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**ON JASON MRAZ, TONY MASERATI AND LIFE IN THE STUDIO**

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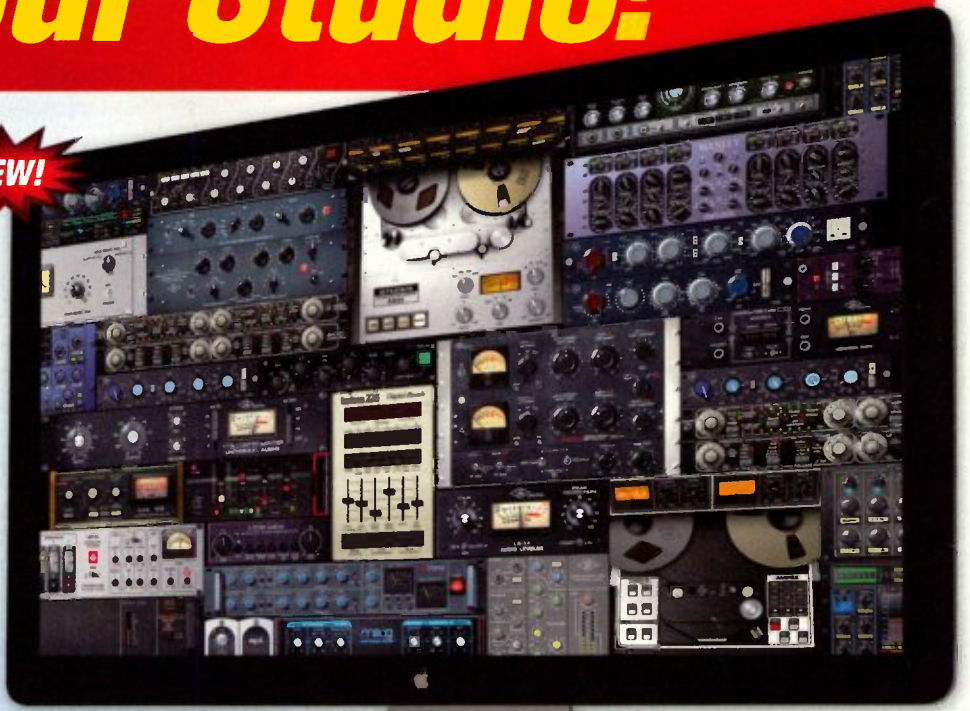
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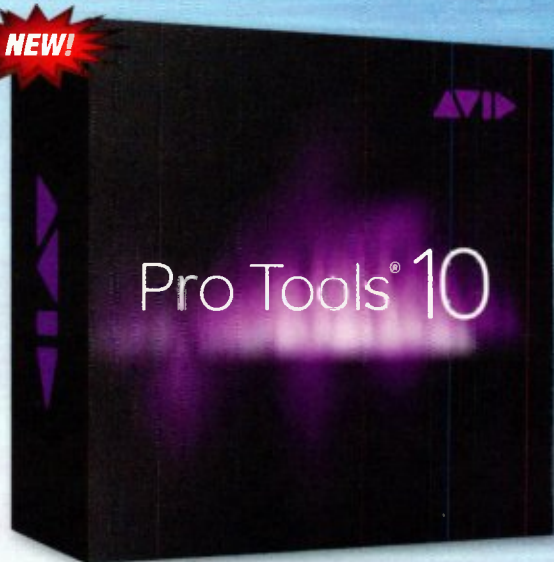


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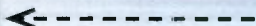
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The core Grammy Audio team, with some friends from Springsteen's camp: Back row, l to r: Hank Neuberger, Glenn Lorbecki. Middle row: Toby Scott, John Harris, Bob Clearmountain. Bottom row: Eric Schilling, Leslie Ann Jones, Phil Ramone, Maureen Droney.

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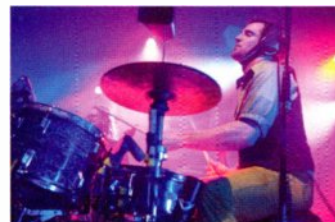


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**On the Cover:** Joe Chiccarelli, pictured here at EastWest Recording Studios in Hollywood working on the upcoming Jason Mraz record. Engineer Steve Churchyard has his back to the camera. Photo: Ana Gibert.

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## MUSIC FROM THE HEART AND HEAD

I like Dave Grohl, and I'm liking him more as the years go by. He lives the life he believes in, and he eats, sleeps and breathes music. He lied about his age to audition for his first band, then was the East Coast emigré in the Seattle scene when he joined Nirvana. He plays well with others, from Queens of the Stone Age to Them Crooked Vultures to...Paul McCartney. He's a songwriter, a multi-instrumentalist, a producer and he dabbles in engineering. He made Fresh Pots, enough said.

And I thought the Foo Fighters absolutely killed it at the Grammys. You could argue that the Adele performance, intimate and soulful in its lone spotlight, and the Foos, a bona fide rock band, dialed in and pounding it in an outdoor tent, were the highlights of the night. All about the music and not the spectacle. All about the performance onstage. Grohl actually appeared three times, closing the show with McCartney, Springsteen and Walsh. With all that, it was his acceptance speech for Best Rock Album that garnered all the online attention. To recap, in Grohl's own words:

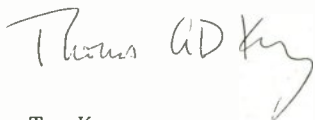
"This is a great honor, because this record was a special record for our band. Rather than go to the best studio in the world down the street in Hollywood and rather than use all of the fanciest computers that money can buy, we made this one in my garage with some microphones and a tape machine. To me this award means a lot because it shows that the human element of music is what's important. Singing into a microphone and learning to play an instrument and learning to do your craft, that's the most important thing for people to do. It's not about being perfect, it's not about sounding absolutely correct, it's not about what goes on in a computer. It's about what goes on in here [your heart] and what goes on in here [your head]."

It's hard to argue with any of that, and his message resonated with a lot of people. It also led others to say he's stuck in the past, that at a time when the Grammys reached out to dance/electronica, Grohl was undercutting its significance. Perhaps we need to separate the message from the messenger, as we can all assume that Grohl is a music fan first and foremost, however it is created. And keep in mind that while he made this record in his garage, he definitely has a leg up on his punk forebears.

First, while his garage is untreated and he wouldn't allow a computer in the space, he did have a 32-channel API, two Studer 24-tracks and all the mics and vintage outboard gear he would ever want. Plus, he had Butch Vig. So, yes, he doesn't need the Hollywood studio; not everyone does. But he certainly has access to the tools that color his sound. He made the record in a space where he was most comfortable. That's a good message.

As for computer-based production, it's not like he never touches bits and bytes, though he made a point not to on this project. Between the lines, my own sense is that he was more talking about precision vs. imperfection, opting in favor of the latter if the performance had soul. He doesn't like to line up drum hits, never has. But he also shared a stage with Deadmau5 and was seen bopping his head to house music. So he can't be against computers in production. From everything I've read about him, he's about music, whether it comes from a stick beating an oil drum or a groove built for the dancefloor.

In the end, though, he is absolutely spot-on. Music comes from the heart and the head, and an artist who starts there, then writes and plays and practices till his fingers bleed, just might end up on the Grammy stage.



Tom Kenny  
Editor

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# Current

COMPILED BY MIX EDITORS

## GRAMMY SOUND

There isn't a show on television that devotes more attention and resources to quality sound than the Grammy Awards, and this year, amid changes in programming and unplanned guests, the audio team again delivered stellar 5.1 audio from Staples Center on February 12. It's not that other shows don't care, or don't do quality work; it's just that nobody does it better. And the care and attention permeates the production, from house sound to wireless setup/monitoring, to the Music Mix Mobile broadcast music mix, to the 5.1/stereo/mono broadcast feed out of the Denali truck and back to CBS New York for transmission in Dolby 5.1, to the monitoring of cable and broadcast signals from around the country, in real time during the live show.

Much of the success—and the Emmy nominations and wins that have rolled in—can be attributed to the highly professional crew that has remained intact over the many years and functions as a well-oiled technical and creative unit. It begins with the Recording Academy's Television Committee and their representatives on site, who monitor the house sound and broadcast: Phil Ramone in the Denali production truck; Leslie Ann Jones at Front of House; and Hank Neuberger overseeing the overall music for broadcast.

Then there is Audio Supervisor Mike Abbott, who coordinates all things audio, from working with ATK Audiotek on the house system to feeding the music and production trucks. Music Mix Mobile, with EIC Joel Singer and veteran mixers John Harris and Eric Schilling, run two Avid D-Control/Genelec-based vehicles connected/networked via MADI. Dave Bellamy is on wireless, incorporating Shure, Audio-Technica and Sennheiser systems. And Ron Reaves is FOH music mixer, with Mikael Stewart on production and inserts, all supported by Fletch and the crew at ATK Audiotek. Tom Pesa and Michael Parker mixed monitors.

Not much changed in the broadcast chain this year. Music Mix Mobile starts rehearsals on Thursday, getting individual mixes for artists during their 1.5-hour sessions, then switching to the other truck for remixing with the artist to “get

*Fletch of ATK/Audiotek leans over the SD7 to consult with FOH mixer Ron Reaves at Staples Center; to their right is Mikael Stewart, production mixer, at an SD10*



*Broadcast music mixer John Harris at the Avid console in the Music Mix Mobile truck.*

it right” for broadcast. Harris and Schilling leapfrog each other, truck to truck, on each artist.

The big news this year was the change in the house system. After years of working on Yamaha PM1Ds, the team decided to make a switch for 2012 as Yamaha had announced its discontinuation of the unit in 2009. This year, after much testing, they settled on an all-DiGiCo system—SD7 for Reaves at front of house, because he “needed all those inputs”; SD10 for Stewart at produc-

tion; and two SD10s for each of the two monitor positions (there are two stages to facilitate rapid changeovers). Each stage had two 56 I/O stage boxes running at 48k (with hints at 96k for next year!), and there were 488 total channels available on the Fiber-based Opticore system: all I/O could be shared console to console. Taidus Vallandi supplied and babysat the system through distributor Group One. “We have one A/D at the pre and one D/A at the amp,” he says. “And it is the only true redundant digital system out there, so it's fail-safe. Each console is really two consoles, mirrored inside the desk.” The P.A. was a JBL Vertec system, fed by Powersoft amps.

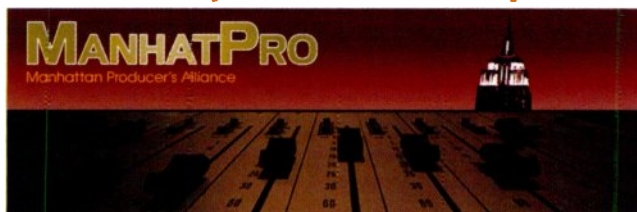
“The Yamaha boards had worked very well for us all these years, but we knew it was time for a change, and we decided to go for it this year,” Reaves explains. “DiGiCo sent an SD7 to my house 30 days in advance so I could get comfortable with it, and their level of support has been just phenomenal. With all respect to Yamaha, those boards were 10 years old, so this was like going from a Volkswagen to a Ferrari. I got to highpass filter across the strings. I reached for 4k on the vocal—things I wouldn't have done before. And it just sounds great.” ■

Photos courtesy of The Recording Academy/WireImage.com © 2012



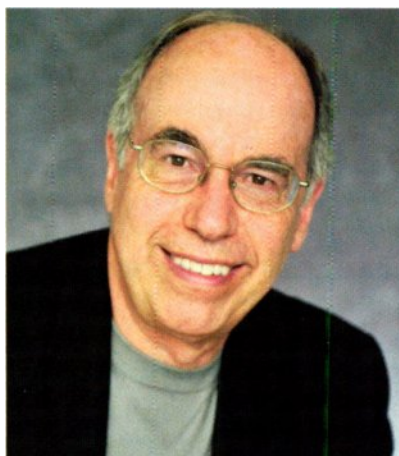
## Manhattan Producers Alliance Opens West Coast Chapter

The Manhattan Producers Alliance (ManHatPro)—a media education, mentoring and networking community for audio/musician professionals—has launched a West Coast chapter. Based in San Francisco, the new MPA West is headed by Grammy Award-winning TV/film/online composer Steve Horowitz (*Super Size Me*, Nickelodeon Digital). “The Bay Area music community is very active and very diverse,” Horowitz says. “My hope with MPA West is to harness some of that energy and create a link between the East Coast and West Coast media markets. Games, film, TV, the cloud and other emerging sectors are blurring together to create a new media distribution landscape. We feel strongly that a vibrant coast-to-coast connection helps all audio and media professionals to stay ahead of the curve.”



## Watters Honored by MPSE

Supervising sound editor George Watters II took home the 2012 MPSE Career Achievement Award at the 59th Annual Golden Reel Awards, held February 19. Watters II is a two-time Academy Award-winning supervising sound editor, with Oscars in 1990 for *The Hunt for Red October* and in 2001 for *Pearl Harbor*. He has also earned eight Academy Award nominations, including *Top Gun* (1986), *Star Trek VI: The Undiscovered Country* (1991), *Crimson Tide* (1995), *Armageddon* (1998), *Pirates of the Caribbean: The Curse of the Black Pearl* (2003) and *Pirates of the Caribbean: Dead Man's Chest* (2006). In addition, he is a four-time MPSE winner and has been nominated for three BAFTA Awards. “To me, sound plays such an important part in movies,” Watters II said. “When sound works, it has a lasting contribution.”



## MIXBLOGS



### Top 10 Pro Tools 10 Questions Answered

Mix recently produced a Pro Tools 10 Webcast that is now available for viewing on-demand. Alongside the presentation, texted questions were being answered live by the presenters and Avid product specialists. Here are the top 10 questions from the the text portion of the program.

>>[blog.mixonline.com/mixblog/category/techticker](http://blog.mixonline.com/mixblog/category/techticker)



### Robair Report

Have you ever wondered what it would be like to hear sounds through someone else's ears? The majority of microphones we use in the studio are not designed to capture sounds with 100-percent accuracy.

>>[blog.mixonline.com/mixblog/category/robair\\_report](http://blog.mixonline.com/mixblog/category/robair_report)



### Ask Eddie

Zooming in on a guitar amp with a microphone has a tendency to reveal certain flaws that might not get noticed at rehearsal or at a live gig.

>>[blog.mixonline.com/mixblog/category/ask\\_eddie](http://blog.mixonline.com/mixblog/category/ask_eddie)

## SPARS Sound Bite

### The Concierge Updated

By Kirk Imamura

The studio business is the ultimate concierge service for artists and musicians. Whatever is asked for, a good studio staff bends over backwards to deliver, even if those requests come at the eleventh hour on a Friday night. In the past, that may have meant enabling indulgence and excess; if it resulted in happy clients and repeat business, then we obliged as long as the bills got paid.

But the true backbone of the service we provide has always focused on offering a creative environment, whatever that may look like, to induce and capture studio magic. We still offer all the amenities. We still get the occasional multi-page riders from demanding clients. Instead of items that may be considered unhealthy, we get requests for organic this and vegan that. Times have certainly changed. And now time is more about money.

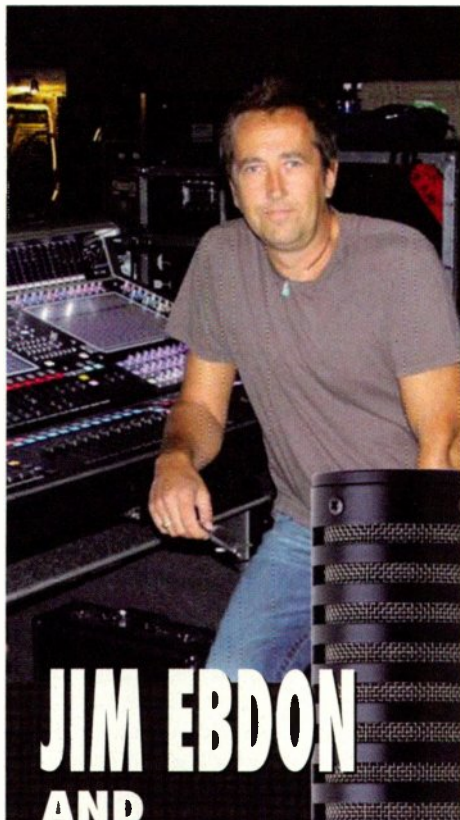
Nothing kills a vibe and momentum like technical delays. When there was more tolerance for delays, sometimes these situations worked in mysterious ways and resulted in lucky accidents that could never have been planned. Would we still have these creative accidents today? Not too likely.

There have been two noticeable changes in the type of services we offer. In the age of empowered artists, we receive a lot of phone calls from clients who may not be familiar with recording or the record production process. The studios have become consultants whose brains clients can pick. Isn't offering advice and suggestions what a concierge supposed to do? We prefer to have this conversation, even if it is sometimes time consuming, rather than having people hang up the phone so they can continue their cut-price shopping.

As a sign of the times, the concierge desk is more like an IT help desk. How do I access Wi-Fi? Can you send this file via YouSendIt? Can I Skype/iChat during the session? I want to sync the music to a QuickTime video. Can you punch a hole in the firewall? Do you have a fixed IP address I can use? Do you have high-speed Internet access for Ustream? Do you have Nicecast/Source-Live? It is all about connecting, collaborating online and transferring the results to the next destination.

Comfort is still important, but now studio time means productive time. Comfort now means peace of mind knowing that you are still within your budget. Being pampered, now more than ever, means getting started on time, getting everything done that you need using all the tools at your disposal, at the quality level you expected. A well-run professional studio can deliver these things and much more.





