choose from (you do get a \$100 voucher toward your first plug-in purchase). You can track or monitor through these effects, and also access them from your DAW during mixdown, just like you would with a standard UAD-2 card. Because the processing happens within Apollo, using its effects will have no impact on your resident CPU and offers low latency,

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Bolts of Thunder

Connectivity is another area in which Apollo is breaking new ground. Although it comes stan-

dard with a FireWire 800 port, it also includes a slot for an optional Thunderbolt I/O card, which will be available sometime this summer. Thunderbolt, the connectivity standard being co-developed by Intel and Apple, is on all recent Mac models and will soon be available in Windows machines, as well.

"Thunderbolt is clearly going to be a big deal," says Jim Cooper of MOTU, a company that's been in the audio interface business for a long time, and which just put out its first Thunderbolt-equipped product, the HDX-SDI video interface. "Thunderbolt's got a lot of really nice benefits, starting with the plug-and-play convenience of FireWire," Cooper says. "You can hot swap and daisy-chain with it, and you also combine the convenience of FireWire with the latency performance of PCI Express—plus about 8 times its bandwidth."

Thunderbolt incorporates PCI-Express technology (which currently offers higher bandwidth

than FireWire or USB), but it gives you even faster data-transfer speeds. According to Apple, it's 20 times faster than USB 2, 12 times faster than FireWire 800, eight times faster than PCI-Express, and twice as fast as USB 3. Most audio interface manufacturers are working on developing implementation of it for their products. For example, Apogee, has announced the Symphony 64 Thunderbridge, a Thunderbolt card for its Symphony I/O interface. The company has not specified a release date, as of yet.

Phil Moon of Lynx predicts that Thunderbolt implementation will be included in a lot of products shipping later this year. "I would imagine that at this year's AES show, you'll likely see a lot of Thunderbolt products, probably pretty close to shipping, and probably early in the year, we'll have a lot."

Back in December, Prism Sound announced Thunderbolt connectivity with its Orpheus and ADA-8XR interfaces, using Sonnet's Echo ExpressCard/34 Thunderbolt Adapter (\$150). Users of those Prism interfaces (and theoretically, any Express/Card-equipped interface) can now access their Macs through the Thunderbolt port. Using an adapter doesn't provide the speed of a native Thunderbolt connection, but it does allow you to use your ExpressCard interface through a Thunderbolt port.

For the near term, Thunderbolt will probably only be used on interfaces in the higher end of the market because its chipset is expensive. But as economies of scale take over, the price is likely to drop.

The elephant in the room in the format discussion, and potentially the ultimate connectivity format, is AVB (Audio Video Bridging). All of the manufacturers we spoke to seemed extremely enthusiastic about its potential. It's based on a spec from IEEE that will allow the transmission of large data streams through Ethernet cables. In addition to high-bandwidth data transfers and low latency, AVB enables long cable runs and the ability to network devices. The AVB spec isn't totally finished yet, but enough of it has been completed to allow manufacturers to start building it into their audio devices. According to industry sources, AVB-enabled audio products are likely to start shipping sometime this year. Focusrite hopes to start shipping RedNet, which provides studio networking over Ethernet, later this year. RedNet uses Audinate's Dante technology, but is AVB compliant.

AVB and Thunderbolt may be the sleek, fast and glamorous new kids on the block, but for personal studio interfaces, where you don't need to record high-resolution multitrack audio, good old reliable USB 2 can hold its own quite nicely. What's more, it doesn't appear that the USB format is going away anytime soon. USB 3 is only months from hitting the market, and has some very impressive specs. However, its future in the interface world isn't clear yet. One thing that will make USB 2 interface owners happy: USB 3 is backward-compatible, so with only an inexpensive adapter cable, you'll be able to use USB 2 devices in USB 3 ports.

How all this format upheaval will shake out is hard to predict. Based on the potential of the other formats, it's a pretty good bet that FireWire is going to be supplanted as the professional connectivity choice for DAW users.

Movable Hardware

Another apparent pattern in the interface market of late is the popularity of desktop units over rackmount ones. Of the new

units we surveyed for this story, there were only two with rackmount form factors: the Apollo and Steinberg's new UR-824 (\$799), which is an intriguing 24x24 interface with discrete Class-A preamps, built-in DSP including channel strips and reverb, USB 2 connectivity and more.

The preponderance of recently released interfaces are of the desktop, not the rackmount variety, and "that does seem to be a trend," says Steve Oppenheimer, public relations manager for PreSonus, one of the leading audio interface manufacturers, "the fact that you can throw your interface into a laptop bag and go."

Several desktop interfaces have emerged in the higher end of the market. One of the most impressive is RME's Fireface UCX (\$1,649 street), which started shipping in January of this year. It offers excellent quality, lots of I/O options and generous built-in DSP. Among its features are low-latency converters, two mic pre's, USB 2.0 and FireWire 400 ports, and 18x18 I/O at 48 kHz (12x12 at 192 kHz) including 8 analog ins and outs. Two onboard digital signal processors, used in conjunction with RME's TotalMix FX software, provide access to reverbs, delays, EQs and compressors that



MOTU's bus-powered MicroBook II offers hands-on volume control, USB 2 connectivity for low-latency performance, more simultaneous outputs (six), an XLR mic input, and support for 96kHz recording and playback.



The Players

Every musician/engineer/producer today relies on some means of getting audio into the computer, and the range of interfaces that are available means there is something for everyone, at all prices. Here are the major manufacturers making professional-level audio interfaces

- ART artproaudio.com
- Akai Professional akaipro.com
- Alesis alesis.com
- Apogee apogeedigital.com
- AVID avid.com
- Digigram digigram.com
- Echo echoaudio.com
- E-MU Systems creative.com/emu
- Focusrite focusrite.com
- Lexicon lexiconpro.com
- Lynx lynxstudio.com
- M-Audio m-audio.com
- MOTU motu.com
- Metric Halo mhlabs.com
- PreSonus presonus.com
- RME rme-audio.com
- Roland rolandus.com
- Steinberg steinberg.net
- TASCAM tascam.com
- Universal Audio uaudio.com
- Yamaha yamaha.com



M-Audio ProFire 2626 High-Definition 26-in/26-out FireWire Audio Interface with Octane Preamp Technology



Metric Halo Mobile I/O ULN-2 Expanded



Universal Audio Apollo

can be applied on input or for monitoring only. An optional remote control can also be purchased.

Metric Halo has years of experience producing portable interfaces, and in the fall it started shipping its Mobile I/O ULN 2-Expanded (\$1,695) interface, which includes a pair of the company's Ultra Low Noise mic preamps; extremely low latency converters; and AES/EBU, S/PDIF and ADAT/TOSLINK digital I/O. You also get an onboard software mixer and DSP chip, which, when you add the optional DSP+ software, gives you onboard reverb, EQ and compression. And, because it's designed to be used in the field as well as the studio, it has a 4-pin XLR port that lets it run on standard broadcast batteries.

The Lynx Hilo (\$2,495) has no mic pre's and is first and foremost an ultra high-quality converter box. According to Lynx, it has the best converters that the company makes, but it also

includes a USB 2.0 card, so it can function as an interface. The Hilo offers some pretty interesting routing and I/O options. There are two analog line ins and outs on XLR jacks, balanced monitor outputs and a headphone out that's being fed by a premium headphone amplifier. For digital I/O, it's got AES/EBU, S/DPIF coaxial, S/PDIF optical, and 8 channels of ADAT output. All of these ins and outs are controlled by an internal mixer that's accessed through the unit's touchscreen interface, which makes it super easy to route any input to any output. Like the Metric Halo ULN-2, it has a 4-pin XLR that will accommodate broadcast batteries.

Almost in Your Pocket

As the previous few products show, there is plenty going on in the upper end of the mar-

ket in terms of portable interfaces, but there's even more action in the middle and lower end, where features and sound quality are improving, while prices drop.

One example is the USB 2.0-based MOTU Microbook II (\$249), which is due to start shipping this spring. Housed in a 5.5x3.5-inch, 1.25-pound metal body, the pint-sized interface has two big, multifunction rotary encoders on the top, and one XLR mic input, one hi-Z guitar input and two 1/4-inch line inputs. On the output side, you get a pair of analog outputs on balanced 1/4-inch jacks, a 1/8-inch stereo line out, an S/PDIF output on an RCA jack and a stereo 1/4-inch headphone out. According to MOTU, the mic pre and overall audio quality is similar to what's in the company's 828 and 896 interfaces. Also included is MOTU's CueMix FX software, which lets you

set up latency free hardware monitor mixes and access built-in EQ and compression. The Microbook II is bus-powered, but doesn't have a MIDI port.

Focusrite's Scarlett range offers three USB 2.0 models, each with different I/O counts: the 18i6 (\$299), 8i6 (\$249) 2i2 (\$199). The first number in each name designates the input count and the second the number of outputs. All three come with a pair of Focusrite mic pre's, which, according to the company, are the same as the ones used in its Saffire line, although the Scarlett's internal circuitry and chip sets are different. The two largest models are just over 8.5 inches wide, while the 2i2 is 5 inches wide, so they're extremely portable. In addition to having MIDI ports, the 18i6 and the 8i6 come with Focusrite's MixControl software, which lets you create low-latency monitor mixes. The 2i2 has no MIDI port or control software, but it's the only one of the three that's bus-powered, and it weighs in at a svelte 1.3 pounds.

Other new portable interfaces include the Akai Professional EIE Pro, a 4x4 interface with a MIDI port and a three-port USB hub built in; and the Roland Tri-Capture and Duo-Capture, which are smaller siblings of the previously released, and larger, Octa-Capture.

Take One Tablet

Apple's iPads have good audio capabilities, and numerous music apps have been developed for them. We're now starting to see more iOS integration in the audio-interface category, too, with products slowly starting to appear. Based on the popularity of iOS devices in other areas of audio production, it stands to reason that plenty more will be on the way.

Alesis, which earlier released the iO Dock interface (\$199), announced another iOS unit at Musikmesse: the iOMix (pricing TBA). Scheduled to be released later this year, the iOMix functions as a 4-channel mixer with physical knobs, and as an interface. It offers four XLR/1/4-inch combo input jacks, phantom power, balanced 1/4-inch outs, and even a video output to send the iPad's video to projectors and TVs.

Meanwhile, the Tascam IU2 (\$149), an interface compatible with the iPad, iPhone and iPod touch, as well as Mac and Windows computers, is expected to be shipping by the time you read this. It has two XLR mic pre's with phantom power, a pair of balanced

line inputs, an instrument level input, and an S/PDIF output, and it offers zero-latency monitoring.

On the higher end, the previously mentioned RME Fireface UCX has a Class Compliant Mode, which allows it to work with an iPad when connected via Apple's Camera Connection Kit. Any

"THE ELEPHANT IN THE ROOM IN THE FORMAT DISCUSSION, AND POTENTIALLY THE ULTIMATE CONNECTIVITY FORMAT, IS AVB (AUDIO VIDEO BRIDGING)."

USB device that's class-compliant can function in this way, so other interfaces may be compatible.

In addition, iOS apps that control studio hardware wirelessly are becoming more and more common. For example, PreSonus has apps that control its StudioLive digital mixers (which are also audio interfaces). It stands to reason that

there will be app-based control of audio interfaces in the future.

Digital Out

Like all product categories that rely on digital technology, the interface market is always in a state of flux, to some degree. Where it will go in the next few years depends on what happens in the computer market. It appears that Apple may be plotting a course that could eventually combine the laptop and the tablet, and make the desktop computer obsolete. If that occurs, what would it mean for music production software?

And then there's the connectivity issue. Will Thunderbolt dominate the market or might AVB become the pro format of choice? Maybe both will be important.

Nobody knows how it's all going to shake out, but it's certainly likely that the audio interface of two years from now will be more powerful, more feature-laden and of higher-quality. That can't be a bad thing. ■

Mike Levine is a musician, producer, and music journalist from the New York area.

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*adapter required

LEARNING TO LET GO



Nobody likes rejection. Yet a thick skin is imperative if you want to survive in the music biz, whether you're doing work for hire or your own projects. A dramatic example of how tough it can be is documented in *Torn Music: Rejected Film Scores* (2012, Silman-

James Press), where author Gergely Hubai presents 300 "rejected and replaced" soundtracks in chronological order, spanning 75 years of filmmaking. The list ranges from well-known motion pictures to cult films never given a theatrical release, with television shows—such as the pilot to *Seinfeld*—and a videogame soundtrack thrown in for good measure. Although I don't consider myself a film-music buff, I couldn't put the book down; it provides a wonderful behind-the-scenes look at filmmaking from an often overlooked point of view.

While I'd heard of a few films that had more drama than expected in the music department—*2001: A Space Odyssey*, *Lucifer Rising* and *Apocalypse Now* are classic examples—before I read this book I thought wholesale, mid-production changes were infrequent. Apparently not. Hubai writes that he included only the most interesting stories and that at least twice as many films have had their soundtracks reworked. He's careful to point out that these scores were not necessarily replaced because they were inappropriate; all it takes is someone with enough clout to decide, for whatever reason, that a soundtrack must be changed. Hubai does a fine job of teasing out whether the replacements were done for aesthetic or political reasons.

Even the biggest names in the biz—Goldsmith, Jarre, Mancini, Morricone and Zimmer, to name a few—are not immune to having their work rejected, replaced or modified, but they are just as likely to be on the other side of the equation in another film. The seemingly off-hand treatment of the score is testament to both the importance of music in film and how the composer is part of a larger team that is subservient to the needs of the project as a whole. In the best-case scenario, the change enhances the motion picture, and Hubai provides commentary about how successful many of the replacements were.

The soundtrack is usually completed near the end of the production, and even in the best of situations, the pressure put on the composer is extremely high. Imagine scrambling to complete such a large project in just a few weeks, only to have it scrapped outright. Even when portions are kept, the cues might be sliced and diced to fit a re-cut scene, or intercut with the temp score (the pre-recorded music that is added during film production to set the mood for a

scene as the film is being edited). And it's not uncommon for the director to fall under the spell of a temp score, providing additional tension for the composer/director relationship.

It's worth noting that the book was written by someone outside of Hollywood and the United States. As composer/director John Ottman says in the epigraph, "A book could be written about all the insane things that go on in terms of score politics, but it would have to be written by someone who doesn't need the work anymore." The author's distance, both geographically and professionally, gives the book a much wider scope in terms of his viewpoint and the projects covered. Hubai teaches film-music history in Budapest, Hungary, and he displays the broad understanding of cinema that people living outside of the United States experience. This global point of view makes it clear that the job of the film composer is universally fragile.

A LESSON FOR EVERYONE

Clearly, composers who are precious about their work won't survive under such conditions. To stay successful in any part of the music business, you have to believe in what you're doing while remembering that, at the end of the day, "The customer is always right." I see it happen in the mixing and mastering world, where an engineer has followed a client's instructions to a T, but the results are rejected and sent to someone else. And, of course, it can happen within a production: that amazing part you laid down and were very pleased with might get left out or replaced because it didn't serve the new direction of the song.

In these situations you have to learn to let go, even to the projects you believe in most. It's a fundamental lesson no matter which side of the glass you're on. And like any situation that goes wrong, there's something to be learned, even if the lesson is found in the behavior of a particular person or the most obscure detail of recording. Looking for that lesson is, at the very least, a healthy way to deal with rejection or downright failure. As nearly every self-help guide will tell you, struggle leads to growth.

A March 20, 2012, tweet from Yoko Ono elegantly addresses the learning-from-adversity saw: "If someone is unpleasant to you, draw a halo around his or her head in your mind. He/she is an angel who came to teach you something." If Ono can take away something positive from her negative experiences—and she's had a few—certainly the rest of us can as well. ■

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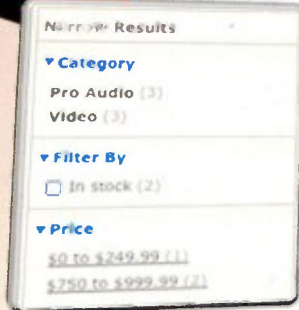
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WHAT IS DISTORTION?

Fender Hot Rod Deluxe Mods, Part 3



I have always tried to help people do more with what they have (and can afford). When one student brought the Fender Hot Rod Deluxe in for a session, my own needs as a recording engineer intersected with his, and we set about the process of finding out what could make this affordable amp more complimentary to his style. It soon turned in to a three-part series.

Part 1 (“Ask Eddie: Tweaking for Tone,” in *Mix* magazine’s February 2012 issue), you may recall, involved one cap change and one cap removal to improve the range of the existing tone stack. In Part 2 (“Ask Eddie: Guitar Tone, Part 2,” March 2012) a real Master Volume Control was inserted between the preamp and the power amp (the stock MVC only affected the Lead/Drive channel). In addition, a negative feedback control was added to yield a more Tweed-like tone.

But before moving on to Part 3, a couple of caveats are in order. First, the standard hazardous voltage warning: Power Down, unplug and discharge the power supply. Every time. No exceptions. Second, it should be noted that there are specialists who know and perform all of the common instrument amplifier fixes, mods and upgrades on a daily basis. I am not one of those people. I have been tinkering for years, know what works for me and am thrilled when my independent exploration yields similar conclusions to those with more experience in that niche market. That said, a freshly tinned tip-o-the-iron to my friends John Frondelli and Blackie Pagano of the Pro Audio Service Technicians Group. Now, on to Part 3.