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FOH Engineer - Maroon 5, Matchbox Twenty, Aerosmith, Annie Lennox



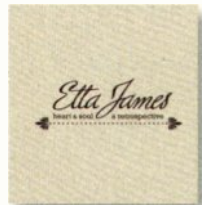
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## Cool Spin:

**Etta James Heart & Soul:  
A Retrospective (Universal)**



When this four-disc box came out, just before the holidays, Etta James was still with us. Now the feeling you get listening to these truly spectacular vocal performances is a bit bittersweet, but it's still one of the most delicious musical experiences known to man. *Heart & Soul* follows James' career chronologically from her early blues sides to her peak soul performances on songs like "At Last," and "Trust in Me" through more recent blues/funk songs and a few previously unreleased rarities. Read more online.  
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## SoundWorks Collection Update

Hugo



Martin Scorsese's adaptation of Brian Selznick's award-winning novel *The Invention of Hugo Cabret* stars Asa Butterfield as an orphan boy who lives in a Parisian train station. Sent to live with his drunken uncle after his father's death in a fire, Hugo learned how to wind the massive clocks that run throughout the station. When the uncle disappears one day, Hugo decides to maintain the clocks on his own, hoping nobody will catch on to him squatting in the station. In this exclusive SoundWorks Collection video profile, producer Michael Coleman sits down with *Hugo*'s Oscar nominated sound team, including co-supervising sound editor Philip Stockton, co-supervising sound editor Eugene Gearty, and re-recording mixer Tom Fleischman.  
>>[mixonline.com/post/features/video\\_soundworks\\_collection](http://mixonline.com/post/features/video_soundworks_collection)

## PopMark Media Update



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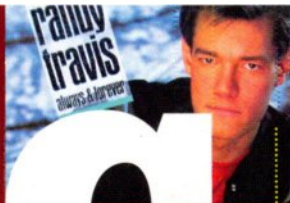
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# MUSIC



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From left: Carolina Chocolate Drops members/multi-instrumentalists Dom Flemons, Rhiannon Giddens and Hubby Jenkins, along with beatboxer Adam Matta, recorded *Leaving Eden* in Buddy Miller's Nashville home studio.

## CAROLINA CHOCOLATE DROPS

Young, Retro Trio Tears It Up on 'Leaving Eden' By Barbara Schultz

**T**wenty-first-century string band, the Carolina Chocolate Drops—Dom Flemons, Rhiannon Giddens and Justin Robinson—first connected through a Yahoo! group called Black Banjo: Then and Now (BBTN). Their shared love for old-time music spurred them to seek out living legacies like Joe Thompson, who was in his 80s when he and the trio became acquainted. A fiddler with a short-bowing style that had been passed down through generations of his family, Thompson shared his

technique and his memories with the three young musicians. The Drops formed their own old-school folk band in '05, even donning Depression-era outfits when they perform.

Last year, Robinson departed the group, making way for two new members: multi-instrumentalist Hubby Jenkins and beatboxer Adam Matta. And last month, the Drops released their sixth full-length album, *Leaving Eden* (Nonesuch), a high-energy collection of covers and originals, instrumentals and vocal songs, all perfectly cast as 1930s-style African-

American string-band tunes. The band's producer this time out is the Americana Music Association's reigning Artist of the Year, Buddy Miller, who has also produced Robert Plant's *Band of Joy*, Patty Griffin, Solomon Burke and more. As he does with many artists he works with, Miller welcomed the group, and guest cellist Leyla McCalla, to his Nashville home studio.

Engineer Mike Poole, who recorded and mixed the release, says the project started with "getting to know you" sessions about a year ago. A handful of tracks from those early dates made it onto the final album, but more importantly, Poole says the first round was invaluable as far as developing an MO for further tracking. "We were moving fairly quickly





in those sessions,” Poole recalls. “It was mostly about figuring out the best way to record them together as opposed to splitting them up into rooms or booths.

“When you’re recording a more straightforward folk band, where everybody’s playing either a guitar or a mandolin or a fiddle, everything has a similar, equivalent volume, which helps with the leakage factor,” Poole continues. “Nothing is louder than anything else and getting into everyone else’s mics. That’s not the case with this band, because one of Hubby’s mandolins is a resonator [metal] mandolin instead of a wooden one, and Dom’s banjo tends to be strong and loud; he plays and sings as if there’s no P.A.

“The traditional music they’re playing would normally be played to a crowd outdoors with no amplification,” Poole continues. “So, everybody who plays this kind of music has probably learned how to project, instrumentally and vocally, so when you stick all of that in a room together, you’ve got this really loud, aggressive banjo that’s all over the fiddle and everything else.”

Performance was always put ahead of convenience, however, and the band recorded the bulk of their material live, vocals and all, together in the main room (Miller’s converted living/dining room), with Poole capturing them through an MCI JH-16 tape machine, into Pro Tools HD. “A lot of bands can’t afford to take two weeks mixing on an analog console,” Poole observes. “So Pro Tools gives us speed and ease of editing and easy mix recalls, but going across the tape first colors it

**more online**



Watch a video of a Carolina Chocolate Drops recording session. [mixonline.com/march2012](http://mixonline.com/march2012)

in a way that doesn’t work as well when you try to go digital first and then go back to tape.”

Poole also set up some of the sessions in a more reflective, live room he calls the “veranda,” a concrete-floored, glassed-in porch, which is shown in a video made during the sessions. Filmed in the evening with a couple members in period garb, the Carolina Chocolate Drops look and sound like something out of a 1930s field recording by John Lomax—complete with the night-song of frogs and crickets—except for the modern miking setup: an AEA KU4 on Flemons’ snare and vocal, a Cascade Gomez and Miktek CV4 on Giddens’ fiddle, and a Coles ribbon on Jenkins’ banjo. Poole also set up pairs of Cascade Fatheads and AKG C-61s in the room. Mic pre’s used during the recording included Telefunken V76s (Miller has four), Vintech Neve emulators, API 3124s or occasionally the pre’s in Miller’s Trident B Range console.



Recording/mixing engineer Mike Poole tracked the band live through an MCI tape machine to Pro Tools HD.

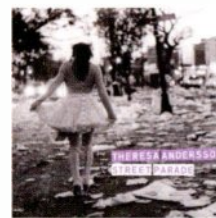
Poole says he knew that when it came time to mix, he would have to embrace the leakage: “You know that what you’re going to get is: That’s my mic with everything but mostly mandolin; this is my mic that’s everything with mostly fiddle, etc. You will end up mixing the leak as much as the instruments themselves.”

During the mix, Poole made use of his analog summing matrix, mic pre’s and compression on the stereo bus. “For each song, I tried a few different pre’s for color and, to make up gain,” he says. “I almost always used a TL Audio into a Burl B2 [Bomber] ADC.”

Miller and Poole’s respectful approach to the music, coupled with modern-hybrid recording methods, resulted in an essential Carolina Chocolate Drops album that sounds as dynamic as it does authentic. As original Drops member Justin Robinson says in a quotation that’s blown up on the band’s Website: “Tradition is a guide, not a jailer. We play in an older tradition but we are modern musicians.” ■

## THERESA ANDERSSON'S 'STREET PARADE'

The YouTube video for Theresa Andersson’s song, “Na, Na, Na,” has been viewed more than 1.4 million times. It shows the Swedish-born artist—who’s now based in New Orleans—in her kitchen, creating and layering loops of vocals, drums, guitars, to build her original, melodious, rhythmic song.



“But we never did any looping like that when we made either of the albums I did with her,” says engineer/producer Tobias Fröberg. “That’s something she does live, but we recorded everything live, each little part to a click track, and then built the songs brick by brick.”

Fröberg, a musician/engineer/producer who was one of the engineers on Peter Gabriel’s recent *New Blood*, was born and raised on Gotland, the same island off the coast of Sweden where Andersson grew up. They didn’t know each other well as kids, but became friends when Fröberg was playing a gig in New Orleans and Andersson stopped by.

That meeting led to Fröberg recording and producing Andersson’s *Humingbird, Go!* in 2008 and then to working on her latest, *Street Parade*, which combines Andersson’s varied, ethereal vocals with marching band-style drums and a great NOLA horn section. Imagine the Sugar Cubes recording with the Dirty Dozen Brass Band, and you’ll have some idea.

“Theresa told me it was supposed to be called *Street Parade*, and since I’d been there for Mardi Gras once, I knew exactly how I wanted it to sound,” Fröberg says.

Drums—played by Andersson’s husband, Arthur Mintz, and including a trash can from the street—were tracked in The Music Shed ([musicshed.com](http://musicshed.com)); all other instruments were recorded to Pro Tools in a home studio that Fröberg and Music Shed engineer Ben Lorio set up in a hallway in Andersson and Mintz’s Algiers Point-neighborhood home.

Fröberg used a Sony C37A mic, an EMT 140 plate reverb and UA LA3A compression to capture each instrument. However, Andersson was uncomfortably pregnant during the instrument sessions and waited until after her baby girl was born to track her voice. Lorio recorded her and sent files to Fröberg, who had returned—to Sweden. “It was a transatlantic vocal production,” Fröberg says.

—Barbara Schultz



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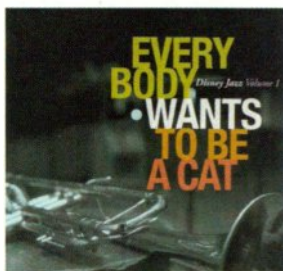
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## JULIA NUNES: HEAVENLY VOICE AND A ROCKIN' UKE

Engineer/producer Zach McNees recorded most of the 18 tracks on singer/songwriter Julia Nunes' beautiful and sometimes whimsical album, *Settle Down*, at The Buddy Project (thebuddyproject.com) in Astoria, N.Y. Tracked, edited and mixed in Pro Tools, the album is part solo (voice-and-ukulele), and part "full band" (drums, double bass, and the odd percussion piece or kalimba added). At the core of Nunes' sound is her angelic voice and passionate playing on that ukulele, which McNees captures with a DI and a Telefunken AR-51, an approach he developed after hearing her play live for the first time, and after they'd already tracked the single "Stay Awake." "Stay Awake' is the only song where we didn't use the DI," McNees says. "I tried to compensate by cranking the low end on the uke tracks as best I could in the mix." —Barbara Schultz



## JAZZ ARTISTS PUT THEIR SPIN ON DISNEY

Musicians have been interpreting songs from Disney films forever, but the recent *Everybody Wants to Be a Cat: Disney Jazz*

*Volume 1* is the hippest to come out in a while, blending old and newer songs, young and veteran players. The impressive lineup includes Roy Hargrove, Esperanza Spalding, Joshua Redman, Dianne Reeves and several lesser-known, but equally talented musicians. Sessions at Avatar Studios (New York City; avatarstudios.net) were produced by Jason Olaine, recorded by Joe Ferla and mixed by Ron Davis at Oregon's Wing and a Prayer Productions. Asked about recording "Someday My Prince Will Come" in Avatar "C" with the ageless Dave Brubeck, Ferla comments: "Dave was a sweetheart and a real gentleman. Very alert, very focused, and just seemed to have fun playing. It was inspirational to record this legend and see how passionate he still is after all of these years." —Blair Jackson



## MICKEY HART: OUT IN SPACE AND DOWN TO EARTH

Former Grateful Dead drummer Mickey Hart has been touring since last fall with a red-hot new band and a batch of excellent songs he co-wrote with the Dead's lyricist, Robert Hunter. The Mickey Hart Band is finishing up their first album, *Mysterium Tremendum*, at Hart's home studio in rural Sonoma County, Calif., co-producing the CD with Ben Yonas, who also engineered (and plays keys in the band). This group is more song-oriented than some of Hart's previous outfits (it boasts two fine singers, Tim Hockenberry and Crystal Monee Hall), but there are still giant grooves and plenty of sonic weirdness from Hart, including sounds from actual astrophysical phenomena, from quasars to the Big Bang. "We recorded almost all the basics in four days," Hart says. "I've never done a record that fast; that's light speed for me!" The album is due April 10. —Blair Jackson



## HARGO'S RADICAL SOUNDS

Hargo's eclectic new disc *Out of Mankind* is alt-rock with a gamut of found sounds, "ethnic" instruments and horns. But as engineer/producer Joel Hamilton points out, "It's not an 'experimental' record by any means," as strong original songs take the front seat. Tracking to a Studer A827 2-inch machine in Studio G in Brooklyn, N.Y. (studiogbrooklyn.com), the facility he co-owns with bassist/engineer/producer Tony Maimone, Hamilton says creative inspiration often came from using the "quote-unquote wrong thing to get a unique sound. I have a ton of crazy old compressors, so we'd track the vocals through a 47 with, say, a Maxon Department of Commerce piece—a really obscure tube compressor—and then EQ it. We deliberately set out using something inherently lacking in fidelity, but treated it as if we wanted fidelity; to me that's more endearing than taking a clean weather-channel approach to recording and then saying, 'We distorted it.'" —Barbara Schultz





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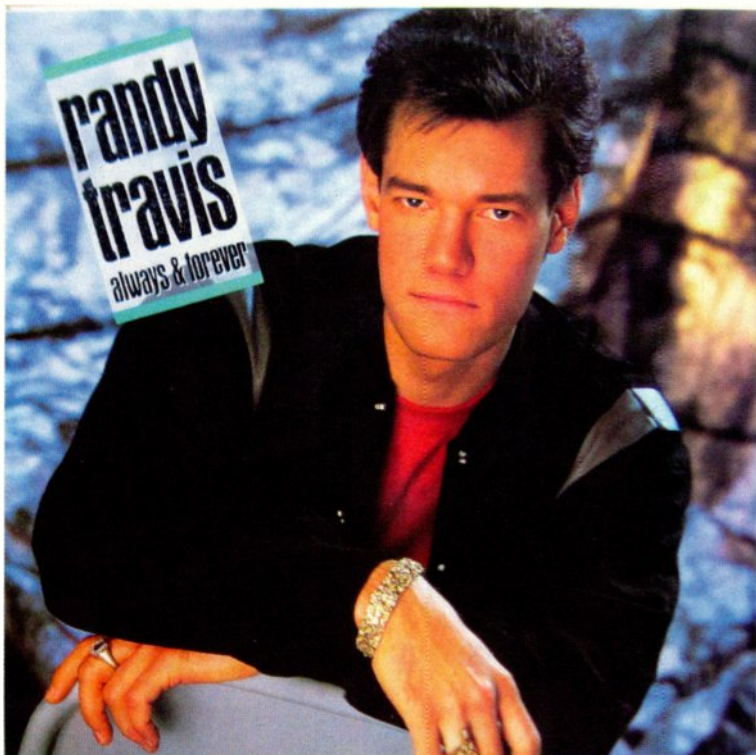
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# Classic Tracks

By Allison Richter



## RANDY TRAVIS “Forever and Ever, Amen”

**B**efore signing with Warner Bros. Records Nashville, Randy Travis spent a decade looking for a recording contract, and being rejected by everyone. In 1985, when engineer/producer Kyle Lehning first heard the artist then using the stage name “Randy Ray,” Travis was working as the catfish cook at the Nashville Palace; he would perform short sets when he could take a break from his shift in the kitchen.

“I was producing Keith Stegall for Epic at the time and he’s the one who brought Randy to my attention,” Lehning explains. “Keith was recording a live album with Randy at the time, and he wanted me to hear his voice. Randy made an impression because nobody was listening to hardcore country music at that time. It was the age of the lost years of the country crossover, where if records didn’t get played on Adult Contemporary radio, they didn’t sell. Kenny Rogers was having huge success, Anne Murray was doing well, and there were [other] people who were doing really well at the time with that sort of stuff, but none of them were hardcore country singers. Randy came from that real place. But the thing about his voice that got me wasn’t the genre. It was the honesty and the

pure emotion that he naturally exuded. As far as I’m concerned, it doesn’t matter what kind of music you’re singing if you can sing like that. And that attracted me to him: an amazing voice and an amazing talent.”

Lehning became the producer of Travis’ first album, *Storms of Life*, which turned the artist into a sensation. He went from traveling in a bread truck with his band and gear to selling out multiple shows in the same city on the same days. By the time sessions began on the follow-up, *Always & Forever*, Travis was exhausted, although it didn’t affect his performance in the studio. Because he had such a clear sense of self and identity, he also had a keen ear when selecting material with Lehning. Additionally, time was on their side: the new wave of country music had not yet kicked in, which meant fewer artists were vying for the best available songs. The playing field was wide open for Lehning, Travis and his A&R person Martha Sharp to find and record some great material.

Released in April 1987, *Always & Forever* yielded four Number One singles, including “Forever and Ever, Amen,” Travis’ third Number One single. Written by Paul Overstreet and Don Schlitz, it’s a simple song with a simple message, but thanks to Travis’ pitch-perfect, unmistakable voice delivering the clever lyrics and easy melody, it was an immediate hit. Lehning remembers the session as “fun to record, but not difficult.”

“Forever and Ever, Amen” was recorded at Stargem in Nashville. Joe Bogan, who worked closely with Lehning on many projects, engineered the track, and Lehning produced. “Stargem was a fairly typical mid-’80s studio,” says Lehning. “They had an MCI 600 Series console, which was not always one of my favorites, but it sounded okay. There was nothing unique or special about the setup. Joe was a meticulous recording engineer and took maybe even a little more time than we were used to in Nashville, but I always gave him the time because the tracks that he recorded were done with such hi-fi and such nice taste that we saved a lot of time on the back end. Mixing them was sort of pulling the faders up and balancing more than it was having to go back in and do lots of EQ’ing and things like that. He did a lovely job on the front end.”

The tracking band was an A-list of Nashville session players: Jack Williams, bass; Dennis Burnside, piano; Russ Barenberg and Mark Casstevens, acoustic guitars; Steve Gibson, electric guitar; Doyle Grisham, steel guitar; Terry McMillan, harmonica; future Nashville producer and label president James Stroud, drums; Paul Overstreet, harmony vocals; and the Cherry Sisters (Sherry Huffman, Diane Tidwell and Lisa Silver) singing background vocals.