Q: WHERE DOES DISTORTION COME FROM?

For all modern op amp-based circuits (interfaces, mixers, etc.), the audio signal is linear-clean (typically well below .01-percent distortion) from a whisper until the point where clipping becomes visible (about 0.5-percent distortion), beyond which an overdriven sine wave becomes a symmetrically distorted square-wave, aka “your gear as fuzz box.” Speaking of which, “fuzzy” square waves

are rich in odd-order harmonics (predominantly 3rd, with progressively lesser amounts of 5th, 7th, etc.).

Op amps comprise a few dozen transistors that have the potential to provide much more gain than is typically required. Negative feedback is employed to control the amount of gain and, in the process, reduce distortion and improve bandwidth (frequency response).

By contrast, the typical for *individual* tube and transistor gain stages can be much higher at nominal (0.1-percent is not uncommon at nominal). From 6dB below maximum output, asymmetrical sine wave distortion gradually becomes visible to the eye—think of it as “parallel processing,” where one-half of the wave is clean while the other half is dirty, generating predominantly even-order harmonics, aka *Octaves*. Percentages can easily fall between 1 percent and even 5 percent without being harsh or edgy and still be described as “musical,” “euphonic” and, dare I say it, “warm.”

INSIDE THE AMP

Tracing signal flow through a vacuum tube guitar amp is fairly straightforward. Because tubes are so big, real estate contributes almost as much to the simple circuitry as any of the other design parameters. Simple de-

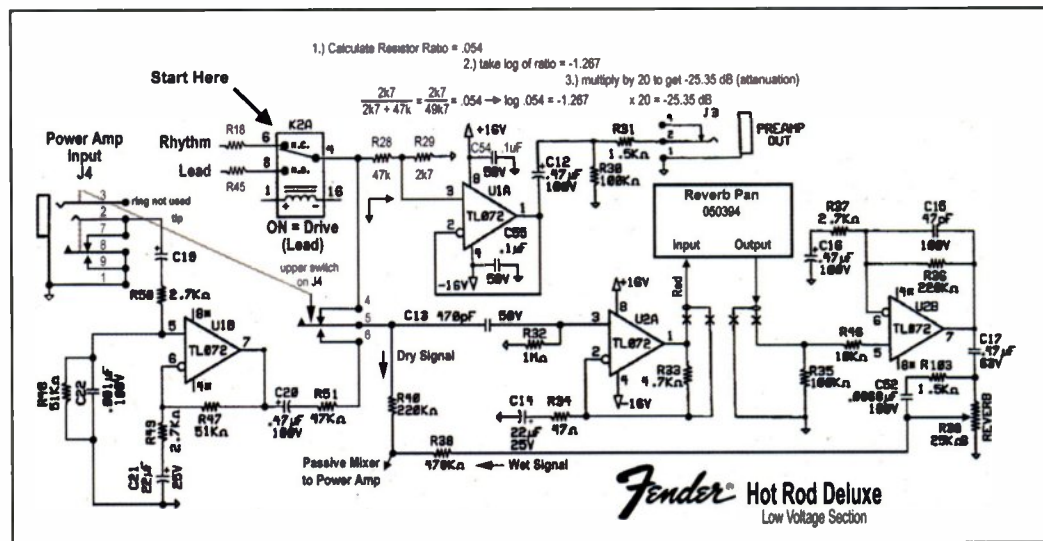


Figure 1: The low voltage, IC op amp section of the Hot Rod Deluxe.

signs have a better chance of being more “musical,” which is code for the type of distortion often described as “warmth” when the circuit is pushed toward saturation.

When the Transistor and then the Integrated Circuit introduced miniaturization, the resulting increase in component count and circuit complexity inversely reduced distortion; character and range of expression (think “soft-knee” or “bloom”) took a back seat to features and versatility. Many modern guitar amps suffer from being either too clean or too dirty, with no happy accident in between. Which brings us back to...

TU BE OR NOT TU BE?

With the exception of the reverb tank circuit, the Hot Rod Deluxe has an all vacuum tube signal path, unless “something” is plugged into the Power Amp Input Jack (J4). Two dual Operational Amplifiers—ICs labeled U1 and U2—do three jobs: buffer the vacuum tube preamp (to J3); drive and amplify the Spring Reverb; and, when necessary, incorporate the new “external” signal from J4 into the reverb driver IC and the power amp.

The sleight-of-hand required to transparently pull all of this off made the factory schematic look like a traffic jam. The modified version (Fig. 1) makes signal flow easier to trace. For example, note that J4 serves not only as the Effects Loop Return and the Power Amp Input, but it’s also a multi-pole switch.

At the top-left of Fig. 1, the wiper of Relay K2A (pin-4) selects between Rhythm (Clean, pin-6) and Lead (Drive, pin-8) before being split:

- A voltage divider (R28 and R29) creates a 25dB pad that makes the tube signal compatible with opamp U1A—the Preamp

“WHEN I DO ASK FELLOW TECHS FOR ADVICE, IT’S MOSTLY TO GET TUBE RECOMMENDATIONS, AND BY THIS I MEAN WHICH TUBES TO AVOID IN THE EVENT OF A BAD RUN.”

Out/EFX send amplifier.

- The unpadding signal feeds both the reverb spring drive amplifier (U2A) and the Power Amp Input.

The ratio of the Voltage Divider is calculated by dividing R28 by the sum of R28 and R29: $2k7\Omega / 47k\Omega + 2k7\Omega = 0.05432$. The formula for converting this ratio into its more familiar dB form is: $dB = 20 \text{ times the “logarithm” of this ratio, which is } -1.265, \text{ times } 20 = -25dB$.

When I do ask fellow techs for advice, it’s mostly to get tube recommendations, and by this I mean which tubes to avoid in the event of a bad run. Sad to say that as much as you’d like to choose tubes purely for their tone, Noise (hiss), Microphonics (mechani-

Vacuum Tube Evaluation: 12A77 Dual Triodes

MAKE / TYPE	LO GAIN Triode 1	Dist LO @ +16.7dBu	HI GAIN Triode 1	Dist HI @ +23dBu
High Gain ($\mu=100$)				
Telefunken / 12AX7	28.28 dB	.185 %	34.33 dB	.913 %
EHX / 12AX7	28.69 dB	.246 %	35.07 dB	1.096 %
Mullard / 12AX7	28.66 dB	.320 %	35.00 dB	1.33 %
GT / 12AX7M-1	28.37 dB	.278 %	34.45 dB	1.343 %
RCA / 12AX7	28.47 dB	.420 %	34.64 dB	1.690 %
GE / 12AX7	28.50 dB	.417 %	37.41 dB	1.739 %
JJ / ECC83	28.67 dB	.547 %	35.05 dB	2.317 %
Medium-Mu ($\mu=40$)				
EHX / 12AY7-1	25.59 dB	.204 %	29.61 dB	.480 %
GE / 12AY7	25.49 dB	.236 %	29.49 dB	.554 %
Low-Mu ($\mu=20$)				
EHX / 12AU7-1	20.9 dB	.362 %	23.09 dB	.549 %
RCA / 12AU7	21.22 dB	.401 %	23.51 dB	.633 %

Figure-2: Sample results from Dual-Triode tests.

cal sensitivity) and Reliability (build quality) come first. To meet the goal, I often buy a minimum of 10 preamp tubes and then sort through the batch to find the better ones. I will buy an extra pair of matched output tubes just to hedge my bets, which is my advice to you as well. The alternative is to pay premium prices for pre-tested tubes, but only if they come with a good warranty/return policy.

I buy tubes and related parts from tubesandmore.com and newsensor.com.

THERMIONIC TESTS

Several years ago I tested three dozen dual triodes of the 12A77 family: 12AU7 (ECC-82), 12AY7 (6072) and 12AX7 (ECC-83). (See Fig. 2.) The test was done using a combination of a Hickock TV-7 tube tester, a modified preamp section of a Gibson GA-6 guitar amp and an NTI Minilyzer (distortion and spectrum analyzer).

The preamp mods included a rectified filament supply and a cathode capacitor switch. Capacitor IN circuit (Note-2 & Note-6) increases gain, and Cap OUT (Note-1 & Note-5) trades gain (a la degenerative feedback) for a more linear dynamic response, reduced distortion and extended high-frequency response. The capacitor value is what we changed in Part 1 to make the first stage amplifier act as a highpass filter.

Each of these tube types has a different Amplification Factor (μ), the 12AX7 being highest and yielding 6dB more gain with the cathode cap switched in. The other tubes showed less of an increase as per their lower μ . Increased gain from the lack of feedback is about four times more for the 12AX7, double for the 12AY7 and about 1.5 times for the 12AU7.

SOFT POWER DOWN

It has been interesting to review these tube tests, now eight years old. I also reviewed an earlier article about the Altec 1566a mic preamp. I have worked on—and learned—so much since I first began exploring. The design process is a series of trade-offs, of balancing goals, features and flexibility. This is why we like those obscure amps from the late ‘50s and early ‘60s. They do one great thing and force us to play to that strength. ■

Eddie Ciletti’s virtual residence is at tangible-technology.com.

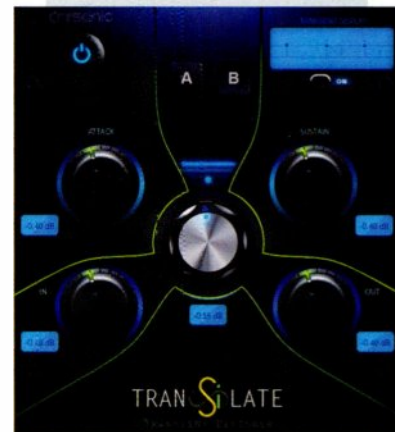
Tech // new products



DYNAUDIO M3XE MONITORS

Anniversary Edition

Dynaudio Professional (dynaudioprofessional.com; formerly known as Dynaudio Acoustics) has released the 20th Anniversary M3XE monitors (\$34,800). The speakers are powered by two of Lab.gruppen's PLM10000Q amplifiers, 4x 2,300 watts (2x 2,300W woofer, 1x 2,300W Mid, 1x 2,300W HF), taking the units up to a blistering 133dB SPL. Features include dual 12-inch ESOTAR² woofers, dual 6-inch midrange drivers and a 1.1-inch ESOTAR² soft-dome tweeter. Also included are analog and AES/EBU inputs, a class TD output stage, inter-sample voltage peak limiting (ISVPL™) and Lake processing.



CRYSONIC TRANSILATE PLUG-IN

Intelligent Transient Designer

Promising to add dynamic life to percussive and rhythmic material, the Crysonic Transilate plug-in (\$159; crysonic.com) features two main dials allowing users to increase or decrease the punch and impact of any audio source. Aimed at mixing, mastering, tracking and live work, Transilate will shorten or increase the attack and the sustain sections of any recorded or live signal; it is CPU-efficient and offers low latency.

MÄAG AUDIO EQ4 PLUG-IN



Six Bands plus "Air"

Plugin Alliance LLC (plugin-alliance.com) has released the Mäag Audio EQ4 plug-in (\$179), which models Mäag Audio's EQ4[®] (500 Series) single-channel, 6-band equalizer. Like its hardware namesake, the EQ4 offers super-tight low-end capabilities, plus Mäag Audio's AIR BAND[®] technology, a sweepable high-frequency filter that goes up to 40 kHz. Supported platform/formats include Mac OS X, Windows, and VENUE-compatible (VST 2.4, VST 2.3, RTAS, AU, AAX) plug-ins.

HERITAGE AUDIO 2264E

Precision Leveler

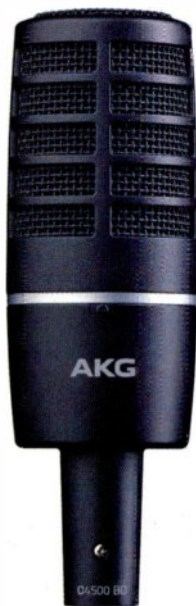
The 2264E (\$1,650), an enhanced version of Heritage Audio's (heritageaudio.net) 2264-A, offers the gain control circuit of the 2264A with the company's 2254 audio path. Features include a gain reduction meter, limit and compress switches, limit recovery switch, stepped limit level control, and a compression recovery switch offering six time-constant options. There is also a stepped threshold control from +10 dBm down to -20 dBm, and ratio control with five different compression ratios, plus a bypass switch and IND switch allowing the module to be linked to Bus A, Bus B or independent.



AKG PROJECT STUDIO MICS

For Studio and Stage

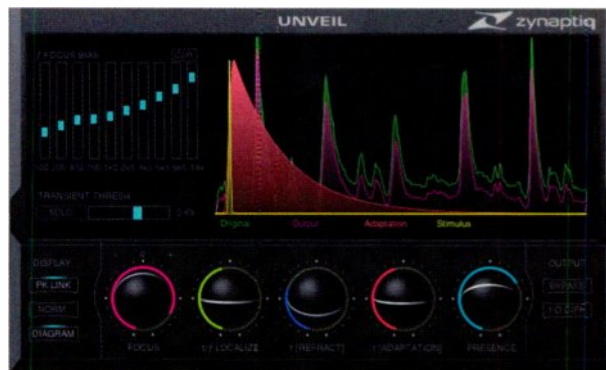
Nearly 20 years after their original release, the mic models in AKG's revamped Project Studio Line (akg.com) focus on the home recording/project studio market, but also perform just as well onstage. The new designs of the C2000 (\$269), 3000 (\$479), 4000 (\$599) and 4500 BC (\$599) maintain many of the technical aspects of the earlier models, but now feature a sleeker design plus edge-terminated capsules, mimicking AKG's premium line of mics, including the C414 and C12VR. The C3000 features switchable pad and low-cut filter; the C2000 small-diaphragm condenser promises large-diaphragm sound at a more affordable price; the C4000's high-performance, multipattern, large-diaphragm design provides high headroom and low self-noise; and the C4500 BC is specially designed for on-air broadcast purposes.



ZYNAPTIQ UNVEIL PLUG-IN

Very Revealing

Zynaptiq's Unveil plug-in (\$399; zynaptiq.com) is a real-time de-reverberation and signal focusing plug-in for the Mac OS X Audio Units format. Unveil allows attenuating or boosting reverb components within a mixed signal of any channel count, including mono sources, as well as modifying contained reverb characteristics. It promises to bring the key features of a recording into focus, or move them to the background, by attenuating or boosting perceptively less important signal components. Applications include music production, film and dialog editing, mixing and mastering.



CARTEC EQ-PRE-2A

Old School Plus

Cartec Audio's (cartecaudio.com) EQ-Pre-2A (\$2,230) is a dual-rackspace, stereo, discrete op-amp microphone/line preamplifier, with op-amp microphone/line preamplifier, with full "Pultec" program-type EQ, an M/S (Mid/Side) encoding or decoding section, and an aux output. The 2A borrows the equalizer circuit and components from Cartec's tube-based EQP-1A, but uses solid-state discrete op amps like the later Pultec units. Features include boost plus cut of four low frequencies and eight high frequencies, bandwidth control and left/right gain. The aux feature lets the user mix the signal between channels 1 and 2, all passively.

FOCUSRITE ISA TWO

Clean Gain Box

The ISA Two (\$1,099) from Focusrite (focusrite.com) is a dual-mono, transformer-based microphone preamplifier that features two of Focusrite's ISA-range mic/line/instrument preamps. Each channel offers +80dB of gain, switchable balanced insert points, variable highpass filter and variable input impedance. Other features include Lundahl LL1538 input transformers, separate instrument and line inputs, DI inputs on the front panel. TRS line inputs on the back and eight-step LED meters.

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YAMAHA CL SERIES CONSOLES

Dante-Based Desks

Yamaha Commercial Audio Systems (yamahaca.com) has announced the launch of the new CL Series, Dante network-based digital consoles. The three consoles feature remote I/O and are only differentiated by frame size and input capability. All feature 24 mix buses and eight matrix buses, plus stereo and mono outputs, and 16 DCAs. The CL5 (\$27,499) mix capacity is 72 mono and eight stereo inputs (64 channels through Dante and eight local), with 34 faders; it includes built-in output metering. The CL3 (\$21,999) is a 64-mono-input system, with eight stereo inputs and 26 faders. The CL1 (\$14,999) is 48 mono plus eight stereo inputs, and 16 faders plus two master faders.



JOECO BLACK BOX DANTE

Small But Mighty

In collaboration with Audinate, JoeCo Limited (capturingperformance.com) has released the Blackbox BBR64-DANTE Recorder (\$4,295), which can record or replay 64 channels. Occupying just one rackspace, the BBR64-DANTE Recorder connects to any Dante-enabled network device from a range of console and converter manufacturers. It can also record eight channels of analog alongside 56 channels of Dante for capturing audience and ambience. Higher sample rate recording (88.2 and 96 kHz) is also possible at a reduced track count.

NEUMANN/SENNHEISER KK204/KK205

Two Heads Are Better

Neumann (neumannusa.com) has released its KK 204 (cardioid) and KK 205 (supercardioid) capsule heads (\$999.95) for the Sennheiser 2000 Series wireless system. The KK 204 and KK 205 derive their features from the Neumann KMS 104 and KMS 105 stage microphones, both of which offer a "single polar pattern design," so the polar patterns are very uniform over the entire frequency range, providing excellent resistance to feedback. In addition, particular importance was placed on damping pop sounds and handling noise, as well as an extremely low level of self-noise. Both capsules and wireless units are available in nickel or black finishes.