“Most of what you hear on the record is what came off the floor,” says Lehning. “Overdubs—I’d heard about Paul Franklin having this weird instrument called a Pedabro, which was a Dobro that had pedals on it like a steel guitar, that his dad had made. I thought, ‘What the heck; let’s give it a try.’ That’s the intro of the record, and Paul tells me it’s the first record that it was really used on and actually heard. Paul played here and



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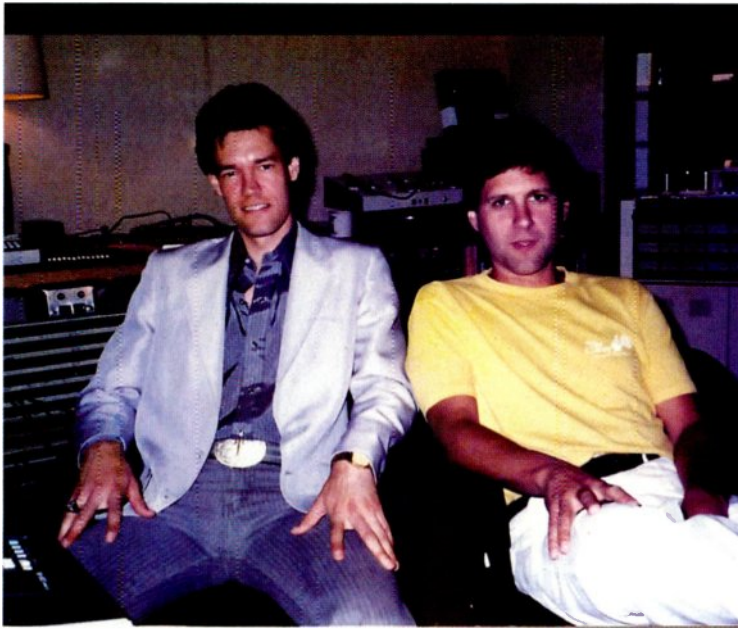


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Randy Travis, left, with producer Kyle Lehning, circa 1986

**"RANDY MADE AN IMPRESSION BECAUSE NOBODY WAS LISTENING TO HARDCORE COUNTRY MUSIC AT THAT TIME...RANDY CAME FROM THAT REAL PLACE. BUT THE THING ABOUT HIS VOICE THAT GOT ME WASN'T THE GENRE. IT WAS THE HONESTY AND THE PURE EMOTION THAT HE NATURALLY EXUDED. AS FAR AS I'M CONCERNED, IT DOESN'T MATTER WHAT KIND OF MUSIC YOU'RE SINGING IF YOU CAN SING LIKE THAT. AND THAT ATTRACTED ME TO HIM: AN AMAZING VOICE AND AN AMAZING TALENT."**

— KYLE LEHNING

there on the record, and Jerry Douglas also plays some Dobro fills. The intro and turnaround is Paul. Terry McMillan does this little harp backbeat, a little whoosh-through sound, that comes from when I was engineering Waylon Jennings' records. His harmonica player, Donnie Brooks, did that on records and I always thought it was a cool sound.

"We went over the demo, they did the typical Nashville numbers charts, we went out in the studio, counted it off, and there wasn't any resistance," Lehning continues. "Once we figured out the tempo, the key and the general feel for the record, everybody knew what to play. The demo was so great that the players had a natural sense of what to do. You pick the right players, you pick the right song, and then the producer's job is to say absolutely as little as possible, and for the most part that was what I did."

Travis cut his vocals later at Lehning's studio, Morningstar, in nearby Hendersonville, where the record was also mixed. Because Travis was experiencing some road fatigue, says Lehning, "It probably took more passes than we were used to. It might have taken us two or three hours. We would wait until he'd come in and be in good voice, then it would be a couple or three passes, a punch-in here or there, and that was it."

Lehning used an AKG C24, the same mic—literally the same one—he has used with Travis throughout their 25-year working relationship. "I've tried it on other people and it didn't work at all," he says. "I think it works for Randy because he has this incredibly rich kind of quality, and his low end could overwhelm other microphones. That one has a nice, open, airy quality to it and it allows his voice to come forward in the mix without getting boomy or having to roll a ton of bottom out. It was a nice balance. Randy's not a loud singer. He has a nice, easy quality to his singing, so that microphone captured his voice really well, and still does."

Both *Storms of Life* and *Always & Forever* were mixed through a Sound Workshop 1600 series console. "It had 26 inputs," says Lehning, "and I had this other little 12x8 Sound Workshop sidecar mixer that I used for reverb, delays and things like that. We had an Otari MTR-90 and an Ampex ATR-102 half-inch machine, and I mixed off the Otari, no automation, so it was all me and my assistant, Kirt Odle. We'd mix until we made a mistake, stop the 2-track, roll the 24-track back, start the 2-track

again and mix until we made a mistake. Then I'd cut the half-inch together to get the mix that we wanted. That's the way we did all of it until we had automation. You'd pull out the 2-track of those mixes, and you'd better be ready to put splices together again!

"We had some nice outboard gear," he continues. "I had a Fairchild compressor and four LA2A's, a bunch of ADR outboard EQ—the E900s and Vocal Stressors—plus 1176s, dbx's; it was a really well-equipped mid-'80s studio. We also had three EMTs with mono in and stereo out. My favorite that I used mostly on his vocal was an EMT 140 [plate reverb]. We had a Publison Infernal Machine and I would do that old 'left pitch up, right pitch down' thing: Anything that was panned to the right, I would add a little of it into the left return of the Publison, and anything that was panned to the left, I would add a little of that, so that there was a cross-pitch kind of thing to add a little mystery and depth, because we all thought that was cool back then!"

In 1987, "Forever and Ever, Amen" won the Grammy Award for songwriters Schlitz and Overstreet in the category of Best Country Song, and the track garnered two Academy of Country Music awards for Song of the Year and Single of the Year. Lehning believes that the success of this song resulted from a perfect storm of timing and artistry. "When we finished *Storms of Life*, I knew how much we'd spent on the record, and I had figured out that if we sold 40,000 albums, Warner Bros. would make their money back and then some, and let us make another one, which is all I was hoping for. And it sold about 4 million. 'Forever and Ever, Amen' sold north of 5 million. It was just the right guy, right time, right songs, and everybody was incredibly fortunate to have been there and caught that wave." ■





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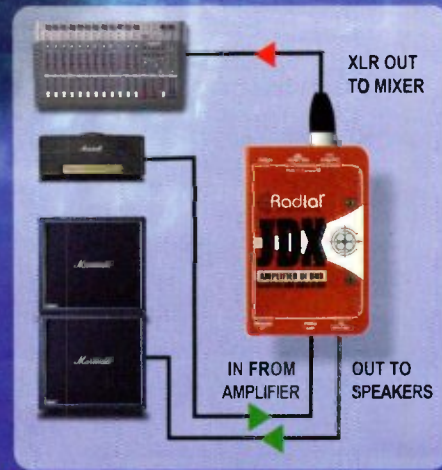
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# Live



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*The English Beat at the Uptown Theatre*

## BEAUTIFYING THE UPTOWN THEATRE

Some Changes You See, Some You Just Hear By Barbara Schultz

**A** couple of years ago, a new venue quietly began appearing in the San Francisco Bay Area concert listings: the Uptown Theatre. Not to be confused with Oakland, Calif.'s beloved sweaty shoe-box, the Uptown Nightclub, the renovated art-deco Uptown Theatre ([www.uptowntheatrenapa.com](http://www.uptowntheatrenapa.com)) is now the centerpiece of nightlife in the Northern California wine country destination of Napa. Since it opened in May 2010, Napa's Uptown has hosted 130-plus shows. Recent performances have included top acts Willie Nelson, The Pixies, BB King, Brian Wilson, Rufus Wainwright,

Beck, Ryan Adams and others. "We've got sold-out show after sold-out show up here," says the Uptown's chief engineer, John Breglia. Breglia, a veteran studio owner and former touring engineer with Clair Bros. (Brooks & Dunn, Martina McBride, Ministry, etc.) became part of the Uptown Theatre family after plans for the venue were well under way. The extensive redesign was created by a team at Meyer Sound; Brian Long and his colleagues Will Lewis, John Monitto, Steve Bush and Bob McCarthy, along with John and Helen Meyer, were all instrumental in putting a package together for Uptown co-owner George

Altamura, a real estate developer and music lover who Breglia says comes to almost every show. "George had owned the building for about 10 years before renovation happened," Breglia says. "He was dedicated to restoring the building to its original art deco glory, but he was also totally dedicated to making it a real music venue. So the aesthetic is pristine, but there's a lot of changes you will never see." Delicate Productions San Francisco was contracted to execute Brian Long's plan. Breglia says the company was favored in particular because the owners and designers wanted to involve Phil Burke,





Photo: Mitchell Clotzer

*John Breglia at the Avid VENUE*

who expertly handles Delicate L.A.'s rigging.

"Phil did a lot of the structural steel work up in the ceiling so that we could run all our tow motors," Breglia says. "And this was no small thing, because this could have been an architectural nightmare; it's an old theater. We had to totally reinforce the ceiling.

"On the electrical side," Breglia continues, "we have totally isolated systems for our audio through stand-alone transformers, so I've got a 400-amp disconnect for my main. I've got a 200-amp disconnect onstage for monitors—all isolated. That's unheard of. Our lighting is isolated, too. We're coming off a separate transformer from the city power."

Acoustically, numerous treatments and traps have been employed to control low end in the 863-seat space, including eight 10x14-foot rigid Fiberglas panels (four per side), varying in thickness from 6 to 20 inches, that are hidden behind acoustically transparent curtains.

"Those aren't tuning panels as much as they are traps," Breglia explains. "Also, there was a proscenium built. That wasn't in the original space, of course, because it was a movie theater. But we added a proscenium so that we have side wings now, and there's a transition walkway behind the stage. And behind the proscenium, there's sound baffling up into the

ceiling—a combination of loose and rigid Fiberglas paneling installed in the ceiling area.

"And one of our big benefits is we've got dirt under our floors," Breglia adds. "No rock, no concrete, just good old Napa dirt, and it actually does a lot to reinforce the low end. Our subs sit underneath the thrust of the stage as well, and those are completely isolated in their own boxes with isolating pucks underneath. A lot of the stuff that went into this is like a recording studio."

Breglia says that when he came into the Uptown fold, he made a few specific requests in the interest of making the venue as engineer-friendly as possible. "We have only 863 soft seats in here, and it's a two-tier progressive rake," he says. "There's no traditional balcony, and it's only 120 feet or so from the stage to the back of the hall. Well, my front-of-house is dead-center at 47 feet from the front of stage. Those would be money seats. It's almost unheard of to get that."

Breglia's FOH position is equipped with an Avid VENUE board, but the space was spec'd to accommodate a full-size analog desk if needed. "I'd say 65 percent of the acts bring their own production, but less stacks and racks," Breglia says. "Our hang never comes down. The Meyer MICA system [8 speakers flown per side] is always up there."

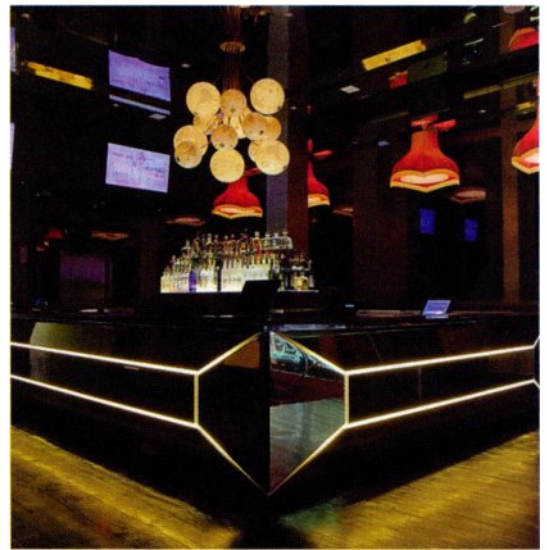
In monitor world, the speakers are also all from Meyer: five MJF-212A dual 12-inch wedges, five UM1-P wedges, and a USW1-P subwoofer. The monitor console is an Avid SC48.

"I spec'd the Avid boards partly because they are universally known. I also like them because, in 15 or 20 minutes, I can clear FOH and monitor world and then touring guys can pop their own stuff in. I have multiple tielines into my [Meyer Galileo] speaker management. I have dedicated runs for our snakes from stage to FOH that are not shared by anything in the house. So we can get an artist up and running in an hour.

"Touring acts usually have 8 or 9 a.m. calls, and our call time is rarely before 2 p.m. in most situations, even with a big board, but that's also a nod to my amazing crew. Most of our production crew are grads of Ex'pression College [www.expression.edu] and came to us with the help of Shiloh Hobel, their career placement director. All of us are just trying to make our house as user-friendly as possible for the touring guys. I want them to come in and say, 'This is great, we're going for a drink.' And what better place than Napa to do that?" ■

## QSC IN PARIS

**C**hateau Nightclub and Gardens, the latest venue to open on the Las Vegas strip, offers an expansive audio/visual system, designed and installed by Bob Athey. The 45,000-square-foot club spans two levels, with numerous indoor and outdoor spaces. The 15,000-square-foot main room features an elevated DJ booth and a giant LED screen that spans the entire length of the back wall. The 10,000-square-foot Chateau Terrace, overlooking the strip, offers another DJ booth, V.I.P. cabanas, terrace bar and dancefloor. Finally, the 20,000-square-foot Chateau Gardens showcases a rooftop dancefloor, four additional bars, a third DJ booth and thousands of lights. All in all, the Chateau complex encompasses more than 30 zones of audio, all networked together via QSC's Q-Sys integrated system platform.



"Q-Sys controls the whole thing—all the zones, throughout the bars, dancefloors and all the surrounding areas, all the cable boxes go into it, all the background music sources," says Athey. "We chose Q-Sys because of its ability to expand the software and hardware into the future. Chateau is continually growing its audio and video capabilities, adding another big screen or a new audio zone. With Q-Sys, we don't have to spend time adding components or routers."

Chateau also features more than 50 QSC PowerLight amplifiers, which Athey says are the "best-sounding amplifiers for network-based audio."

Athey continues to add onto the A/V capability at Chateau, and is in the process of adding more Q-Sys Cores and I/Os to give them the ability to "route anything anywhere." At present, Chateau has one Q-Sys Core 1000 but will have two Core 3000s as the club expands into the future.

**more online** 



See full technical specs and more photos from the Uptown Theatre. [mixonline.com/march\\_2012](http://mixonline.com/march_2012)



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From left: Frank V. Farrell, Keith Bugos (FOH engineer) and Brian Parkos (system tech)

## FIXIT | KENNY ROGERS TECHNICAL DIRECTOR/ MONITOR ENGINEER FRANK FARRELL

Rogers' current tour includes a vocal choir. We asked his technical director how they mike a choir in a sound-reinforcement situation. "Miking choirs is a major challenge, which explains why we like the Astatic 1700VP [remote-control variable pattern] mics so much. We've tried all kinds of different ways of miking the choirs, and so far the Astatic 1700VP offers the best solution in terms of pattern control and sound quality. The choir is on a riser in an opening centerstage between the drummer and keyboard player. We're using two of the 1700VPs for choirs that vary from 18 to 30 members. The mics are in front of the choir on stands positioned at the corners of the riser, and it's really cool being able to dial the pattern in tight and experiment to get the best sounds for different situations. Even though the Astatic mics are off-axis and 25 feet upstage of the monitors, you still get reflections from the stage, but the mics are very good at picking up from the direction you aim them because of the different patterns you can dial in."



## FLAMING LIPS STRIP DOWN



Last month, the Flaming Lips visited Bimbo's 365 (San Francisco) as part of the regional Noisepop festival. FOH engineer Chris Chandler had to pare down the band's usually extensive equipment package, yet managed to reproduce the Lips' big sound in a relatively small space. "In a smaller spot, I just make the most out of what they're giving me from stage volume, and supplement whatever is needed vocal-wise and with the D'I'd instruments,"

Chandler says. "We also know we can only bring in one small rack with few essentials: The Boiler [Ridge Farm Industries] is a great stereo compressor for a tight, punchy sound. A Lexicon PCM 42 is perfect for rich, long delays. A McIntosh MM4 tube mixer gives us a fat bass and drum sound. I'll also bring a Roland [RE-501] tape echo—a great tape delay for getting sound-on-sound and delay feedback effects, and a Distressor [from Empirical Labs], which is my favorite vocal compressor."

## LEARN MORE FROM MEYER

Meyer Sound provides an ongoing series of seminars and Webinars for live sound professionals who wish to learn more about Meyer technology or just increase their skills. The physical location of in-person workshops varies. March courses include The Mixing Workshop (San Antonio, TX, March 8-9), which explores the role of the mix engineer in live audio production. Instructor/engineer Buford Jones will offer the benefit of his experience related to topics such as system tuning, mixing in a range of venues and communication issues between artists and crew. On March 28 in Montabaur, Germany, Michael Pohl offers a seminar on using Meyer's MAPP online acoustical prediction program. Participants will learn how to import CAD drawings of venues and apply them to a variety of system design scenarios. To register for these or any of Meyer's online courses, visit [meyersound.com](http://meyersound.com).



## RIBBONS ON THE ROAD

Stellar blues/R&B guitarist/singer Gary Clark Jr. is on the road for just a few more dates before he goes back to work on his next full-length album. His FOH engineer is Bharath "Cheex" Ramanath, who says he brings a stash of ribbon mics on the road to capture the timeless warmth of Clark's guitar rig: an Epiphone Casino through a Fender Vibro-King amp. "All the guys in Gary's band start with really incredible tone," Ramanath says. "So the main thing for me is to preserve that for the audience. I like to bring along mics that some people would say are studio mics—Royer 121s; Blue makes a really nice ribbon called a Woodpecker; and then I use a variety of Sennheisers. On Gary's amp, I use a Sennheiser 609, because it's warm and true to his original sound, and then use what I would call subtractive EQ; instead of boosting frequencies, I'll subtract until it all works for the particular room."



Credit: Joe Koch





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## MUTEMATH



Mutemath, touring behind their latest release *Odd Soul*, played San Francisco's Regency Ballroom, a neoclassical former dance hall that was built in 1909. Pictured here, lead singer/keyboardist Paul Meany.



**Scott Cannon, Mutemath's front-of-house engineer**, is currently mixing on an Avid D-Show Profile. He also brings along a Pro Tools rig to record every show. "We're able to replicate a lot of what they accomplished on the record by using the same, or similar, plug-ins," Cannon says.

Cannon mainly uses the plug-in bundles on the Avid console, including Joemeek EQs and compression on snare and toms, combined with the Bomb Factory compressors. "I am also using the LoFi plug-in for a little distortion on the snare, which we found has helped to emulate some of the recording techniques they experimented with on this last record," Cannon says. "I use the SansAmp plug-in on one of our bass lines and some Pultec plug-ins as well. We turned to the Moogerfooger analog delay for some of the synth-bass parts that Roy [Mitchell] plays on a Voyager."

For the lead vocal, both Nate [Dreger, monitor mixer] and I use a chain of Crane Song Phoenix, Smack, and LoFi plug-ins to work toward emulating the Focusrite vocal pre that was used on the last record and that we carried last fall."



**Nate Lampa, Mutemath's stage manager and backline tech**, runs Meany's main keyboard—a Hammond CV organ—through Leslie 122RV. The high horn is stereo-miked with two Shure Beta 56s, and there's one Beta 52 on the low horn. Meany also uses an Arturia 49 MIDI controller that triggers sounds from the Nord keyboard that is at stage right.