LINE 6 XD-V SERIES DIGITAL WIRELESS MIC SYSTEM

Model Behavior

The Line 6 XD-V75 and XD-V35 series of digital wireless handheld, lavalier, headset and bodypack microphone systems feature sophisticated microphone modeling technology, promising to deliver the sound of the world's most popular wired mics. With 24-bit, 10-20k Hz, compander-free performance, XD-V series digital wireless systems provide unmatched, full-range audio clarity and license-free operation worldwide. The family offers pure 24-bit sound with a full complement of professional features including signal encryption, dynamic filters, gain control, channel scanning and more to handle the most complex applications. Prices: XD-V75 Handheld or Lavalier \$839.99; XD-V75HS Headset \$909.99; XD-V75TR Bodypack, \$769.99; XD-V35 Handheld, \$419.99; XD-V35L Lavalier \$419.99.



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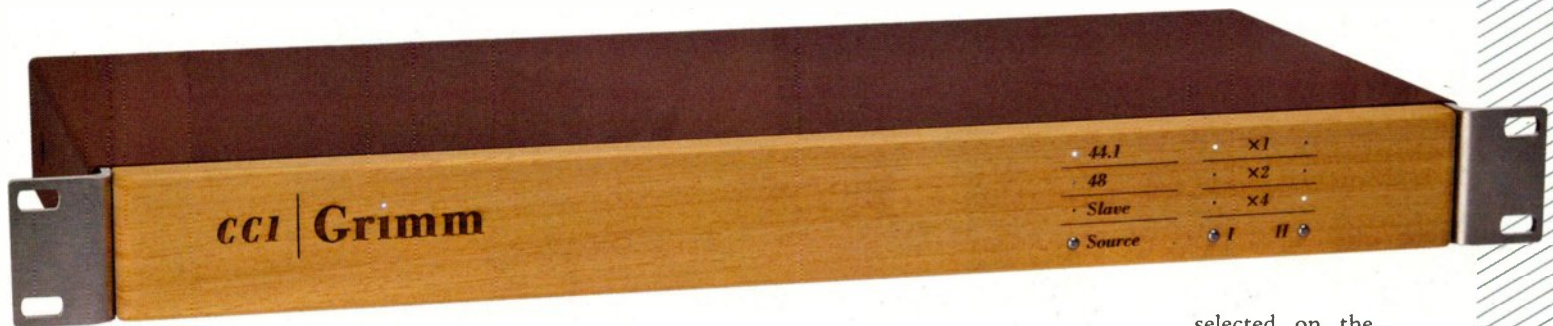
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Tech // reviews

GRIMM AUDIO CC1

High-Stability Word Clock Generator and Distributor



Clocking is important in any audio setup, and for those taking the extra step toward uncompromising system operation, high-quality audiophile clocking is even more important. For this reason, it's no surprise that Grace Design, a company that sets the quality bar high, has brought Grimm Audio's products to the U.S.

Based in the Netherlands, Grimm Audio makes an array of products including loudness software, speakers, cables, a replacement power supply for tube microphones, an A/D converter and a word clock generator/distributor. The Grimm CC1 clock, reviewed here, appears to be a straightforward and simple device at first glance. But don't let its wood-paneled front plate lull you into believing that this is a bare-bones box—it is a pro-level device through and through.

INSIDE AND OUTSIDE

The Grimm CC1 is a word clock sync generator and distributor built into one piece. To select its base operating frequency, you can choose its internal "discrete design" crystal oscillator (at 44.1 kHz or 48 kHz), or you can select a BNC or AES connector as an external slave input. The CC1's Slave input uses a very slow, but very accurate, Phase Locked Loop (PLL) circuit that can take up to 20 seconds to "lock." The CC1's oscillator exhibits performance specs that are so low (which means good) that they had to design special test gear to measure it: a 60dB low-noise and low-distortion wideband amplifier and a Very Low Frequency nano-voltmeter that allow them to make highly accurate low-level measurements.

The CC1 has 16 BNC outputs in two groups. The first group has 12 BNC connectors while the second group has four. Each group has its own 1x, 2x or 4x multiplier of the base clock rate,

selected on the front panel. There is also an AES output for a total of 17 outputs. This AES output can also be used to "re-clock" (i.e., de-jitter) a signal at the AES input (including audio and sub-code data) that is fed to a device that has no word clock input.

Because there is no standard for word sync inputs, Grimm designed the CC1 for multiple applications. Connection possibilities include serial, parallel, high-impedance termination or no termination at all. The back of the CC1 has four sets of DIP switches that allow you to configure each BNC connector to either 75 ohm or 30 ohm (low impedance). In addition, two of the BNC connectors in each output group have phase reverse DIP switches.

A useful feature for installations where settings might be accidentally changed is the "Key Lock" mode. This mode deactivates the front panel buttons, preventing unwanted changes to the CC1's settings.

A few under-the-hood design attributes worth mentioning include dramatically reduced power supply noise, temperature compensation for their extremely low-jitter oscillator, and a low-

PRODUCT SUMMARY

COMPANY: Grimm Audio

PRODUCT: CC1

WEBSITE: gracedesign.com

PRICE: \$2,995 MSRP

PROS: Noticeable improvement in sound when connected to most equipment. Highly accurate clock output, even when the CC1 is slaving to an external reference. Seventeen configurable outputs.

CONS: Expensive. Video input (frowned upon by Grimm) is possible, but requires add-on dongle.



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impedance reference plane that minimizes any potential ground loops (which can cause jitter).

LISTENING TESTS

George Duke's studio in Hollywood was a perfect place to do a test. His system uses multiple Avid and Euphonix interfaces with 48 analog channels. All of the interfaces (a total of 10) are externally clocked to an Apogee Big Ben clock. It was not possible to do a quick A/B comparison with a setup like this, so I printed a mix I was working on to an external recorder, then replaced the Big Ben with the Grimm and ran the exact same mix again to the recorder. I then burned a CD and listened to the two versions back to back, going back and forth between the two until I could easily identify the two versions. When listening, I did not know which version I was listening to, so that I wouldn't be influenced by what I may have "wanted" to hear.

My initial response was that I preferred the Big Ben. It seemed crisper and somehow more alive. But as I kept listening, I noticed that some of the high frequencies seemed a bit "hairy" or "edgy." It was almost as if the high end was a bit "excited," reminding me of an Aphex Aural Exciter signal processor. At the same time the bass sounded a bit more round or tubby—even mushy. The Grimm version, on the other hand, did not exhibit these attributes, and the first thing I noticed was that the bass sounded more defined, less puffy and more accurate. I also had the same feelings about the highs. They sounded more natural, and again, more defined. Essentially, the whole mix seemed more solid. I did not notice what many people often say about clock improvements—that it sounded more airy. In fact, in comparison to the Apogee, it sounded a tiny bit darker, due to the excitement I mentioned earlier. When I closed my eyes and told myself to forget about all the perceived sonic differences and just pick the clock that "felt" better, I chose the Grimm. It was accurate, natural and solid. I know it's cliché, but

TRY THIS

Do you need an External Clock? The answer is probably yes, but maybe not. It depends on your gear and your system. Even Grimm admits that in some situations, depending on the gear being used, there may not be any appreciable improvement to the sound. I have found this to be the case when working with live digital consoles. For example, externally clocking a DiGiCo or a Studer/Soundcraft console doesn't seem to improve the sound, but when I externally clock a Yamaha desk, the difference is literally jaw dropping.

it just sounded more musical.

Because this test was only a comparison of the two clocks' effect on the D/A converters, I performed a different test to isolate the sound of the A/D converters. At my studio I have a stock Avid 192 HD converter and a Black Lion Audio/Requisite Audio Engineering FM192. I also have an Apogee Big Ben clock modified by The Mastering Lab, so with the Grimm CC1 I could audition four different clocks.

The best way to compare audio equipment is to use the exact same source every time you make a switch. Obviously this isn't possible with a live player, so I selected a song with all live players that I had previously recorded to Pro Tools at 96 kHz, and mixed to a DSD recorder operating at 5.6 MHz. In other words, I used a very high-resolution source with which I was intimately familiar. I recorded directly into the stock Avid (Digidesign) 192 audio interface operating at 96k, and I recorded the same material with the four different word clock settings. The first setting was Pro Tools, set to its internal clock. For the other three settings, Pro Tools was set to External Clock, but with different sources: Grimm CC1, Apogee Big Ben, and the word clock output from the Black Lion Audio/Requisite Audio Engineering FM192.

With Pro Tools set back to its internal clock, I lined up all the tracks and with the help of my assistant, did some blind listening tests. I had her play a section of the song, each time playing back one of the differently clocked recordings. Then we selected a different section of the song and she randomized the order of playback. After each set of playbacks, we noted which one I preferred. Four out of six times I chose the Grimm. My criteria was to pick the playback that I liked best, that sounded the cleanest and the closest to how I remembered

the original recording.