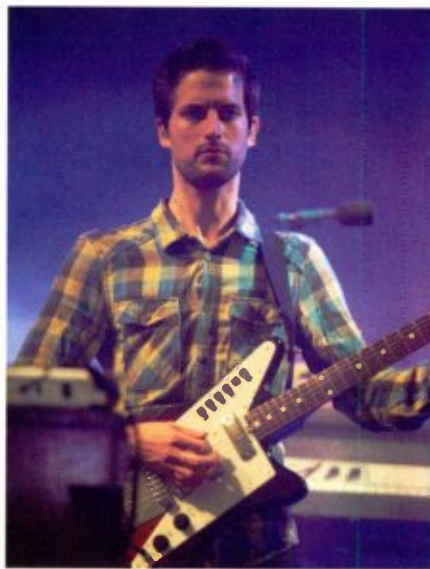




Drum mics on Darren King's kit include a Shure B91/B52 combo on kick, B56s on top and bottom snare as well as on both toms, and KSM137s on hat and ride. All mics, apart from those on kick, are fixed to the drums with Shure A56D mounts.

**Guitarist Todd Gummerman's** amps are a '70s Fender Princeton Reverb and Fender Blues Deluxe. Each is miked with a Shure SM57.

"The band started doing a processional through the audience as their intro to the show last fall," Dreger says. "Paul triggers samples from the Akai MPC500 during the processional and from a rolling B stage later in the show. I Velcro'd two Shure SLX body packs to the bottom of the MPC, and that's worked out pretty well."



Lampa says that Roy Mitchell's bass pedal arsenal includes a Boss TU-3, JHS Morning Glory, Boss Super Octave OC-3, MXR Classic Distortion, Boss Equalizer GE-7, Morley Volume/Wah, Boss Digital Delay DD-7, and Boss Tap. For the Moog Voyager he also plays, Mitchell uses a Boss TU-3 and a JHS Mini Fuzz.



**Monitor engineer Nate Dreger** also uses a D-Show. "The sound seems neutral and transparent," he says. "That works well, given the electronic nature of much of the band's inputs." Dreger makes use of the console's built-in channel strip EQ, compression and gating, as well as a few plug-ins.

"We travel with four Shure PSM900 wireless systems," Dreger says. "Three are dedicated to Paul, Roy and Todd. I had to get a little creative with the input routing for the fourth. I wanted a dedicated Cue transmitter, but [drummer] Darren, who is normally wired, required a wireless pack for the show intro [a processional through the audience]. To solve this problem, I bused my Cue via AES through the Venue's PQ mixer, then set up snapshots to allow Darren's mix to be soft-patched to the wireless for the intro, then back to Cue for the duration of the show. The Cue Mode feature of the PSM900 is great because I can still listen to everyone's mix." Meany listens on Sensaphonics. Mitchell and guitarist Todd Gummerman are on ClearTune monitors, while King's stage mix is fed through Shure SRH750DJ headphones.





# Producer/Engineer JOE CHICCARELLI

By Blair Jackson

Photos by Ana Gibert

## “THE SONG TELLS YOU WHAT TO DO”

**Chances are, if you checked in on what Joe Chiccarelli was up to in almost any month dating back to the dawn of the '80s, you would have found him involved in some interesting recording project.** What a career! The producer/engineer/mixer has weathered the fads and fluctuations of both the music business and the recording industry with hard work, grace and good humor, and along the way he's worked with dozens of amazing artists from so many genres—rock, pop, folk, blues, classical, country, Latin, jazz; he's done it all. It's impossible to pigeonhole him, but it's fair to say that Chiccarelli has always had a special affinity for working with idiosyncratic singer/songwriters, relishing the challenge of capturing their essences and their songs in the studio.

He sometimes points to his engineering work on various Frank Zappa projects as an early turning point—it's a testament to Chiccarelli's talent and temperament that he worked so successfully for so long with one of

music's true eccentric geniuses. But his resumé is filled with singular, creative types: Oingo Boingo, Elton John, Lone Justice, Steve Wynn, American Music Club, Counting Crows, U2, Etta James, Café Tacuba, Beck, Rufus Wainwright, White Stripes, Raconteurs, The Strokes, Tori Amos, My Morning Jacket, The Shins and the Kronos Quartet are just some on a very long list. What are the common elements? Passion, intensity and commitment. He's had uncanny success working with up-and-coming young artists, helping nurture and refine their vision, and that continues to be true—recent successes have included Christina Perri's superb debut album, alternative darlings Young the Giant and Australian stars Boy & Bear (whose Chiccarelli-produced album is about to be released in the U.S. after winning five ARIA awards Down Under).

If you think, looking at the list above, that a mellow, mainstream singer/songwriter such as Jason Mraz might not be on Chiccarelli's wavelength,



think again. They collaborated on Mraz's new album, *Love Is a Four-Letter Word*, and it was an extremely positive experience for both of them. The band Chiccarelli assembled for the sessions at Sunset Sound broadened Mraz's musical palette and stretched him a bit, without sacrificing the pleasing commercial qualities of his sound. It's already produced a pre-album iTunes smash in "I Won't Give Up," with more hits no doubt to come. At the beginning of February, we caught up with Chiccarelli in the midst of sessions at Sunset Sound with another distinctive talent, Alanis Morissette. We chatted about the Mraz album and some other aspects of Chiccarelli's studio journey.

**How did you happen to hook up with Jason for this record?**

I had worked with Christina Perri, who is with Bill Silva, who is Jason's manager, and they were real happy with the way that turned out, and it's been pretty successful, so he asked me if I'd be interested in Jason. So, I met with Jason and I met with Sam Riback, his longtime A&R guy, who discovered him, and we had a really good meeting. I liked where Jason was going with his songwriting. There was something about it that struck me as really classic, like great Billy Joel songs or Paul Simon songs. There was something simple, honest and universal about the writing.

**There's definitely a certain earnestness and sincerity he manages to pull off in a non-cloying way.**

That's right; that's a good way to put it. It touches you, the lyrics are really heartfelt and there's no denying them. They get under your skin. I said to Jason, "If you want to do something that is a bit more honest and classic and not so much of the moment—not the sort of obvious, processed radio pop songs that people are doing these days—then I'm in." He sent me some more songs and they were even stronger, so then I was really excited about it.

So I decided to put a band around him of studio players I thought were really good at adapting to different styles. A lot of his stuff has a little reggae influence in it and we certainly wanted to tap into that almost Paul Simon-in-Muscle Shoals sort of vibe—that classic "Kodachrome"/*There Goes Rhymin' Simon* feeling. So we had Matt Chamberlain on drums; he's fantastic. Tim Pierce, who's one of the best guitarists around—one day he'll be doing Shinedown and the next

*Joe Chiccarelli in the legendary Sunset Sound.*



*Mraz's vocal booth at Sunset Sound.*



day Madonna; he has such a musical vocabulary. I got Jeff Babko from Sheryl Crow's band to play keys. Justin Meldal-Johnsen was the main bass player—he's a longtime friend who played with Beck for years. I like him because he comes up with some really interesting stuff. Paul Bushnell, who's a really great session bassist, also played on the record; he's got a great sense of R&B grooves. And Zac Rae is the other keyboard player—he played with Alanis Morissette for a long time and with many other people. David Campbell did the string arrangements. We recorded the strings over at East-West.

We also used the horn section that plays on the road with Jason, the Grooveline Horns, out of Austin, Texas. They did all the horn arrangements

and performances on the album, and they're really great. I was a little nervous about it because the way they work is you send them the idea for the arrangement and then Carlos [Sosa, saxophonist] does it all on his own and then sends it back to you. I thought, "Mail-order horns?" [Laughs] But he was fantastic, and any time I didn't like something he was able to tweak it.

**Did Jason do elaborate demos?**

He did some songwriting demos in England with Martin Terefe, who produced his last album [2008's mega-successful *We Sing. We Dance. We Steal Things*], and a couple of the songs that Martin co-wrote with him ended up on the album.

**Jason seems to be a guy who knows what he wants and has opinions about the way things should go.**

He's definitely got a lot of ideas about things, but he really was great about giving me the space to try stuff. He's not shy, and he's extremely musical, so he would certainly speak up if he didn't like something, or if he thought it was going the wrong direction. There were some things in the demo arrangements that he was really partial to and wanted to protect. But for the most part it was very collaborative between the band and myself and Jason. We didn't do any preproduction as a group. The only preproduction was done between Jason and myself, talking over arrangements and direction. But those musicians are such experienced players that you can get in a room with them and say, "You know, I'm kind of feeling this like an old Philly soul track," or "I hear a Motown kind of bass line"—all those kind of directions and ideas, and they instantly get it.



Almost all the songs were done live in the room, and on some songs the lead vocal is live, too: On “93 Million Miles,” that was live, then he overdubbed the harmonies and we overdubbed percussion on it. In some other cases, once we established the tempo of the song, I would have him overdub a lead vocal to one of the takes and then we would basically overdub the band and the acoustic guitar to the lead vocal.

#### Was Jason in a booth?

Yes, he was in a nice comfortable booth for acoustic guitar and a vocal. He always records his vocal with a Telefunken 251. He has his own and we used that, and/or Sunset Sound’s 251. They went through a Wunder Audio PQ1 pre-amp and then a Mercury Audio Pultec, a Retro 176 limiter and then an API 550A EQ. I would kind of get the bottom end out of the Pultec and the top end out of the API.

For the acoustic guitar, we switched off for a lot of different songs. Sometimes it was a combination of a Sony C37A and a [Neumann] KM-84, other times it was a combination of a [AKG] C-12A and a KM-84. On a few I also used a new mic on that sounded really good—a Black Pearl DC 96. Some were done on an Audio-Technica AT4050 through Sunset Sound custom mic pre-amps or Chandler mic pre’s. The band was in the big room and everybody was in close visual proximity to Jason, and we kept the band physically tight in the room.

#### Were there any stylistic things you as the producer had to conform to in terms of tailoring what you do to what he does?

I don’t believe in molding. I think you do what the songs tell you to do. I think that dictates the arrangements. Certainly I made a point to listen to his past albums and get a deep understanding of who he is as an artist and understand the boundaries in a sense. If you’re getting too “left,” too quirky. Though the one thing the record company wanted to make sure of was that the album wasn’t too light. They wanted a strong sense of rhythm section, because that’s something he hasn’t had much on his past records. They wanted some muscle in the rhythm section and bigger dynamics. So that’s one thing the band tried to bring—more impactful grooves to the songs, because when you have that light, airy, beautiful vocal and you have a great sense of pulse and motion underneath it, it’s a great combination.

## Maserati Mixes Mraz Redux

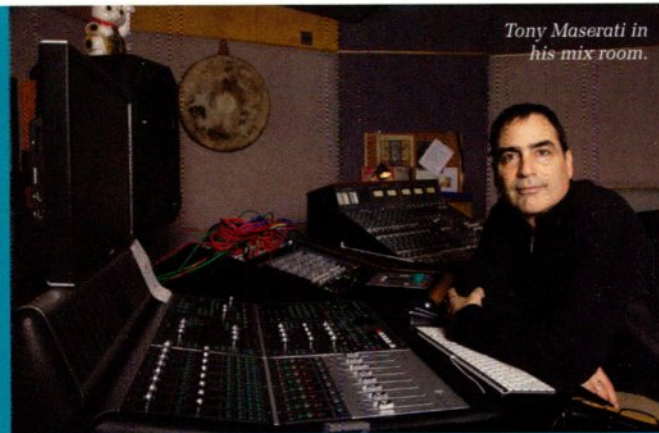
A lot has changed for Tony Maserati in the years since he mixed Jason Mraz’s multi-Platinum album, *We Sing. We Dance. We Steal Things*. Aside from his usual bounty of superstar projects—Beyoncé, Britney, Lady Gaga, Chris Brown, Alicia Keys, et al—he relocated from New York to L.A. and settled into a North Hollywood facility, owned by Rafelson Media, in what used to be a studio known as The Bakery. When it came time to work on Mraz’s latest, he found a lot was different on the artist’s side, too.

“This record is completely different in so many ways,” Maserati says. “Jason is four years older, his audience is four years broader. Those things are extremely important to me. I take into account who the audience is, who the artist is, what they’re talking about. It’s a different production team and different musicians—the way that they play, the way they create; the chordal harmony is different. And the way that Joe Chiccarelli arranged the songs is different than the way Martin Terefe [producer of *We Sing...*] would have. Both are complete geniuses, but they have different approaches.” Because Maserati had never worked with Chiccarelli before, he made a point of stopping by some of the sessions at Sunset Sound. “I wanted to get Joe’s feelings on things, learn what his intentions were, as well as Jason’s.”

Maserati’s mix room, Mirrorball, offers a blend of new and classic pieces of gear. He uses an Avid D-Command as a controller, “but I don’t use any of the audio functions in it. The summing goes through an EMI mixer and a Neve mixer. I’m still all-analog, including my monitoring, which goes through Cranesong [Avocet controllers]. His extensive outboard arsenal includes both hardware and plug-ins, however. For Mraz’s latest, too, he tested out the new Pro Tools 10 HDX system; he lauds this latest version for its new Clip Gain feature, which allows for more precise level adjustments, and for its “better functions for finding and organizing things, such as what buses and auxes are being used.”

With some two dozen songs under consideration and multiple versions in different styles for some of them, Maserati had his work cut out for him. “You could release a whole ‘nother record with alternate ideas and some of the amazing songs that didn’t make it,” he says.

—Blair Jackson

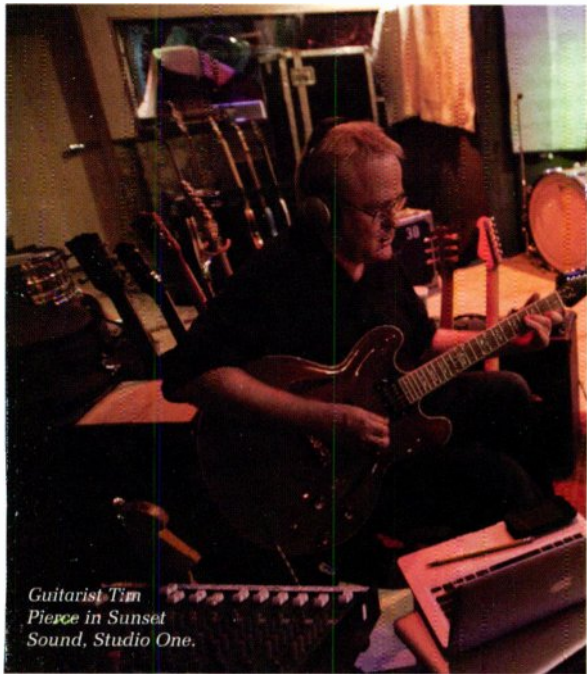


Tony Maserati in his mix room.



From left, Justin Meldal Johnson on bassist, keyboardist Jeff Babko and Chiccarelli in Sunset Studio One.





Guitarist Tim Pierce in Sunset Sound, Studio One.

**When you hear a song, do you instantly know it might have a shot at radio? Was “I Won’t Give Up” an obvious choice?**

Not in the least. There were other songs on the album that other people thought might be singles and wanted to treat them like that.

**What does that involve from your standpoint?**

Making sure the tempo’s right, making sure the energy is right, making sure it doesn’t break down to the point where when you hear it on the radio it sounds like the radio station ground to a halt. [Laughs] Because you’re competing with Katy Perry or whoever it is at the moment. So you have to be at least cognizant that pop radio plays that kind of thing. So stuff can’t be too weird or too slow. In the end, though, the song tells you what to do. The better the song, the easier it is to put it together.

**Did you know from the beginning of the project that Tony Maserati would be mixing it?**

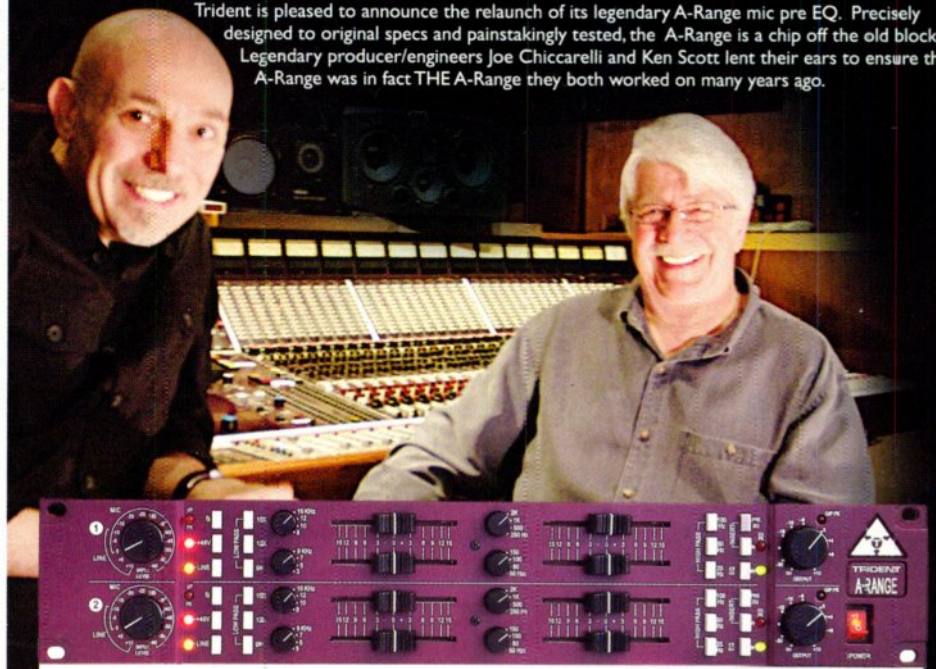
Yes, on day one they asked if I would be okay with Tony doing it. I said, “Absolutely!”

**Does that change anything you do?**

No. The only thing that changes is maybe I have a little bit more breathing room in terms of time to complete it, because I know somebody else can be mixing it while I’m overdubbing. And Tony is awesome in that he’s really part of the team. He would come by the studio and hear stuff midway to get a vibe of where it’s going. He spent a lot of time mixing this, and he’ll tell you there were multiple versions of some of these songs—acoustic versions, pop versions, middle-of-the road versions. He’s like the ultimate team player; let alone the quality of his work. As a collaborator, he’s incredible.

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Ken Scott appears courtesy of



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## MIX INTERVIEW

I wanted to ask you about the types of people you worked with early on who influenced the way you wanted to work in the studio maybe informed your aesthetic. There was Zappa, obviously...

It started before that. I played in a bunch of rock bands in Boston where I grew up. I always came at it from being the guy in the band who had a picture of what the band should be.

### Every band has a guy like that!

Yeah, whether he's welcome or not—the techy nerd. [Laughs] But in terms of the studio thing, I worked with some classic producers, like Jerry Wexler—people who were really all about the song and the performance aesthetic. As well as more contemporary people, like Jack White; even though he has a lot of classic sensibilities, he's of a whole other generation and aesthetic. I've been very, very fortunate to work with a lot of different kinds of producers who have different ways of making records. I've learned from all of them!

The other thing I've really come to appreciate



Maserati, Mraz and Chiccarelli at a listening session in Maserati's studio.

is working on music of all genres, all styles—doing a jazz album, doing heavy metal albums, doing classical things. You really learn a lot about music in general and what's important to each genre. In other words, during a heavy metal record, obviously the power and impact and the over-the-top quality of it is really, really important. And then you tend to bring those sensibilities to other projects—not that it translates to a guitar sound—but understanding what records in different styles have to incorporate to hold one's attention.

Is it difficult adjusting to the temperaments of the artists you work with, not to mention the musical differences between them from project to project?

One thing you learn is to adapt very quickly. You start to build this mechanism in yourself where you can suss people out very quickly and you become very sensitive to them and you start to understand that, "Okay, my role in this might be to be the cheerleader and the high-energy jokester, because the artist needs that positivity and that

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lightness in the room." On another project you realize, "This is a very sensitive artist and he needs a very chill environment and you need to respect that." Trying to understand the artist and be sensitive to what the person needs is a skill you develop. I was fortunate that I was an assistant engineer for a few years and that's a big role of the assistant—the vibe of the studio. I learned being in rooms with major artists that everybody has a different mind set; everybody requires a little different hand-holding, if you will. You become a chameleon in a way.

The thing that's important to me is coming up with a sound for the artist or respecting their particular sound. For me as a listener, what gets me most excited is when I hear a band or an artist that doesn't sound like anyone else—that really has his or her own unique identity. That carries over to painters and filmmakers and writers: When you have a language that you've developed, that is pretty powerful to me. Understanding what that language is, and respecting it and protecting it, is really a key role of a producer.

**I often wonder what it is that makes one album have staying power over time and others essentially disappear. It's so hard to predict.**

That's true. That's a thing that drives me. I grew up listening to those classic albums, whether it was The Beatles or Brian Eno and Talking Heads. The Clash was a big, big influence on me. I live to make that one classic album, but I haven't yet. So much of what we do is ephemeral, it's so much of the time, but that's the way pop music has always been. I think if you asked Jimi Hendrix or The Beatles if they thought they were making classics, they'd give you the same answer.

**I'd like to close by asking you about working with Etta James.**

I loved her. I just went to her funeral last Saturday. It's sad, because it's kind of like the end of an era. She was one of the last of those singers who started in church.

**I can imagine some of those hair-standing-up-on-your-neck moments when she's in the vocal booth.**

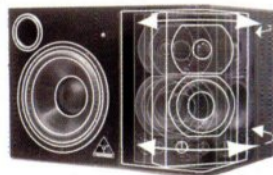
It was always that. We would cry in the control room. So many of the performances were just stellar. On top of it, she really welcomed me into her life; she was so supportive and so sweet to me. I probably worked on half-a-dozen albums with her, and it was no-holds barred. I think about those sessions all the time, because in my personal studio life, she set the bar in terms of what a singer should be and what a vocal performance should have. She's going to be missed, but really, she will still be everywhere. ■

**more online** 



Read more from the Joe Chiccarelli and Tony Maserati interview. [mixonline.com/march\\_2012](http://mixonline.com/march_2012).

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# DESKTOP MONITORS

## Small Boxes, Mighty Sound

By the Mix Editors

*Everything gets smaller.* Consoles upward of 80 inputs and stretching the width of the control room get replaced by 256-input models that fit on a desk in an edit suite. Recorders the size of mini-refrigerators get replaced by ADATs, then pocket-sized multichannel units with built-in mics, then hard drives. Echo chambers now come in software.

But speakers? They still have to push air, right? How small can you go and still have the power and clarity needed for pro-level production? There has been a move lately to go even more compact than near-field, down to the desktop. A number of factors drive this: the changing methods of production, now more mobile and based around a laptop or private production space. The need for new markets for the manufacturers themselves, and the opening up to a whole new generation of pros/high-end hobbyists. The merging of audio and video production onto a single CPU.

But there have always been smaller speakers found in pro studios. Producer Joe Chiccarelli fondly remembers AR Powered Partners from the early '80s, telling me that Bob Rock mixed Metallica and Bon Jovi on them. "They were computer speakers before there were computers," he says. But typically, monitors with a less-than-6-inch woofer have been used for reference, with engineers checking on how tracks translate to the consumer, to make sure their mixes hold up. Auratones are legend in some circles.

The difference today is that the monitors under 6 inches are definitely being used in professional production, and there will be more on the way. Arguably the trend seems to be toward getting the amps outside the box, like the Pelonis Model 42 and the admittedly larger sE Egg. *Mix* took this opportunity to survey the market and present Desktop Monitors available over the last several years. The list is by no means comprehensive, as the line blurs here between pro and hi-fi. And prices have been omitted, as we all know that shopping around is half the fun.



### **Roland MA15D**

The front-ported MA15D monitors from Roland ([rolandus.com](http://rolandus.com)), with 4-inch woofer and 2-inch tweeter, offer front panel controls for bass and treble enhancement and two independent volume controls. Other features include digital inputs, 1/8-inch, RCA and S/PDIF inputs, headphone output, 192kHz/24-bit converters and 15W per channel.



### **Tannoy Reveal 501a**

The Reveal 501a from Tannoy ([tannoy.com](http://tannoy.com)), with 5-inch driver and 1-inch soft-dome tweeter, offers a Wideband tweeter design that extends response to 30 kHz to improve audible phase response, power status LED, +1.5/0/-1.5dB HF trim switch for custom room adjustment, rear volume control, and XLR balanced or unbalanced inputs.

### **Focal CMS 50**

The Focal CMS 50s ([focalprofessional.com](http://focalprofessional.com)), with 5-inch Polyglass cone drive unit and inverted-dome tweeter, feature XLR or RCA inputs, adjustable HP filter plus LF and HF shelving control, sensitivity adjustment, stand-by switch and front facing volume control.



### **Pelonis Model 42**

This active, 4-inch, two-way system from Pelonis Sound and Acoustics ([pelonissound.com](http://pelonissound.com)) is powered externally by four 100-watt amplifiers and controlled via 96k DSP, with access to 5 bands of parametric EQ. It fits in a 1U chassis and is expandable to 5.1/7.1 with addition of the Model 42CS (Center/Sub). Frequency range of 63 Hz to 37 kHz; 106dB peak; 4-inch multi-fiber cone; .75-inch titanium dome tweeter; nominal impedance 4 ohms.



### Equator D5

Just reviewed in *Mix's* February 2012 issue, the D5s from Equator (equatoraudio.com) house a 5.25-inch woofer and 1-inch silk tweeter in a 9.75x7x8.5-inch frame. With a frequency response from 53 Hz to 20 kHz and front-baffled port, they also feature internal DSP, a rear-mounted sensitivity adjustment, XLR and TRS balanced inputs, and three boundary controls.



The MSP3, meanwhile, is a two-way powered monitor with built-in 20W amplification that drives the 4-inch woofer, and 7/8-inch tweeter. A bass reflex enclosure enhances the low end while the company's Waveguide technology works with the highs.

Inputs include balanced XLR, 1/4-inch and unbalanced RCA; two inputs can be active simultaneously, with separate volume and tone controls.

### Genelec 8020B

The Genelec 8020B's (genelecusa.com) die cast aluminum Minimum Diffraction Enclosure houses a 4-inch driver and .75-inch tweeter (20W/20W) and incorporates the Directivity Control Waveguide for smooth on- and off-axis response. Frequency response of 66 Hz to 20 kHz and a max SPL of 105 dB at 1m. A 7050B sub can be added for a bass-managed multichannel system.



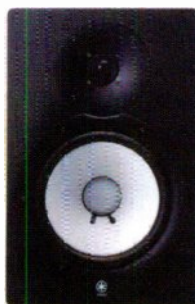
### Alesis M1 Active 520

The rear-ported Alesis (alesis.com) M1 Active 520s feature bi-amp design (25W/50W; 5-inch woofer and 3/4-inch soft-dome tweeter), XLR and 1/4-inch balanced inputs, Hi, Mid and Lo frequency EQ switching, and a top-mounted,

integrated power switch/clip light bar. The 520 is also available in a USB version for desktop/laptop applications straight out of the computer. A smaller-version M1 Active 320 USB includes a 3-inch magnetically shielded woofer.

### Yamaha HS50M, MSP3

The Yamaha HS50M (yamahaproaudio.com) two-way, bass-reflex monitor features a 5-inch cone with .75-inch tweeter and 70 watts bi-amped power. It has XLR and TRS inputs, with Mid EQ, Room Control and High Trim switches.



### M-Audio BX5-D2, BX5a Deluxe, CX5

The BX5-D2 from M-Audio (m-audio.com) features a bi-amplified design with 70W of distributed power, a 5-inch driver with Kevlar cones and a 1-inch silk-dome tweeter with integrated waveguides, optimized rear ports, and XLR balanced and 1/4-inch balanced/unbalanced inputs/outputs.

Also, the Studiophile BX5a Deluxe update the BX5a system with improved waveguide and a new low-frequency transducer.

The CX5, released in 2009, utilizes Acoustic Space controls to optimize frequency response to the room and employs an Optimage IV waveguide to expand the sweet spot. It has a 5-inch Kevlar low-frequency driver and 1.25-inch silk-dome tweeter, and it utilizes 90 watts of distributed power.

### Mackie MR5MK2

Mackie's (mackie.com) MR5MK2 powered reference monitor features a 5.25-inch woofer, 1-inch silk-dome tweeter and Class A/B amplification (55W for LF, 30W for HF) with an optimized waveguide and adjustable high and low frequency controls. Inputs include XLR, TRS and RCA, and the enclosure boasts minimum diffraction through molded baffles.



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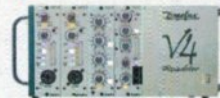
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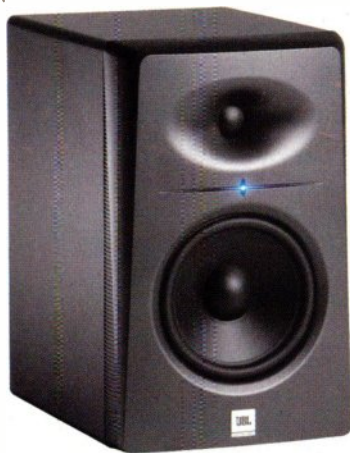




### **KRK VXT-4, Rokit 5**

Weighing in at a mere 14 pounds, KRK's bi-amped VXT-4 (krksys.com) features a 4-inch woven Kevlar woofer (30W), 1-inch silk tweeter (15W) and a radiused enclosure to eliminate diffraction. Frequency response is stated down to 56 Hz and peak SPL is rated at 107dB. Inputs are XLR and TRS.

The active, two-way, front-firing Rokit 5 has a 5-inch glass-aramid composite woofer with 1-inch neodymium soft-dome tweeter (30 W and 15W, respectively) and a frequency response down to 52 Hz. Inputs are unbalanced RCA and balanced XLR and 1/4-inch TRS



### **JBL LSR2325P**

The JBL LSR2325P (jblpro.com) features a 5-inch long-excursion woofer and a 1-inch soft-dome tweeter (bi-amped, 55W/35W), with a frequency range from 43 Hz to 20 kHz. A detented level control and Low and High Trim controls let you tailor output and room response. Inputs are XLR, TRS, RCA; mounting points are included.

### **Avantone MixCubes**

The self-powered 6.5x6.5x6.5-inch cube enclosure from Avantone (avantonepro.com) houses a 5.25-inch, 8-ohm full-range driver (60W RMS, Mosfet, Class A/B amp) that has a range of 90 Hz-17 kHz and a max SPL of 104dB @ 1 meter. Inputs are XLR/TRS combo jack, +4/-10. Each speaker weighs a mere 7 pounds and comes with standard threading for mic stands.

### **Neumann KH120**

The KH120s from Neumann (www.neumannusa.com), the first speaker in the new line, feature a 5.25", composite sandwich LF driver (50W) and a 1" HF titanium driver (50W). Other features include Elliptical Mathematically Modelled Dispersion (MMD) waveguide providing smooth off-axis response, bass, mid and high EQ adjustments, low and high limiter protection circuitry, input gain and output level control and XLR inputs.

### **Behringer TRUTH B1030A**

Using a 5.25" Kevlar woofer and a 1" silk dome tweeter powered by a 50W and 25W amps respectively, the TRUTH B1030As (behringer.com) feature Servo-balanced inputs with XLR, 1/4" and unbalanced RCA connectors. The cabinet's waveguide technology promises a large sweet spot while the magnetically shielded cabinets allow placement near computer monitors.



### **BlueSky eXo2**

BlueSky (bluesky.com) is all about the full-range system and the eXo2 fills the bill with twin 3" satellites with 1" soft-dome tweeters and a separate 8" sub. Total system power weighs in at 160 W (35W x 2, 90W) and there is also a desktop remote and connection hub for easy plug and play. IO is on XLR or TRS plus RCA and 1/8" inputs for -10dB operation. The headphone jack mutes the monitoring system and switches the double-duty gain knob for headworn volume control.

### **Fostex 6301**

These rugged desktop monitors from Fostex (fostex.com) feature a single full range driver and come in either analog (B or BX) or digital models. The 6301 range features features phone jack (B), balanced analog (BX) or AES/EBU inputs with an additional 1/4" analog unbalanced in. Power is via a 10W amp and all models can be vertically or horizontally mounted off the desk via the optional 9610 bracket.



### **Samson A5**

The A5 (samsontech.com) is an active, two-way, front-ported monitor with a 5" woven carbon fiber woofer and a 1.25" silk dome tweeter. Power is via a 50W amp for the woofer and a 20W for the HF driver. Other features include a four-position high frequency lift control, 1/4" balanced or unbalanced RCA inputs and MDF construction.





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By Matt Gallagher

*Fantasy Studio D now offers a new cherry hardwood floor, and its isolation booth received newly installed glass and a sliding door.*

Photo: Kyle Hixson

# FANTASY STUDIOS AT 40

## *Honoring A Legacy While Embracing the Future*

**Succeeding as a top-flight, multi-room commercial production facility over a span of four decades is certainly no small feat.** But Fantasy Studios ([fantasystudios.com](http://fantasystudios.com)) in Berkeley, Calif., has, continually distinguishing itself as a model of resilience, innovation and vitality. Now 40 years in, Fantasy is thriving as an independently run facility, celebrating with a complete physical upgrade of Studio D, which was originally designed by Tom Hidley, by installing new cherry hardwood floors and creating a new glass isolation booth. The celebrations continue into 2012 as staff members have been busy serving clients in the music, film, television, and videogame industries, who fill Fantasy's storied rooms week after week.

The name Fantasy Studios evokes its proud legacy as the launching pad for a vast number of historically important album projects. The studios opened in February 1971 as the in-house recording, mixing and mastering facility for Saul Zaentz's Fantasy Records label, hosting label stars Creedence Clearwater Revival and jazz and blues icons such as Bill Evans, Herbie Hancock, Sonny Rollins, Chick Corea, Tony Bennett, and BB King. Zaentz's label and studio business grew rapidly in the 1970s as the facility added film and TV post-production (*One Flew Over the Cuckoo's Nest*, *Amadeus*) and attracted major recording artists from around the world. Over the ensuing decades, Fantasy built an impressive client list that includes the Grateful Dead, Aerosmith, Santana, Journey, Green

Day and En Vogue, on up to Lil Wayne and Joanna Newsom, to name but a very few.

Still, the past few years have perhaps been Fantasy's most challenging. Following Zaentz's sale of the label, studio assets and catalog to Concord Records in 2004, Zaentz sold his seven-story building in 2007 to real estate developer Wareham Development, and Concord relocated its label and catalog to Beverly Hills. This created a perception among many in the industry that Fantasy would close, or had closed.

Far from it. Wareham purchased Fantasy's equipment from Concord and named Jeffrey Wood, a veteran producer/engineer who has worked steadily at the studios since 1995, as its new Studio Director. "They

have been trusting the vision, being very supportive," Wood affirms. "The whole building was renovated when [Wareham] took over. We have all-new carpets, ceilings and lighting. They rebuilt the whole lobby. It was symbolic of their wish to open [Fantasy] up to the community and make it a creative hub for every style of music. We work with new bands and new artists all the time, and every session gets the same care from our engineers and staff."

### ROOM UPGRADES

Wood cites a number of physical upgrades to Fantasy's three rooms—Studios A, B and D—over the past four years, starting with new acoustic wall fabric



Fantasy Studios' full-time staff pictured in the Studio A control room. Back row, from left: Jeffrey Wood (Studio Director), Allison Gomer (Assistant Studio Manager), James Gangwer (Chief Technical Engineer), and Alberto Hernandez (Staff Engineer). Front row: Adam Muñoz (Staff Engineer) and Jesse Nichols (Staff Engineer).



Photo: Steve Marmia

for Studio A. "We've spent a lot of time, energy and money on maintenance, and that continues to this day," he says. "We put in a brand new cherry hardwood floor in Studio D, which has changed the sound in the most positive way. It's a more focused sound [than Studio A] because [D] has a lower ceiling. However, it breathes. It's got life to it." Fantasy also enclosed its Studio D isolation booth in glass, installing a sliding-glass door, which Wood says expanded the usage of the room. "Now you can put drum kits, the piano [and] string sections anywhere. And we can [accommodate] large amounts of people: We [hosted] a 50-piece hip-hop orchestra and we can do that live because we have the space, the mics, the headphones."

Wood notes that the changes made to Studio D add up to "big changes for Fantasy, because previously we were trying to always honor the sound of the rooms. These were decisions we didn't take lightly. I got a full all-systems-go on all the changes from everybody we spoke with. The way the flooring was put in was honoring the floating floor underneath, a series of plywood build-ups with high-quality plywood with no gaps so that there are no resonance issues."