This type of listening is extremely difficult. The differences, especially after being played back through my DAW (passing through the Pro Tools audio engine once again), were very subtle. It was very easy to go into a type of information overload to the point where I had to take a break to give my ears a rest. Yet I was definitely hearing differences between the clocks. Of course a "slam dunk" would have been if I had picked the Grimm all six times, but I think it was statistically significant that while listening blind, I chose the CC1 four times and the BLA/RAE and Apogee clock once each. Once again, the word "solid" or "defined" seemed to be the best way to describe how I perceived the effect of the CC1.


As another test with these recordings, I listened for the effects these different clocks had on the playback. Using the stock Avid 192, I would play a selection, stop, change clock sources, wait a bit for the PLLs to settle, and then listen. I preferred the CC1 to the other three choices, although I must admit, I did not do blind tests. Finally, I repeated this test using the FM192. I didn't know what to expect with this test because I love the sound of my FM192 set to its internal clock. This test was almost a toss-up. They both sounded good, but again I felt the CC1 gave a slight improvement.

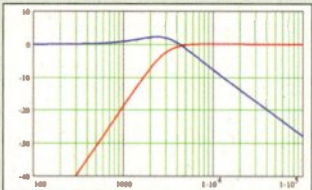
In addition to the 16 BNC outputs, the CC1 has an AES input and output. It can be used to re-clock (and de-jitter) the source at the AES input. This is a very useful feature of the CC1, especially when used to drive a DAC that has no word clock input. I use a DEQX HDP-3 as my monitor controller. It is a digital EQ and Cross-over with multiple DACs driving each component of my speaker system. Normally I just run an AES output from one of my 192s into the DEQX. When I inserted the CC1's AES into that monitor chain, I noticed that the sound was smoother and more "silky."

IS IT GRIMM TIME?

The CC1 is a brilliantly designed piece of equipment. Every piece of gear that I plugged into it sounded better and more natural. The word I keep coming back to describe its effect is "solid." It is one of those pieces of gear that has a price tag that can scare you, but when you hear it, you have to have it. ■

Erik Zabler is an L.A.-based audio engineer.

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GRACE M502, BAC-500 AND RETRO DOUBLEWIDE

Three Compact Compressors, Three Different Approaches



What makes you different from the next DAW jockey with a trackball? Flavor. And if you want to add more color to your recordings and mixes, analog hardware is a great way to do it. The three 500 Series compressors reviewed here not only deliver for those trying to maximize space, but each offers its own take on gain reduction style and character.

The Grace m502 goes the optical route using Grace's signature pure, hands-off signal path; the BAC-500 is designed by Brad Avenson and uses two discrete op amps and a custom wound output transformer; and the Retro Doublewide incorporates four NOS 6BJ6 pentodes and two Cinemag transformers into two 500 Series spaces and borrows some tricks from the Sta-Level. All units were reviewed in a Radial Workhorse at the back end of a Dangerous 2-Bus summing system from tracks mixed in Nuendo Version 5.5.

GRACE M502

Grace Design got into the 500 Series game last summer with the m501 mic preamp (reviewed in *Mix's* July 2011 issue). Later, at AES in New York City, they announced the m102 and m502 optical compressors—mirror units on the inside, but the m102 is a half-rackspace desktop unit and m502 is a 500 Series version. Features include what you'd expect: threshold, attack, release, ratio and makeup gain. Additionally, you have three choices for input level (-10dB, 0 and +10dB),

PRODUCT SUMMARY

COMPANY: Grace Design

PRODUCT NAME: m502

WEBSITE: gracedesign.com

PRICE: \$695

PROS: Sonically stellar, versatile, easy to strap together in stereo

CONS: Slick knob design but tough to recall with accuracy

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a link switch for stereo operation using two modules, and a 10-position LED gain reduction meter, plus a peak-level LED, which goes green at -10dBu and red at +20dBu (6dB before clipping). Grace was “gracious” enough to send me two units for review, allowing me to test the pair in stereo.

Out of the box it was easy to mount the units in my Radial Workhorse, but not before I attached the included jumper that al-

lows the m502s to be strapped together. I could also use the Workhorse “link” switch on the back of the unit because Grace implements the Workhorse’s Pin 11 unbalanced audio out connection for linking, plus Pin 7 & 9 connections for the Workhorse and Purple Sweet Ten rack’s auxiliary connectors (sidechain).

I used the m502s on a number of tracks both percussive and not, and it excelled in every case. The attack/release controls were great for letting the attack of a kick drum through while grabbing the back-end boom, providing a tight transient. I hit it hard in this application, lighting up the peak LED, but heard no evidence of the signal getting harsh or breaking up. Next, when I used the m502 on an acoustic guitar I went with a medium

“THE BAC-500 SOUNDS GREAT ON GUITAR TRACKS. I WAS ABLE TO GET FANTASTICALLY CRUSHED, IN-YOUR-FACE EFFECTS USING THE VERSATILE RATIOS PROVIDED BY THE UNIT.”

attack and lazy release. In this case I used Nuendo’s Region Gain feature to tone down some nasty peaks and squeaks, and then let the m502 add general smoothness at the end of the chain.

The 10-segment LED gain reduction meter was quick and gave me accurate feedback on how hard I was hitting the unit. On stereo drum overheads, the m502s sounded great. I was able to tame runaway cymbals while leaving the quality of the rest of the kit untouched. When jumping from mono to stereo use between mixes, it was easy to flip the unit into Link mode from the front panel.

The m502 is a stellar optical compressor that is super-clean, letting you dial in light to heavy crush via the intuitive control set. For instance, on tracks recorded at low level, I just upped the input gain switch and I was ready to adjust the amount of compression with the other controls. Or, I could knock the gain down if I had tracks that were hot, keeping the other controls where you’d expect without having to go radical.

It’s hard not to like the m502. It has that rare combination of quality, features and price—highly recommended.

BAC-500

The BAC-500 compressor is designed by Brad Avenson and is carried exclusively by Pete’s Place Audio. It is a feedback-style FET compressor built around two discrete op amps and a custom-wound output transformer. Controls include rotary pots for input, attack, release, ratio and output. Additionally there is a three-position sidechain contour switch, eight-segment LED gain reduction meter and push-buttons for adding distortion and a hard relay bypass.

I’m a big fan of sidechain control on any compressor, as it gives you options for making the output more musical, and the BAC-500 works great. On a boomy acoustic guitar, I used the highpass sidechain option to reduce low end to the compressor so it wasn’t reacting to frequencies I took out later to make the

track fit in the mix. This keeps you from having to use an additional EQ before the compressor and lets you sculpt the bottom end at the end of the chain after the compressor.

The attack and release worked as expected and I had no problems getting the effect I wanted. I liked how fast the attack could be; sometimes you want that unnaturally fast attack to clamp down on something as an effect. For instance, I used the BAC-500 on a track that had a pointed attack that I wanted to de-

PRODUCT SUMMARY

COMPANY: Pete’s Place Audio

PRODUCT: BAC-500

WEBSITE: petesplaceaudio.com

PRICE: \$995

PROS: Sidechain EQ, surgical precision FET compressor, sounds great

CONS: Counterintuitive bypass, disappointing distortion feature

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accentuate. I set the attack nearly 100-percent fast, and it quickly grabbed the front. I was able to let the rest of the signal through with a fast release time. The BAC-500 is great at surgical compression.

The distortion feature puzzled me. I used it on pads, vocals and tracks with hot transients like kicks and snare drums, and it was ho-hum every time. I'm used to the Doc Derr's distortion feature (an EQ/Comp 500 Series unit from Empirical Labs), which you can definitely overdo. I enjoy being able to get into the weeds and then dialing things back and forth. That's not the case here.

The BAC-500 sounds great on guitar tracks. I was able to get fantastically crushed, in-your-face effects using the versatile ratios provided by the unit. The infinity! ratio setting is like the "spank" feature you get on an 1176 by pushing all the buttons in. The BAC-500 exhibits flavor-plus in this department.

Other than the disappointing distortion feature, my only gripe with the BAC-500 is that the bypass switch is counterintuitive. When the red bypass light is on, the unit is on? This is flat backwards and I found myself doing the occasional reality check when the red light was on to be sure I had the unit in line.

The BAC-500 is an excellent FET-style compressor in a tight package. The separate in/out volume controls, expected attack/release and ratio features, plus the addition of the side-chain filter make it a versatile gain controller with plenty of personality.

RETRO DOUBLEWIDE

Retro is a company that excels at making great-sounding tube gear. When I heard they were getting into making 500 Series modules, I had to see how they would do it. Their other units—like the Sta-Level and Powerstrip—need plenty of rackspace to pull off their magic. It was no surprise that the single-channel Doublewide lived up to its name; it takes up two full 500 Series rackspaces.