In Studio B, which features a 21x26-foot live room, Wood swapped the 14x18-foot control room's Trident 80B analog console for an Avid C24. "We totally rewired Studio B when we put in a control surface," he says, "and we rewired the patchbay entirely—took up the flooring, ran all-new wiring under the floor, and rewired it for 5.1 surround." Wood notes that it is possible to gain access to Fantasy's five (of its original eight) echo chambers from any control room. "All rooms are connected by central patch so that you can have

somebody down in B and be recording in D. The modifications we've made within the rooms always work with those systems."

Notably, in 2011 Fantasy re-instituted Foley by commissioning four mobile Foley pits—wooden boxes with concrete bottoms built to industry-standard specifications that can be used in any room. Wood explains that Fantasy's dedicated Foley room, Studio C, "is closed for renovation because we're chipping away at it." Recent post projects include *Moneyball*, *Happy Feet 2* and the March 9 Pixar release *John Carter*.

All of Fantasy's rooms are equipped with Pro Tools HD systems, Studer analog tape machines, and high-end microphones and outboard gear. Additionally, they are ISDN-compatible for connecting with studios around the world.

#### INVESTING IN PEOPLE

Beyond Wareham's improvements to the property's aesthetic appeal and functionality, Fantasy Studios believes in the importance of its employees and their expertise. "Everything here has been a team effort, and we have a great team," Wood says. "We're one of the few studios in Northern California that have hired staff engineers with full benefits, and we try to pay very respectfully. The love of music is why we're all here."

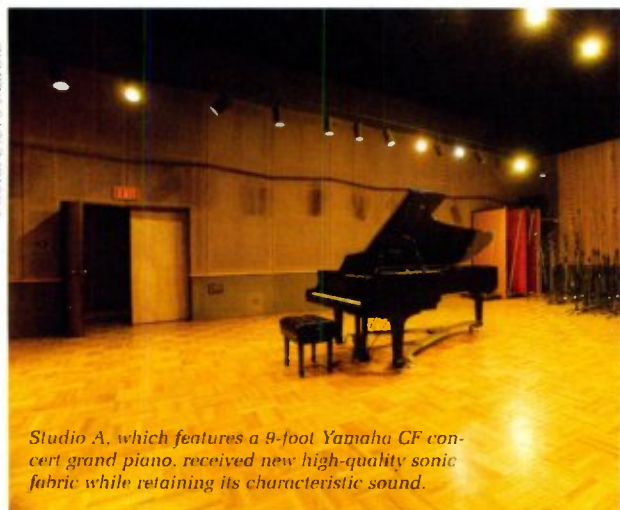
Fantasy's six full-time staff includes Wood; assistant studio manager Allison Gomer; engineers Jesse Nichols, Adam Muñoz and Alberto Hernandez; and chief technical engineer James Gangwer. Veteran master-

ing engineers George Horn and James Tarantino continue to work in their own rooms as independent contractors. "They're both legendary in the amount of catalog that they've done," Wood says of Horn and Tarantino. "We do all their transfer work for them and turn clients their way."

Fantasy also offers an intern program that trains selected audio students to perform vital roles in the studios' day-to-day operation. "We work with a half-dozen schools across the country," Wood says. "We have a rigorous interview process because we're trying to maintain the highest level of professionalism. It's not only what you've learned in class; there are so many other aspects. This is an entry-level learning experience. When people show promise within the program, we do move them into setup and tear-down, and then on to assistantship."

#### TO THE FUTURE

Reaching beyond its established services and focuses, Fantasy offers its facilities for a variety of purposes, including Webcasts, film and video projects, private concerts and receptions, and more. "We're getting into visual production, whether it's televised or streamed," Wood says. "We've been streaming some recording sessions from our rooms with certain name acts that are in. We've also been involved with shooting our own television productions. We were involved last year with shooting a pilot for a major cable station on creativity in the recording studio. We're also involved with a series for PBS that's coming out, producing content in conjunction with a video production company in the building. We're trying to think bigger than just being a studio. We're in the content business. Delivery systems will come and go, but the content always needs to be developed." ■



Studio A, which features a 9-foot Yamaha CF concert grand piano, received new high-quality sonic fabric while retaining its characteristic sound.

Photo: Steve Marmia



# CIRQUE DU SOLEIL'S IRIS

By Mel Lambert

Danny Elfman creates the dynamic score for a "Journey Through the World of Cinema"

**Oscar-nominated composer and musician Danny Elfman** is best known for his complex scores to nearly every film by director and longtime friend Tim Burton; titles have included *Alice in Wonderland*, *Charlie and the Chocolate Factory*, *Sleepy Hollow* and *Batman*. The one-time leader of the new-wave band Oingo Boingo has also written scores for many other disparate films, such as *Spider-Man*, *Milk*, *The Wolfman*, *Terminator Salvation* and the upcoming *Men in Black III*, and is responsible for the themes of TV shows ranging from *The Simpsons* to *Desperate Housewives*.

Last year, Elfman unveiled his intricate score for Cirque Du Soleil's latest live show, *Iris—A Journey Through the World of Cinema*, currently playing at the 3,330-seat Kodak Theatre in Hollywood, Calif. The show is scheduled for a 10-year residency that will be interrupted only for the annual Academy Awards ceremony each February. Total production costs for *Iris* are reported to be close to \$100 million, of which some \$30 million was spent on converting and outfitting the Kodak Theatre with new amenities,

including a multichannel sound system.

"I was first approached by Cirque du Soleil almost three years ago," Elfman recalls, "but for two of those years there was nothing to see—no overall themes nor set designs. Working off very preliminary sketches supplied by [writer/director/choreographer] Philippe Decouflé, I started to work on small



Photo by Hanna Sanders



Composer Danny Elfman on-site at the Kodak Theatre

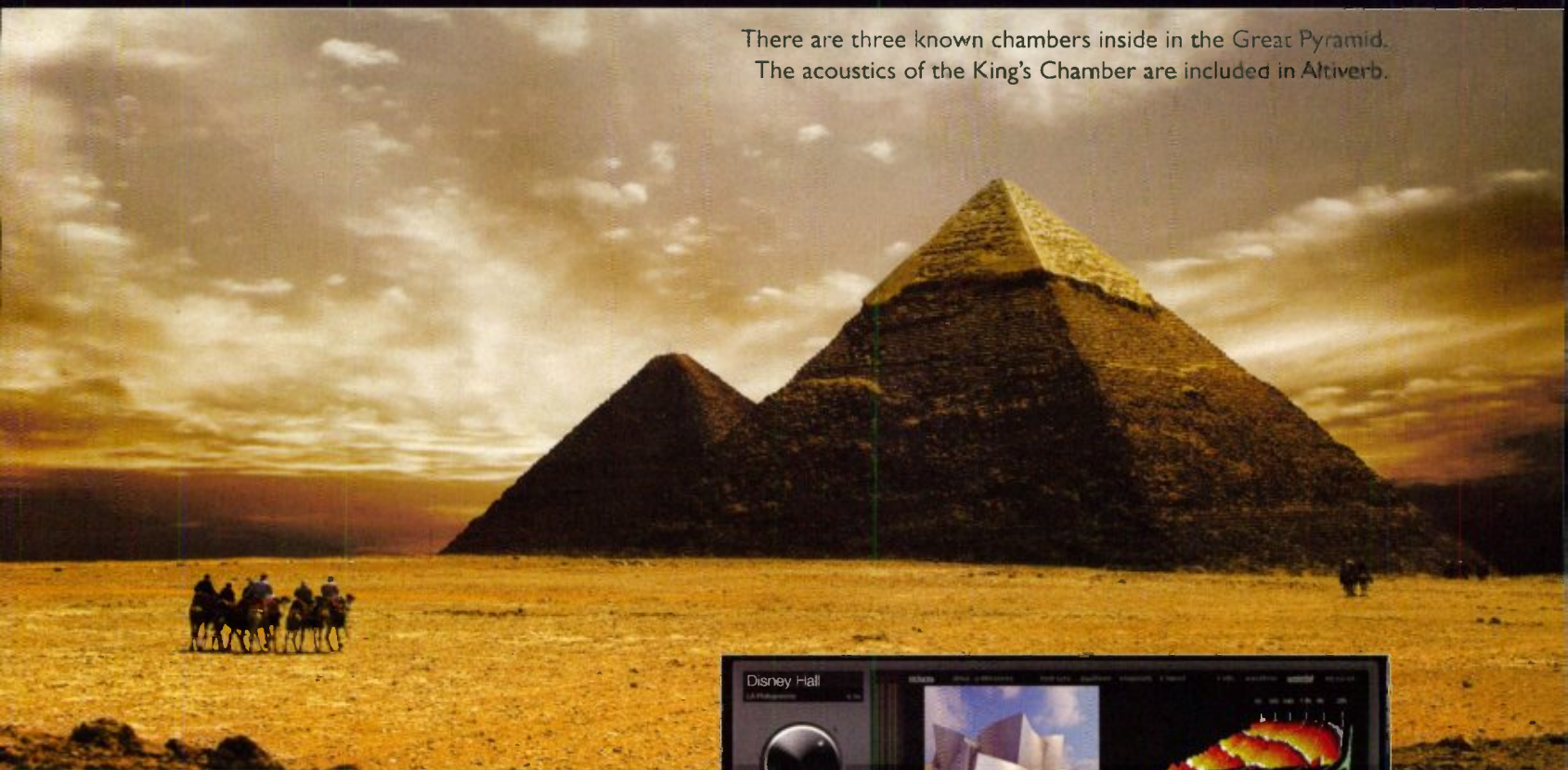
pieces of music that I thought would be suitable for the show. *Iris* is about the early world of cinema—the silent era, in which abstract imagery was highly expressive. My music, like a traditional film score, was intended to capture the rhythm of that highly formative era and form a continuity between the various acrobatic sequences and the larger dance-based sequences, while supporting the show's love story. Early on, Philippe wanted me to keep the score very abstract, and in support of the moving images we see on the stage. His influences included works by the painter Francis Bacon and [French cinema pioneers] Louis and Auguste Lumière and Georges Méliès."

As the show gradually took form, Elfman focused on a dozen pieces. "I then traveled to Cirque du Soleil's headquarters in Montreal," he says, "where I saw the in-progress show, with looped two-minute pieces of my early music. It became a highly iterative process, with my rewriting pieces to better match the final staged sequences. Each ensemble had different needs, in terms of pace and dimensionality. There are a number of performance styles within *Iris*, ranging from acrobats and tumblers to trampoline and trapeze acts; I needed to cover a wide gamut of motion and theatricality."



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Eight months before the *Iris* premiere in mid-2011, Elfman received details of the show's final running order with its 12 discrete sections. "Unlike previous Cirque shows, there is no pit band for *Iris*," he notes. "Instead the plan was to pre-record the orchestral score, apart from the live performances of eight soloists that would play their parts live each night, as the music director triggered each [pre-recorded] cue to accurately follow each performance, to accommodate timing differences night-to-night and the looping that is necessary as performers restage a particular sequence. In other words, the score needed to be divided up into a large number of sections to follow the performance, which would be slightly different each night. It became a mind-bogglingly complicated process!"

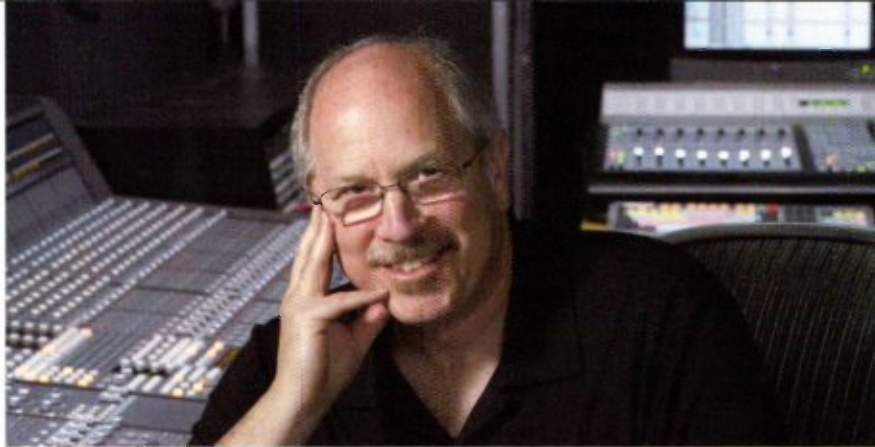
The scoring project began in Elfman's personal recording studio and composing room and then moved to the Fox Scoring Stage in West L.A., where he was joined by his first-call scoring engineer, Dennis Sands. "We had three days of stage time to record 70-plus minutes of the music needed for *Iris*," the composer recalls. "We broke down the scoring dates into nine sessions—three per day—to record the various orchestral performances for the 80-piece orchestra.

"Because we were planning to remix the elements at the Kodak Theatre, and determine the various output assignments for the left, center and right [Meyer Sound speaker arrays] and the multiple surround channels, we broke down the recording into separate sessions," he continues. "We recorded large strings with 45-plus players; medium strings with 25 players; smaller strings with a dozen or so players; separate sessions for orchestral woodwinds and another for a big band with saxophones; plus brass in orchestral and big-band passes, percussion and choir. I had already recorded a number of guitar, organ, accordion, synthesizer and live percussion tracks at my home studio, where I have a large collection of tympani, percussion and a range of drums—my signature sound, if you will. We also tracked a number of ethereal pads, plus the sounds of pots and pans."

In addition to Sands, the production crew included orchestrator Steve Bartek (Elfman's musical partner dating back to his Oingo Boingo days) and conductor Pete Anthony; Tom Steel served as technical stage hand at Fox Scoring, while Adam Olmsted was Pro Tools operator. "I use Adam on all my projects to record and manage the session files," Sands states.

"We used a different close-miking setup for the big-band section," Elfman continues, "to give us a Nelson Riddle type of sound with less room ambience. With all the stops and starts needed for the various segments, it was a very demanding session for the orchestral players. The different cues also meant further divisions, and because of the need to loop some of the sections during live performances of *Iris*, the dynamics within each cue needed to be carefully controlled."

"I used Millennia HV3D preamplifiers for the orchestral tracks, [which were] miked with a Decca Tree array of three Neumann M50 microphones," Sands explains, "with Brauner VM1 tube mics as left- and right-wide pickups.



Scoring engineer Dennis Sands, and his Point One Studios, based around a Euphonix CS 3000 console.



Other spot microphones included DPA 4011s on violins, Neumann U87s on cello, Flea 47s on bass and Neumann M49s as bass-section overalls. For close trumpet miking, I used a Royer SF-1A ribbon, an AEA R44 ribbon on other brass, and an AEA R88 stereo ribbon as overall pickup; I also used AEA ribbon preamplifiers on the brass mics.

"Most of the orchestral mics were connected directly to the Pro Tools rig through Genex GX48 A-to-D converters, which are my first-call units. To achieve a closer, less reverberant sound for the sax sessions, we used the large isolation booth at Fox Scoring with an overall stereo mic array made up of Lautner Audio Torch mics, as well as individual close mics: AKG C-12A, Sony C500 and Neumann U47, plus brass and horns in the big room with close mics to provide a tighter sound with enhanced separation." The Fox Scoring Stage is based around a Neve 88R multichannel analog console.

"We then took the 24-bit/96kHz Pro Tools HD sessions to my Point One Studios in Santa Barbara," Sands continues, "where Danny and I pre-mixed the tracks for 12 days to create the material needed for the mix sessions at the Kodak Theatre. I also had a separate Pro Tools rig that contained the tracks we had pre-recorded at Danny's home studio. Our aim was to provide stereo elements for each cue, plus key solo instruments that could be panned into the various surround locations. We ended up with around 100 Pro Tools HD tracks recorded to a third rig that contained elements destined for the 26 discrete P.A. channels available at the Kodak." Sands' facility features a 96-input Euphonix CS3000 console.

"Because of time crunches," Sands adds, "some of the pre-mixing was handled by [fellow scoring mixer] Alan Meyerson, working in his own studio at Remote Control in Santa Monica."

The live solos for *Iris* were assigned to a string quartet of violin, viola, cello



and bass (the last player doubling on electric bass), plus woodwinds (clarinet and saxophone), brass and two percussionists. The musical director and assistant musical director handled keyboard, sampled-sound and synthesizer parts.

"Then we moved to the Kodak Theatre for a month of final mix sessions with Vikram [Kirby, from Thinkwell Design & Production], who helped me set up the various automated mixes and channel assignments," Elfman says. "The first shock there came when I realized that, because we weren't running timecode, we could not use Pro Tools automation, with which I am very familiar. Instead, the show is made up from a series of prerecorded cues replayed from a large Ableton Live system," which also provided stop/start timing cues to the various lighting systems and video playback servers. "So, instead of having a continuous timeline, with events synchronized at timecode points, we had to mix in [snapshot-based] sections with level and panning changes being triggered as scene transitions that occur at those prescribed cues. To say that it was a complicated mix would be major understatement."

Front-of-house mixing of *Iris* is handled by a Meyer Sound D-Mitri system offering a total of 264 inputs, 76 main outputs and 68 aux channels. A series of networked D-Mitri LCS CueConsolez control surfaces are divided between a large console (at the rear of the house beneath the first balcony) to handle overall level control and automated routing, and a small 32-fader panel used for final level adjustments during each live performance. A separate D-Mitri system with CueConsolez is located backstage as a dedicated monitor mix for the live musicians and onstage performers. The D-Mitri DSP engine handles all EQ, mixing and routing implemented by CueConsolez control surfaces.

While all of the technical systems were designed by Cirque du Soleil, then engineered and integrated by Montreal/Las Vegas-based Solotech, Thinkwell Design & Production conceived, designed and engineered the audio and communication systems. (*Iris* sound designer Francois Bergeron is also a partner in Burbank, Calif.-based Thinkwell.) The wireless system, designed by James Stoffo, includes 18 channels of Lectrosonics Venue Receivers with VRT modules and 18 transmitters from the SMQV Series.

"There was an audience present for three of our four weeks of mixing," Elfman says, "including a week with an invited audience and two weeks of previews. Vikram helped me map the sounds across the main LCR arrays and the near left/right and far left/right loudspeakers, as well as the surround and delay channels. I want to achieve a sense of both ethereal sound within the auditorium, as well as a more 'present' sound for certain cues.

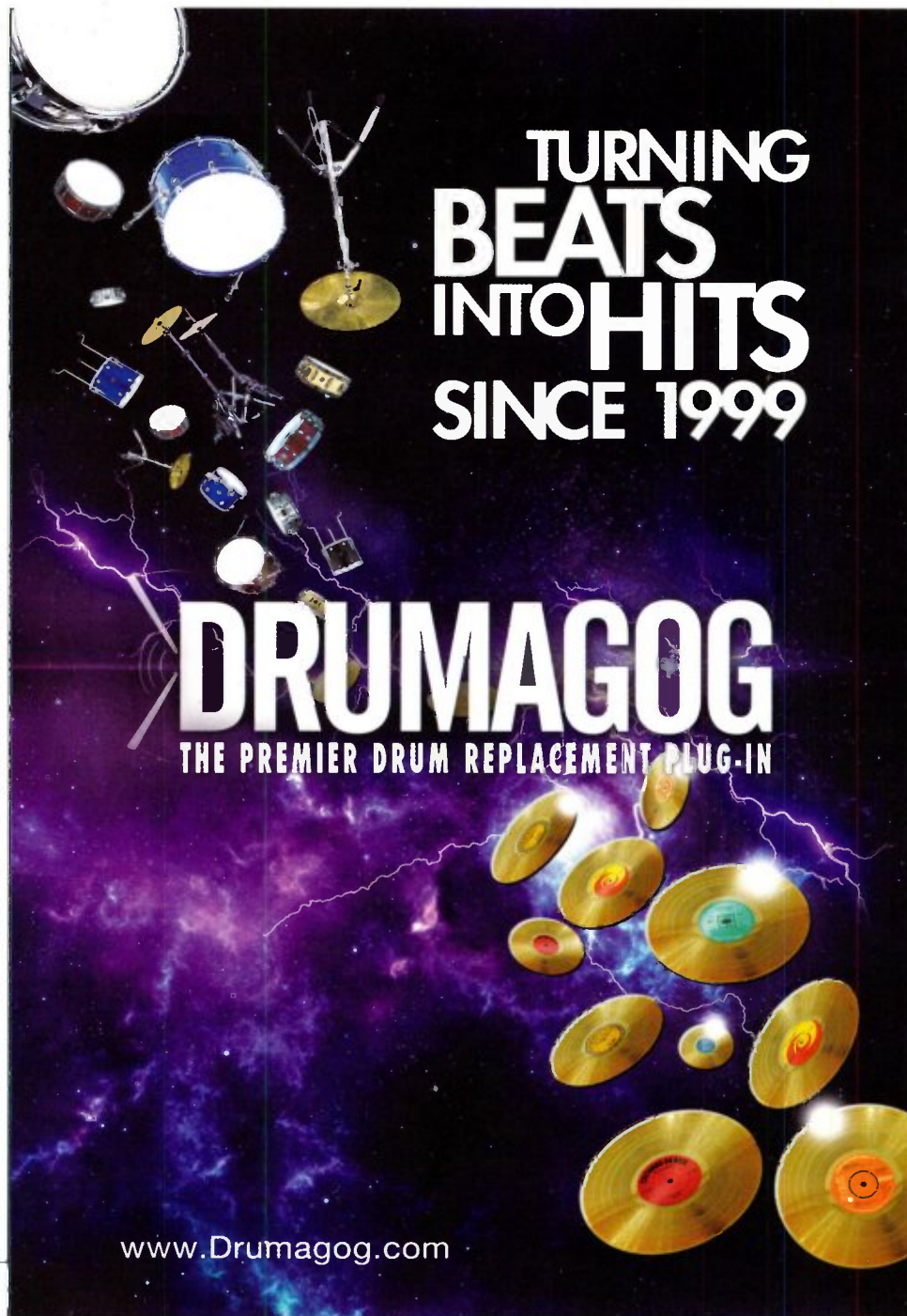
"For some set pieces, I elected to spread the music more widely, whereas for others—where the action is more intimate and centered within the stage areas—I added more brass, woodwinds and strings as necessary to achieve the result I was after. After a week of initial mixes, I was joined by [*Iris* head of audio, Sylvain] 'Sly' Brisebois, who helped make the transition to the smaller bank of faders as we refined the sound balances."

According to Brisebois, who currently mixes the show each night from the 32-fader CueConsolez controller located in the center of the right-hand audience section, "The modular system let us assemble a compact system in the audience where I can hear exactly what they are hearing. *Iris* is a very dynamic mix that changes from night to night. I have access to the full live mix stored within the D-Mitri system, and can recall pre-

programmed VCA subgroups to fine-tune the overall balance during the show and match audience reactions to the onstage performance."

"The interaction with a live audience is exhilarating," Elfman concludes, "with that opening-night feeling every day. I come from a live theater background; that palpable fear that the show may—or may not—run tonight. I will admit that during the first week at the Kodak, I wasn't sure if we could pull it off—I was feeling doomed. But we did pull it off, and I enjoyed the experience despite the hiccups. The process was very unlike anything I've done in my 26 years of film scoring, and almost two decades performing with OingoBoingo. In reality, *Iris* is a culmination of my early days with Le Grand Magic Circus when I was 18 and living in Paris; I have come full circle." ■

*Mel Lambert is principal of Media&Marketing, an L.A.-based consulting service for the professional audio industry. He can be reached at mel-lambert.com.*



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# RobairReport

## REVERSE ENGINEERING



By Gino Robair

**H**ave you ever wondered what it would be like to hear sounds through someone else's ears?

When I introduce mic technology to my recording classes, I point out that the majority of the microphones we use in the studio are not designed to capture sounds with 100 percent accuracy. They often add or subtract something by highlighting or attenuating specific frequency ranges based on the jobs they were designed for. In short, mics are filters.

Seasoned engineers know this, and they select a mic for its particular sound color. Sometimes it's used to capture certain elements of the source they find desirable, while other times it's chosen because it downplays undesirable qualities in the source: If a singer has a nasal voice, the last thing you want is a microphone that highlights that aspect. So you pick one that mitigates it as much as possible, while enhancing the pleasing parts of the voice.

In essence, the engineer is lending the audience a special set of ears with which to hear the music.

### CHAMBER MUSIC

When the topic of miking guitar amps comes up, invariably someone mentions the experiments of guitarist Jimmy Page, who specialized in non-standard guitar tones. One classic Page technique that is cited involves lowering a mic into a bucket in order to color the amp tone with the resonant characteristics of the metal container.

For a feature in last month's issue of *Mix*, I interviewed a handful of engineers about unusual recording techniques and discovered that the concept of placing microphones inside resonant containers is alive and well. Although you could simply capture an impulse response of the container for use within a convolution reverb plug-in, that method doesn't give you the variability in tonal quality and tuning provided by the physical object itself. For example, you can enhance or subdue specific harmonics depending on where the mic hangs in the resonant cavity. On a pure recording level, it makes more sense to capture an interesting sound at the source via mic choice and position than to stack up plug-ins in an attempt to approximate the effect while mixing.

This level of brute-force sound coloration reminds me of the pioneering work of composer Pauline Oliveros. When creating her tape pieces in the late '50s/early '60s, she used her bathtub as a reverb chamber and filtered sounds by placing mics inside cardboard tubes.

Because pro-quality gear was prohibitively expensive for non-professionals in those days, budding engineers and musicians built their own equipment and found creative and affordable ways to explore sound.

Six decades later, there are thousands of plug-ins ready to mangle audio in every conceivable way, and pro-sounding hardware costs less and is easily accessible. Consequently, I find it fascinating that the DIY spirit has returned in full force to the recording world. Not only do I see more hot-rodded gear than ever in the studios I visit, I'm seeing young people build their own effects boxes and instruments with whatever skills they've gleaned from the Internet. These homebrew items range from high-fidelity amplifiers to shockingly lo-fi processors. And with the proliferation of affordable technology such as Arduino boards and SDKs for portable devices, we've reached a time when talented youngsters can produce their own high-tech, highly personalized tools. These are the Anakin Skywalker's of tomorrow's music industry (hopefully without going to the Dark Side).

### SPEED AND LIMITS

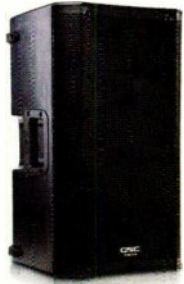
Yet, the ease with which we do things on a DAW today can lull us into thinking we're tapping our creativity to its fullest potential. We forget that much of today's technology was designed to simplify things or remove barriers. Back in the day, however, these barriers often kicked our butts into the creative space.

I believe that challenging yourself by narrowing your options ultimately inspires you to find interesting and unusual solutions that you wouldn't have otherwise discovered, precisely because it makes it more difficult to get things done. A student asked me on the second day of class this semester how she could get an "old-school sound" when recording. No doubt she expected me to point to a classic mic or to a special plug-in bundle. Rather, I explained to her that she could start by confining herself to a couple of tracks on a linear recording device that offers only destructive editing capabilities, while severely limiting her mic and processor choices. And then she should give herself one day to make the record.

Limiting yourself like that isn't just about re-creating the mojo of classic hit records. It is useful in every creative endeavor. While dealing with such challenges in the studio, you have a greater chance of coming up with sounds and ideas that no one has heard before—a chance to give the world something worth listening to through your ears. ■



# NO REST FOR THE RENTED.



## K SERIES K10

### Monday 13

**8 AM - 1:30 PM**  
PA for Nike corporate lunch meeting @ the Marriott

**3 - 8 PM**  
PA on truss for Fashion show @ Center City Mall

### Tuesday 14

**11 AM - 2 PM**  
PA for Press conference @ City Hall

**4 - 7 PM**  
PA on a stick for happy hour keyboardist/singer @ Cahoots Bar

### Wednesday 15

**11 AM - 3:30 PM**  
PA for pianist @ Guido's Italian Restaurant

**7:30 PM - 12 AM**  
Stage monitor for "Slam the Ham" band @ Rock City night club

### Thursday 16

**4 - 7 PM**  
PA on a stick for happy hour guitarist/singer @ Cahoots Bar

**8 PM - 2 AM**  
Stage monitor for "Bellzabob" band @ Down & Dirty night club

### Friday 17

**12 - 2 PM**  
PA on a stick for Ribbon Cutting Ceremony @ the Rec. Center

**5 - 11 PM**  
Playback PA for Grant High School football game

### Saturday 18

**10 AM - 4 PM**  
Ceremony & DJ System for the Stephens Wedding @ Fair Oaks Country Club

**6 - 11 PM**  
DJ System for the Esparza Wedding @ New Beginnings Wedding Hall

### Sunday 19

**8:30 AM - 12:30 PM**  
PA for remote church services @ Jefferson Junior High School

**7:30 PM - 11 PM**  
PA on a stick for Open Mic Night @ Cahoots Bar

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## GUITAR TONE, PART 2

### Hot Rod Deluxe



**T**he goal of this three-part series is to help recording engineers, guitarists and DIY'ers understand some of the factors that influence guitar amp tone. The amp in question—Fender's Hot Rod Deluxe (HRD)—was chosen

because several of my students have complained of the same problem: excessive gain and insufficient tone-control range, which makes it an unruly recording amp. I felt I could offer affordable solutions to those who are cash-poor, and I am always happy to trade technical services for musicianship.

Last month, I showed where and how to tweak the preamp and overdrive circuits so that the default Tone Control settings—Bass, Mid and Treble—can start at mid-position. This month's focus is about installing a real Master Volume Control because the factory MVC affects only the Lead/Drive channel. But before we dive in, I'll answer a few questions from newbie tweekers.

**Q1:** Aren't there dangerously high voltages in vacuum-tube amps? And if so, what can I do to keep from being electrocuted?

If the amp is powered up and down before the tubes have warmed up, and are drawing current, the power-supply capacitors can hold their charge for quite a while. The first healthy geek habit is always to unplug the amp. Then, using a voltmeter, measure the filter caps and discharge, if necessary, with a pair of insulated clip leads and a 10kΩ, 1-Watt resistor. If you can't read the schematic enough to know what a power supply is or where to find it, just ask...or search the Net.

To get you started, here are two video links about transformers and power supplies:

- [afrotechmods.com/tutorials/2011/11/28/electrical-transformer-tutorial/](http://afrotechmods.com/tutorials/2011/11/28/electrical-transformer-tutorial/) and
- [afrotechmods.com/tutorials/2011/11/28/diode-tutorial-and-ac-to-dc-conversion/](http://afrotechmods.com/tutorials/2011/11/28/diode-tutorial-and-ac-to-dc-conversion/).

**Q2:** How do I learn to read a schematic?

The way I learned was to draw them; it's kind of like practicing your letters in kindergarten. Through repetition and comparison, you will eventually be able to correlate the schematic symbols with their physical counterparts and notice circuit similarities. Vacuum-tube guitar amps have more in common than they have differences. Identical circuits can be drawn very differently.

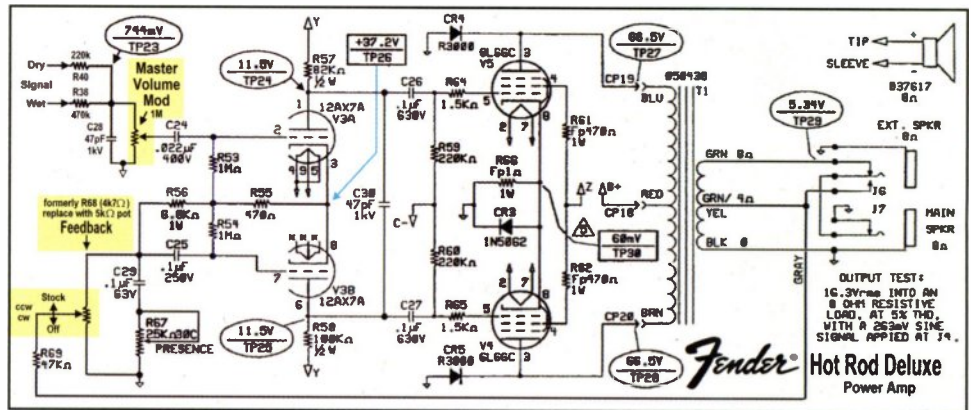


Figure-1 The Power Amp section of the Fender Hot Rod Deluxe, detailing the Master Volume Control and Negative Feedback pots.

Here is a link to the original factory schematic. All schematics used in this three-part series have been modified to improve clarity and to highlight modifications: [blueguitar.org/new/schem/fender/hotrod\\_deluxe.pdf](http://blueguitar.org/new/schem/fender/hotrod_deluxe.pdf).

#### ON TO PART TWO

Introduced in 1995, the Hot Rod Deluxe has an entirely “thermionic” signal path unless the Power Amp Input Jack (J4) is used, in which case an IC op-amp is introduced into the signal path. (The Low-Voltage IC circuitry, along with an overview of vacuum-tube options, will be explored next month.)

Preamp circuitry that relies on individual (discrete) gain stages (tubes or transistors) is Class-A, meaning that each device amplifies all 360 degrees of a sine wave, from the positive half (0 to 180 degrees) to the negative half (181 to 360 degrees). The Fender Champ, for example, has a single 6V6 power-output tube that, like its preamp tubes, is also running Class-A.

Higher-power amplifiers have two or four output tubes that operate in Class AB “push-pull” mode, meaning that each tube in the pair amplifies a little more than half the wave. Overdriven Class-AB amplifiers will symmetrically distort the top and bottom half of the wave, generating odd-order harmonics (mostly musical 3rds, followed by lesser amounts of 5ths, 7ths, etc.).

Without a Master Volume Control, the power amplifier is more likely to be overdriven first, sometimes generating a type of distortion that is not always easy to ignore with a microphone. This is often due to using negative feedback around the power amp, which can be remedied with the second of two mods in this excursion. A true Master Volume Control reduces power amp sensitivity so that one key tube in the preamp chain can be driven harder in a way that is more musically complementary, generating the more subtle even-order harmonics (octaves).



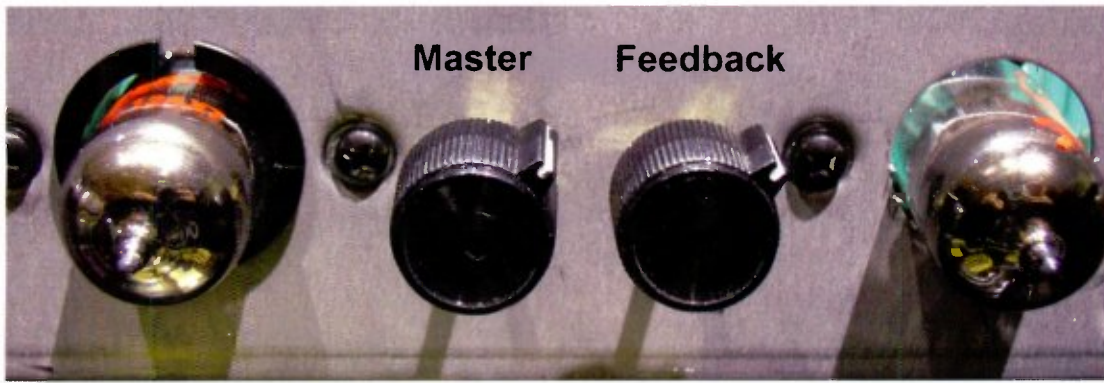


Figure 2: The new Master and Feedback controls are accessible, but not disfiguring.

### THEN AND NOW

The original Fender Deluxe delivered about 20 watts from a pair of 6V6 output tubes, while the HRD's 6L6 pair doubles the power. Note that power output should not be confused with sensitivity; Voltage Gain comes from the number of preamplifier stages.

Of the many Fender Deluxe variations, all consistently have two preamp stages per channel, not counting tremelo and reverb tubes. The HRD swaps ICs for tubes in the reverb drive and recovery section. The "extra" tube stages have been repurposed into the Rhythm (clean) and Lead (Drive) channels, which certainly explains the nearly uncontrollable amount of gain.

A friend of mine, Wes Kuhnley of Resonant Amplifiers, tells

me that some designs include a certain wow factor. Like the smiley-faced EQ curve that sells "studio monitors," some manufacturers employ a gimmick that allows their product to compete with the cacophony of other players who are all searching for the affordable Holy Grail of amps at a music store. Said features are not necessarily useful outside of the store.