The Doublewide uses a variable-mu tube for gain reduction and is its own beast. Don't let yourself think that it's a smaller Sta-Level—despite

the single/double switch and other similarities. Like the Sta-Level, it has input, output and recovery controls on rotary pots, but where it steps out is by adding a rotary attack control and a bypass switch. It also has its own personality. It's buttery, like the Sta-Level, for lack of a better term describing the rich low and mid-range frequencies that it adds when it's in the signal chain. But the attack and release settings work differently than on the Sta-Level. I'll stop making comparisons past this point, as the Doublewide can stand on its own.

I used it extensively on shredding guitars (not my favorite application; FET is king here), bass (yum), vocals (double-yum), piano and percussion. Like the other two units reviewed here, it has its own special traits. The Doublewide specializes in making tracks sound more natural, wooden and "analog." I cringe at using those descriptors but I find it hard to get the point across in words what I heard when using the Doublewide.

Like other Retro gear, once you understand how it works, it's easy to get the sound you want. For instance, I often leave the Single/Double switch on Double. For me, this offers the most natural release, giving the compressor some breathing room between hits above the threshold. I often left the Recovery set at 10, fully clockwise. Even though the release is still slow at that setting, it is far more useable than at 12 o'clock or less, where you have to go to lunch and get a massage before the meter recovers to zero.

Once I got my head around the Doublewide, it was an easy matter to figure out if it was going to work on any particular track. How I used it changed with every mix. Sometimes the Sta-Level (also in my rack) worked better on bass than the Doublewide, but depending on the recording, sometimes the Doublewide was better. It was a quick and easy decision much like an eye test—better... worse....better...worse. The point is that any engineer would love having this tool in their rack. It's a standard, newly classic, go-to tube compressor—plain and simple.

Be assured that this unit is built to exacting standards. From the manual: "Special circuitry eliminates excess current inrush and component stress when power is applied. The tubes are self-biased and balanced without the need for user adjustments and there are no internal controls. Tube replacement is straightforward and the tubes are readily available."

There's nothing to dislike on the Retro Doublewide other than I can't use two together in stereo. Other than that, it's an essential tool for anyone wanting to bring tube character and warm fuzzies to their mix. You will love it. ■

PRODUCT SUMMARY

COMPANY: Retro Instruments

PRODUCT: Doublewide

WEBSITE: retroinstruments.com

PRICE: \$1,215

PROS: Retro signature quality, great sound

CONS: Not strappable in stereo



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Tech // reviews

CRANE SONG PHOENIX II TAPE EMULATION PLUG-IN

Analog Saturation Emulation From Dave Hill

Phoenix II is the latest version of Crane Song's analog tape saturation plug-in for Pro Tools, and is coded AAX-only and sold as a single plug-in with both Native and DSP versions. It requires iLok authorization and runs on both Mac (Version 1.56) and PCs (Version 1.54). Because Phoenix II installs as both Native and DSP versions, its DSP load is easily spread between the computer's host resources and the processing provided by the new Avid HDX card(s) in your computer.

Optimized for Pro Tools 10 and all future releases (when that application becomes full 64-bit), for now Phoenix II uses 32-bit floating point math-based processing for both Native and DSP versions, realizing an immediate 10dB lower noise floor compared to the 24-bit fixed-point math of the previous TDM version.

Like analog tape recording technology, Phoenix II can increase the apparent loudness of any audio track or entire stereo mixes—not just the electrical (VU) level. Phoenix II's effect is entirely level- and source-dependent and comes with a choice of five combinations of analog tape saturation characteristics, called "types." It is useful on any audio source as a subtle analog "colorizer" or as a full-on effect—or anywhere in between.

NEW LOOK, NEW GUI, NEW FEATURES

In addition to Phoenix II's new look and redesigned GUI, all five types are now available in a single plug-in and selectable using its Type rotary switch. Because of TDM's DSP limitations, Phoenix I was a bundle of five separate plug-ins, each one named for what it offered. Having all five Types in one plug-in drastically reduces the amount of time to audition and select.

The new Output Trim control has a +/-6dB range and is useful when checking (A/B) Phoenix's effect using its bypass button. Each Type in Phoenix fills out the sound in different ways and, generally speaking, any Process level greater than about 50 will increase the output level depending on the source and the Type

chosen. Phoenix II's GUI now has an Input Trim control with a +/-10dB of range, allowing for resetting nominal input levels regardless of their actual recorded level.

Internal mixer/plug-in clipping using 32-bit floating-point processing is less of a problem nowadays, but at their default settings (when Phoenix is first inserted and both Input Trim and Output Trim controls are at 0dB and the Process control at 0), the plug-in is bit-accurate—input equals output.

The Process control sets the level or strength of the selected Type's processing, and ranges from 0 to 100. Note that Process settings do not work the same way for one Type as they do for another because each of the five Types have their own unique collection and blend of analog tape saturation characteristics made up of odd/even harmonic distortion, different amounts of frequency-dependent compression, and other modeled attributes.



TRY THIS

Phoenix II works great in two unusual applications but for completely different reasons. Any preset in a virtual instrument benefits immensely from Phoenix II post-processing. The nearly infinite combinations of the five Types, parameters and processing amount offer a way to personalize any sample library or stock synth patch. Try the Dark Essence type on spiky drum hits or create huge-sounding synths from thinner presets you vowed to never use again.

I like using Radiant or Luster cranked full up on stereo digital delay or reverb returns in Pro Tools. Like personalizing a stock synth patch, any of the five Types will modify any effect return in a new way. Phoenix II is another way to increase a reverb's fullness, brightness (or not) and change any of its presets easily without diving into layers upon layers of tweaky parameter pages.



The Brightness control is a three-position switch with Opal, Gold, and Sapphire positions. The default, straight-up Gold position has the flattest frequency response. The Sapphire position is for a brighter, overall sound, and Opal is useful for warming things up.

EACH TYPE'S SOUND

The five Types of analog tape characteristics available from Phoenix II are called Luminescent, Iridescent, Radiant, Luster, and Dark Essence. Each is a very specific combination—a “recipe” of the level, harmonic structure and shape of the frequency response and its influence on the source audio. The descriptions given here are in the abstract—the basic nature of each of the five Types with the Brightness control set to the Gold, or flattest position.

Luminescent is the most natural-sounding Type and a good starting point for learning Phoenix II if you're a new user. Even with the Process control fully wound up at 100, the sound quality is fuller—reminiscent of music recorded on a well-aligned analog tape machine.

Iridescent copies Luminescent but adds more low frequencies and has a thicker low-midrange sound; Radiant is Iridescent with slightly more compression in the midrange.

Luster departs from the first three Types and is always brighter and louder on all sources; at extreme settings (with Process set to 100), Luster goes from the bright side to the dark side, moving toward Dark Essence.

Dark Essence is the loudest and most striking of the five, with its effect covering a wider range of frequencies. Dark Essence will reduce high-frequency transients and sibilants dynamically in a very smooth way, just as with analog tape. With the HF peaks reduced, more overall apparent loudness is created. Dark Essence is the most effective at the apparent

PRODUCT SUMMARY

COMPANY: Crane Song

PRODUCT: Phoenix II Tape Emulation Plug-In

WEB: cranesong.com

PRICE: \$450 new; TDM upgrade \$65

PROS: All five Types in one plug-in, with both AAX Native/DSP versions available.

CONS: No VST or AU Native versions.

loudness game but will increase electrical level.

RISE FROM THE AXES

I tested Phoenix II using a Mac 8-core Westmere (OS 10.6.8) with 12GB RAM. My Pro Tools|HD 3 Accel TDM rig will run Pro Tools V. 10.0.1 in a “hybrid” mode in which TDM, RTAS and AAX Native plugs all work at the same time in the same session. The DSP version of Phoenix II was not tested for this review.

My first test was for a guitar-heavy song, but for some reason, despite using a huge Deizel amp stack (as I was told), all the guitar tracks recorded to sound thin and very kazoo-like. I used Dark Essence “maxed out” as an effect on one track and then Iridescent on another for a just a touch of lower-midrange enhancement. On a third track, I used Radiant with its sound of compressed urgency when I wanted to hear more definition of the guitar's lower strings during slides up/down the neck. Radiant found those frequencies dynamically and now, with all five Types easier to audition, I quickly determined Radiant as the right choice.

For mixing songs with many double-tracked electric guitar parts, I like being able to choose different Phoenix Types and selectively dial in the amount of their individual “color” for each track. It's another approach for treating large choirs of massive electric guitar stacks without using time-based effects, EQ or compressors.

All five GUI controls plus bypass are automatable, and I found being able to quickly automate Phoenix II and change from Type to Type or bypassing between quieter verses and big choruses was very useful. I could make the chorus guitar tracks immediately louder with not too much of a level jump.

KEYBOARDS

Keyboards, with their more complex harmonic structures, benefit greatly from the Luster Type. For a crystalline and transparent-sounding stereo grand piano, I used Luster with Process set from 50 to 70 and Brightness set at Gold, or occasionally to the brighter Sapphire position.

My favorite effect in Phoenix II was Luminescent on stereo drum room tracks. Insert a multi-mono (stereo) version and turn Process anywhere from 60 to full up at a 100, max out both Trims and stand back or take cover!

You can step through the five Types and hear different colorations, from subtle midrange changes (the first three types) to increased solid bottom end information (Luster and Dark Essence) on everything recorded in the drum room, including the acoustics of the space.

This is not like using a massive amount of compression; the sound quality and effect is related, but at these extreme settings Phoenix II does not pump like a drum compressor. The Opal position cuts the treble globally, so I went to the Gold position and used Pro Tools 10's new Clip Gain feature to lower all cymbal crashes individually—“trench work” that I would do anyway if I was interested in using any significant amount of a bright drum room in a final mix.

THE ENDURING PHOENIX

Level and source dependency, with the ability to select a different analog saturation Type for each source and set its precise amount to achieve any desired sonic goal, are my favorite reasons for using Phoenix II. They are all completely individual and subjective decisions for the music mixer and make a good case for Phoenix II's musicality and enduring popularity. ■

Barry Rudolph is an L.A.-based recording engineer.



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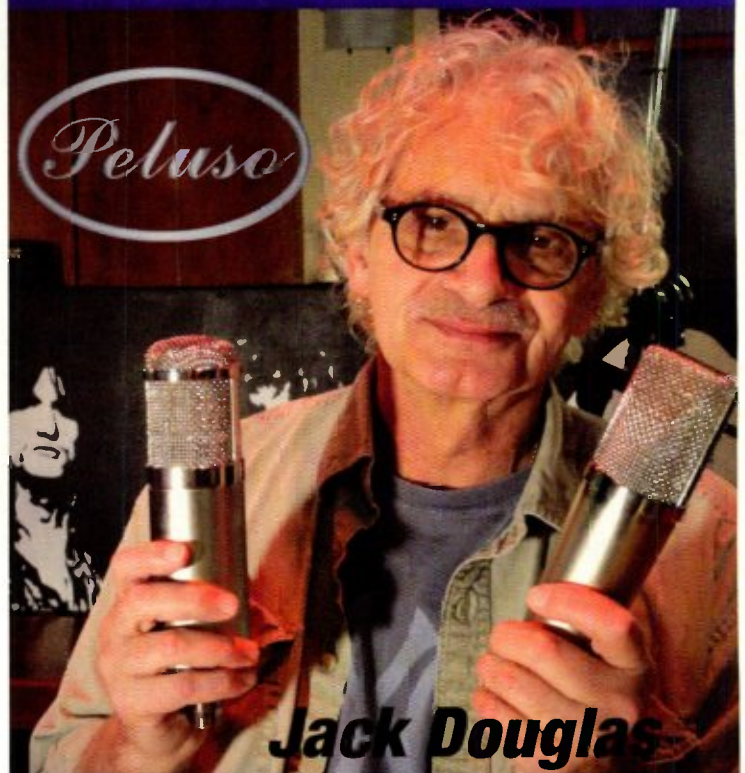
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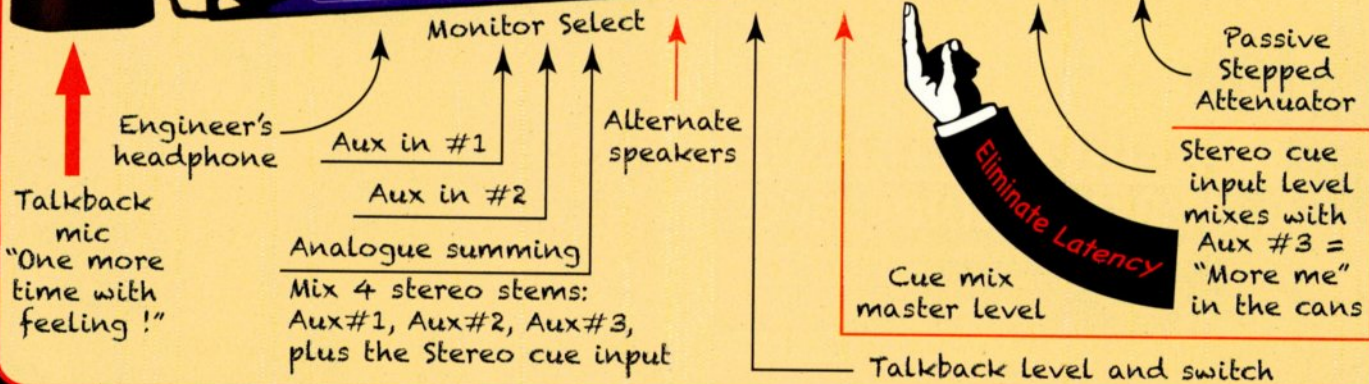
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By Kevin Becka

Since the January 2012 issue, I've been chronicling the build of my personal mix room from the walls in. Last month I talked about acoustic treatment, and now it's on to the gear. The zoomed-out view

of my rig reveals a hybrid digital and analog summing system using a rack-mounted Rain Ion Studio PC running Nuendo; you can view the full gear list at mixonline.com.

My space is small so I had to eliminate clutter from excess cable, power supplies and other goodies used along my signal path. The first consideration was how I would rack everything and run cable to my speakers and desk. I shopped around for a prefab rack and found nothing I could use. I dislike vertical racks because the gear near the floor is hard to get to and there's little room in the back for storage. So I decided to go custom, which only cost a little more. I borrowed an idea from 25th Street Recording in Oakland (featured on *Mix's* October 2011 cover), where they built these fantastic looking custom racks on rollers with the gear at an angle putting it all within reach. Because my gear is now angled at about 45 degrees, the back of the unit has a ton of room. Not having the original plans, I took the pictures from the *Mix* story and made a rough drawing, which I brought to my contractor, Tim Solis. He put his expertise into the design and we came up with a wooden, rolling 28-space rack. Fully loaded, it holds all my gear, including computer, converters, summing, hardware EQs and compressors, plus power supplies, AC cables, my Benchmark DAC-1 for monitoring my finished mixes, dongles, snakes and interconnects—all easily movable and self-contained. I roll the rack near me when I mix, and tuck it back to the wall afterward. Tim divided the storage area into two parts, allowing me to sequester power from audio; plus, he cut 2-inch holes in the bottom of the rack for ventilation. Being bare, cabinet-quality lumber, I could pick a color that matched my room decor.

I used two conduits to keep the power and audio cables separate as they traveled to my Monster Power units and desk (a sturdy refurb from an antique store, plus side table I bought for \$115). One conduit is from Fry's Electronics that cost \$20—a flexible 1-inch diameter hose with a slit in the side making it easy to tuck AC cables

inside. The other is a 4-inch diameter Dust Right shop vac hose from Rocker that expands from 4 feet to 28 feet. This was a gamble, as I'd never seen this used for audio, but it was one of the best things I did for the studio. I also bought an optional kit that has clamps and heavy-duty end fittings that gives it a great finished look, all for about \$100. Because the hose is vastly expandable, I didn't have to worry about coming up short when I rolled the rack back and forth in the room. The Rocker holds the cables from the rack to my speakers, reverb remotes, digital 2-track recorder, computer monitors, computer keyboard/mouse, Eventide SP2016 and Avid

MC Control. You can fit your whole arm into the 4-inch diameter hose, making it easy to run all the cables with room to spare; plus, it looks great.

Since I didn't have a lot of horizontal space on my desk and wanted to use two computer moni-

tors, I had a custom vertical stand built by Sound Anchor, the same company that built the speaker stands holding my Focal Twin Solo 6 monitors. The vertical approach works very well, as I can see both screens easily. I also saved some space by mounting my speakers vertically, a suggestion I got from Simon at Audio Plus Services. This orientation allowed me to place my Sound Anchor stands at the side of each monitor rather than the back, giving my Vovox speaker cables and ESP MusiCord AC cables a lot of free space in the rear.

A final note: Don't skimp on your chair! You spend a lot of time sitting down in a studio. I did a lot of research and visited my local Herman Miller dealer to weigh my options. I never thought the Aeron chair was that comfy, so I sat in the Sayl and Mirra, eventually choosing the latter. It's more affordable than the Embody, which is like a Rolls in adjustability, comfort and price. The Mirra comes with all the adjustable options in the basic price and is super comfortable, making those long hours during mix sessions much more comfortable.

Thanks for reading and stay tuned for more next month, as I finish this series on my build by talking about mix specifics and signal flow. ■

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