The stock HRD has three level controls: Rhythm (Clean), Lead (Drive) and Master—the

last compensates for the amount of Drive required to saturate the Lead channel, so that the difference between the rhythm and lead levels can be optimized to taste. Two switches enable three modes that are officially called Clean, Drive, and More Drive. Master Volume Control (MVC) circuits have a few variations, but whatever the implementation, my preference is that the MVC affect both Rhythm (Clean) and Lead (Drive) levels. You can easily test this theory on the HRD by inserting a potentiometer or a volume pedal in between the preamp output (Effects Send Jack J3) and the Power amp input (Jack J4).

*Continued on p. 69*

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# NAMM 2012 // Studio and Live!

By the Mix Editors

Winter NAMM was a big show for pro audio, in terms of both live and studio developments. There was plenty of great gear on the floor and in the demo rooms, including showstoppers from Universal Audio, MOTU, Masalec, Lauten, Chandler and Lynx Studio, all of which bowed category-bending products. Check out our picks below, and don't forget to follow up on our Mix Certified Hits.

## FOR THE STUDIO

Over the past year, no category has been more competitive than the audio interface and converter markets. New products have introduced more features, more ins and outs, and now touchscreens and single-knob functionality. It seems there is great demand for getting quality audio into computers, and it was evident at NAMM.



The biggest headline grabber was **Universal Audio's** (uaudio.com) unveiling of the **Apollo Interface**, which includes four preamps, 18/24 channels of I/O (Mac/PC), real-time UAD processing, optional Thunderbolt I/O and much more. The company has measured sub-2ms latency with plug-ins in line, making Apollo a real option for tracking.

Meanwhile, **Sonnox** (sonnoxplugins.com) announced that it is now a development partner for the UAD platform. This will bring Sonnox's mixing and mastering plug-ins to UAD-2 DSP Accelerator hardware.

**Prism Sound** (prismsound.com) showed the **Masalec MLA-3** multiband compressor, which takes the category up a notch, offering sidechain linking in low, mid or high combinations; easy output monitoring between bands; and abundant settings for crossover points.

**Pearlman Microphones** (pearlmanmicrophones.com/tm1) showed the **Pearlman TMI** tube microphone featuring a large-diaphragm, 6-micron, gold-sputtered capsule powered by an NOS tube, a hand-wired circuit with WIMA polypropylene coupling capacitors, and Cinemag output transformer.

**Petes Place Audio** (petesplaceaudio.com) displayed their **BAC 500** compressor, a feedback-style FET compressor built around two discrete op amps and a custom-wound output transformer. Features include in/out gain control, Attack, Release and Ratio, plus three positions of sidechain contour, and buttons for bypass and the Distortion feature, allowing the user to add second-harmonic interest to the track.

**Apogee** (apogeedigital.com) introduced the **Duet Breakout Box**, which enhances the company's popular USB interface. The unit sports two ¼-inch instrument jacks, two XLR mic inputs, and a pair of XLR outputs, and it connects to the Duet 2 interface with a multipin connector.

**Steinberg** (steinberg.net) debuted the **UR824** and **UR28M**. The UR824 is a 24-bit/96kHz USB 2 audio interface, with analog 8-in/8-out and eight Class A mic pre's; two pairs of ADAT optical I/O providing up to 16-in/16-out; word clock I/O with two BNC connectors; and two headphone buses. It comes with Cubase A16 software and is cross-platform Mac/PC.



Although it's been shown before to audio pros, the **Focusrite Scarlett 2i2** garnered a lot of attention: two ins, two outs, two preamps—and priced for the home recordist/musician.

Not to be outdone, on the converter front, Lynx (lynxstudio.com) made a splash with the NAMM debut of **Hilo**, a 2-channel AD/DA converter with touchscreen interface, separate monitor/headphone outs, multiple digital options (AES/EBU via XLR, optical I/O, S/PDIF), an expansion port for future protocols, high-speed USB 2 interface and onboard 32x32 mixer.

**MOTU** (motu.com) had some groundbreaking news in the release of **DP 8**, which will now run on the PC platform. Version 8 includes a new video playback engine, Punch Guard confidence recording, 14 new user interface themes and 15 new included plug-ins.

**Steven Slate's Raven X1** console (slateproaudio.com) attracted no less than Mike Clink and this year's Grammy-winning engineer Mike Shipley to the booth for demos. It's a new look at the large-format console that includes Avid fader packs, bountiful room for outboard gear, an iPhone/iPad dock and more.

**Wes Dooley** (wesdooley.com) was showing off his excellent **KU4** ribbon microphone, which is a throwback to the legendary RCA KU-3A from the 1950s. Check out the review in last month's issue of Mix.

**DPA** (dpamicrophones.com) had the dual-ear version of its **d:fine** headset mic. The unit comes with omni or cardioid capsules, and offers a wide range of flexible options for adjusting both the mic and earpieces.

**PMI** (pmiaudio.com) displayed a re-creation of the **Valley People dyna-mite** dynamics processor in a 500 Series format. The built-in TT jacks allow you to link several together.

Priced for the personal studio, **Dangerous Music Source** (dangerousmusic.com) is a monitoring system that includes the same converters used in the company's more expensive summing prod-





ucts. The unit includes two D/A converters, allowing you to route analog (stereo 1/8-inch and a pair of XLR/TRS combo jacks) and digital (USB, AES/EBU, and S/PDIF) inputs to separate headphone and speaker outputs.



The **Radial EXTC-SA** (radialeng.com) is a re-amping box that accepts a balanced +4 line-level signal and provides two unbalanced, high-impedance signals for use with effects pedals and guitar amplifiers. The box includes a phase-inversion switch and a blend control.

**Chandler Ltd.** (chandlerlimited.com) showed its new **19W**,

EL34-based tube amp with a very interesting feature—a knob that changes the tube bias of the gain stage. Four bias presets are available. The amp also includes high and low shelving EQ, as well as a Shape knob that controls distortion and midrange characteristics.

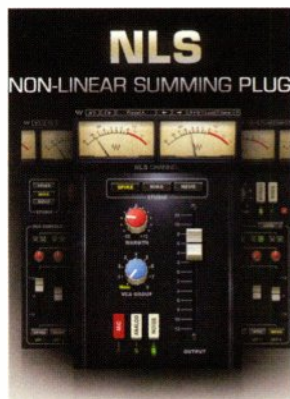
The **Ladder** from **Moog Music** (moogmusic.com) is a redesign of a Bob Moog classic that offers 2- and 4-pole highpass and lowpass resonant filtering in a 500 Series module. The filter includes a two-stage envelope and a drive control.

**Waves** (waves.com) had its **NLS Non-Linear Summing plug-in** in the booth. NLS brings users the analog summing sound of three legendary consoles, including the SSL 4000G belonging to Mark “Spike” Stent, the EMI TG12345 Mk 4 desk owned by Mike Hedges, and the Neve 5116 console custom-made for Yoad Nevo.

**Audio-Technica** (audio-technica.com) proudly displayed its **50th Anniversary Limited Edition** set of products, including versions of the ATH M50, AE4100, AE5400, AE6100, AT4050 and the legacy ATM25 microphone. The LE/Anniversary limited editions feature A-T’s classic silver-colored metallic finish with blue accents, and the AT4050URUSHI sports a stunning traditional urushi lacquer finish with hand-painted Japanese maple leaves.



**Lauten Audio** (lautenaudio.com) showed the **FC-387 Atlantis model**, a solid-state multifunctional, large-diaphragm condenser made in collaboration with engineer “Fab” Dupont. It features multiple switches for three different polar patterns, gain and unique timbre settings.



## MIX CERTIFIED HITS

**Universal Audio Apollo Interface.** This digitally controlled analog I/O not only gets you into the box in clean style, but offers four UAD-2 chips that run the company’s impressive list of plug-ins.

**Dangerous Music Source** puts Dangerous-quality summing, including D/A converters, at your fingertips for under \$1k.

**PreSonus StudioLive V2** first integrated Melodyne into the DAW and now adds single-channel Rational Acoustics Smaart measurement technology.

**Steven Slate’s Raven X1** takes a new look at the modular console, integrating an iPhone/iPad dock and slots for plenty of OB gear.

**Wes Dooley’s KU4** pays homage to the RCA KU-3A, an incredible sounding transducer

that expertly melds new manufacturing techniques with tried and tested tech from the past.

**Maselec MLA-3** brought the high end to Anaheim with a top-quality multibus compressor with the expected and some unexpected features.

**Mackie’s DL1608** mixer brings Mackie-quality I/O and design, and iPad control, into a single unit for under \$1k.

**Lauten Audio’s FC-387 Atlantis** integrates the best features from their other mics into a single unit.

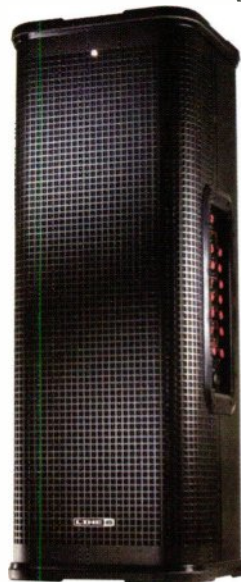
**MOTU’s DP8** has 15 new plug-ins, Punch Guard and a new video playback engine—and it now runs on a PC.

**Lynx Studio Hilo** is an upgradeable desktop converter with touchscreen and powerful FPGA architecture.

### LIVE IS ALIVE!

The presence of Live Sound and Installation manufacturers was bigger than ever at NAMM, with plenty of speakers aimed at the portable market, some traditional mixers and line array systems, advances and expansion in system control, and a flurry of innovation in the iOS-based mix functionality.

**Line 6** (line6.com) introduced **L3t** and **L3s**, an innovative networkable live sound system. Each cabinet offers a 1,400-watt, three-way, tri-amped speaker setup with multichannel inputs and DSP effects. In addition, each speaker has a positional sensor that automatically tailors the sound of the unit based on how it’s used—vertically as a P.A. or horizontally as a monitor. Line 6 also introduced the **StageScape M20d** DSP-enhanced digital mixing system, a controller with a user-friendly touchscreen interface, auto-sensing I/O, DSP effects, and wireless connectivity using an iPad.







The big news for **Mackie** (mackie.com) is the **DL1608** digital mixer. The heart of the system is an iPad that integrates with the surface or can be used as a wireless remote controller, allowing you to mix from anywhere in the venue or studio. It features 16 Onyx pre-amps, 24-bit converters, DSP and snapshot recall.

**PreSonus** (presonus.com), which was into

iPad mix control early on, was showing off its latest **StudioLive** software sporting Rational Acoustics' Smart Measurement Technology for sound-system analysis and optimization directly into PreSonus Virtual StudioLive remote-control/editor/librarian software.



But control is no longer simply about the console. System control is the buzz in both touring sound and the installation/contractor market.



**QSC** (qscaudio.com), looking to bring its powerful Q-Sys Core technology to a wider range of installations, showed the **Core 500i** and **Core 250i**. Each has eight card slots and is capable of 128 and 64 network channels, respectively. The processing power is real, running under a custom Linux OS on Intel-based motherboards, connecting via Layer 3 Gigabit Ethernet hardware.

**Peavey** (peavey.com) put a lot of focus on its **AT-200** guitar, developed in partnership with Antares and incorporating Auto-Tune DSP into the body, with Auto-Tuning and auto-intonation up and down the neck—a great demo on the floor. But they also showed iOS capability on MediaMatrix control software, bringing the technology down to the high-end home, church or nightclub; and they debuted their **PVX Series** line of powered speakers—12s and 15s—as well as the Triflex package incorporating a sub for portable P.A.



**DiGiCo** (digico.biz) debuted **UB MADI**, which allows any computer to plug-and-play with its SD range of consoles over USB 2—up to 48 simultaneous inputs and outputs, incorporating the company's latest Stealth Digital Processing FPGA technology and communicating as a standard ASIO or Core Audio interface.



**Avid** (avid.com) showcased the new **Venue SC48 Remote Digital Live Sound System**, said to be the first Live Sound product to incorporate AVB. The system, which can also be added to

existing SC48 systems, includes a new Stage 48 remote stage box, connected via Cat-6, and new Version 3 software. More channels, more processing, more plug-ins, including 32 channels of Pro Tools record/playback over FireWire and the incorporation of Flux analysis software.

**Allen & Heath** (allen-heath.com), in the **American Music & Sound** booth, debuted **GLD**, a scalable live digital mixing system, with the standard GLD 32 offering 28 XLR mic inputs with plug-and-play I/O expanders. At the heart of the system is the GLD-80 mixer, providing 48 input processing channels, eight stereo FX returns, 30 configurable buses and 20 mix processing channels, and an analog-style channel processing control section complemented by a graphical 8.4-inch touchscreen.



**Behringer** (behringer.com), which was fresh off a CES show where they introduced somewhere around 50 (!) new products, announced relatively unprecedented three-year warranties and the movement of **Midas** manufacturing to China in a very real attempt at improving the company's quality.

And yes, there were lots of speakers, too, mainly in the portable P.A. market. Besides the previously mentioned Peavey, **Yamaha** (yamaha.com) unveiled its **DXR** and **DXS** powered speakers. The DXRs can be linked as stereo or dual-mono systems, and each speaker offers DSP-controlled EQ and protection circuitry.

**JBL** (jblpro.com) went both large and small, with the introduction of the **VTX Line Array Series** and the **PRX 400 Series** in portable P.A., the latter offering a 12-inch version, a 15-inch, a dual-15, and an 18-inch sub.



**Electro-Voice** (electrovoice.com) launched the matching subwoofer for its best-selling **ZXA1** compact self-powered loudspeaker at NAMM 2012—the ZXA1-Sub. It offers portability, performance, and power in a lightweight, small-format package.

**Shure** (shure.com) showed us its **ULX-D** digital wireless microphone system. Besides boasting an increase in wireless performance and studio-level audio quality, the manufacturer touted the system's ability to securely encrypt each mic's signal to a specific receiver. The ULX-D also includes improved recharging technology that extends battery life.

Summer NAMM returns to the Nashville Convention Center July 12-14, 2012. For information, go to [namm.org/summer/2012](http://namm.org/summer/2012).



# USB Dual Tube Pre

Two Channel Tube Preamp / Computer Interface  **USB**

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The USB Dual Tube Pre is a two channel professional quality audio interface that lets you connect microphone, instrument, and line level signals to a mixer or other audio input as well as directly to your computer via USB or S/PDIF.

Simply plug a microphone or instrument into the combo input. Apply phantom power if using a condenser microphone. Then dial up the gain and you are ready to go. Refer to the LEDs on the front panel for a visual measure of input gain, and then route the output to a mixer, workstation, or computer via the 1/4-inch jacks or USB output.

## • Latency free Monitoring Mix and Level controls



## • Separate Gain, Phase Invert, Low Cut Filter and Compressor switches

## • USB connectivity to desktop and laptop computers



## • S/PDIF output for expanding inputs on digital workstations and computer interfaces

## Other Features:

- Two channel Tube based Mic/Instrument preamp computer interface
- Extremely low noise discrete front end with variable input and output controls
- Advanced optical output compressor to simplify recording and prevent overload
- Balanced XLR for lo-Z applications and 1/4-inch hi-Z inputs for instrument DI applications
- Selectable Dual or Stereo operation of output controls
- Switch selectable Inserts on each channel
- Insert jacks provide a preamp direct out for each channel
- Stereo/ Dual operation of Optical Compressor
- Mono switch for single input monitoring
- S/PDIF Sample Rate switch selectable between 44.1K and 48K
- Precision LED metering of both the preamp and A/D sections
- Built-in low noise +48 Volt phantom power supply
- Compact, stackable all aluminum chassis

For more information on any ART products including the USB Dual Tube Pre, please visit

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# Tech // reviews

## ALLEN & HEATH GS-R24M STUDIO RECORDING MIXER

Hybrid Design Features Optional DAW I/O, Valve Channels



**T**he GS-R24M from Allen & Heath exemplifies the concept of a “hybrid” console, merging analog and digital mixing capabilities with onboard A/D and D/A. The console boasts a comprehensive analog feature set, and adding the optional FireWire+ADAT interface card allows the GS-R24M to serve as your DAW interface, providing 32 FireWire I/Os at sample rates up to 96 kHz. The GS-R24M also incorporates DAW fader and transport control. That’s quite a bit in one package. While I don’t have the space to detail every feature, we’ll take a look at the major points.

Each of the GS-R24M’s 24 mono input channels has a rear panel TRS line in, direct output and insert (tip=send, ring=return), plus an XLR mic input. Preamp controls in-

clude gain, 48-volt phantom power, polarity reverse (which applies to both line and mic signals) and a 100Hz highpass filter. The 4-band EQ features fixed high (12kHz) and low-shelf (80Hz) bands, parametric high-midrange and low-midrange, and an EQ on/off switch. Six aux sends are configured as follows: aux 1 and 2 are pre-fader, auxes 3 and 4 may be switched pre or post-fader, and auxes 5 and 6 are post-fader but may be changed to pre-fader using internal jumpers. Bus assignment includes L/R, groups 1 through 4 and an independent mono bus. Directly beneath the bus assignment are four Interface Configuration switches, which I’ll discuss. At the bottom of the channel are mute and solo switches, and a 100mm touch-sensitive, motorized fader.

Two rear panel stereo inputs (TRS and

RCA) are provided for each stereo channel strip. Stereo inputs 1 and 3 may be routed directly to the L/R bus or to the channel where they sum with stereo inputs 2/4 respectively, and have access to 4-band (fixed) EQ, auxes, bus routing and (non-motorized) fader. Stereo inputs 1 and 2 are controlled by the channel strip called Stereo 1. Stereo inputs 3 and 4 are controlled by the channel strip called Stereo 2. Confused? So was I.

### YOU TOO!

Channels 29 and 30 are “Valve Channels” that source from XLR, ¼-inch or DAW return inputs. These channels have phantom power, polarity reverse, level, pan and bus assign. The high-impedance (10MΩ) ¼-inch input is line-level, but a switch boosts the input sensitivity for DI use,



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which sounded great on synths and clean guitar. A drive control allows you to smack the tube amplification stage hard for some tube mojo, but the effect is subtle. Cranking the drive on DAW tracks added some attitude to snare drum or a bit of growl to a bass DI, but was not kind to kick drums. Access to the tube for replacement is from the bottom panel.

A recessed switch labeled 17-24=Grp+Aux swaps channels 17-24 with the four group outs and the four aux outs—making it easy to group channels for recording onto the same DAW track. During a mix session I used this feature to send from the console to a reverb in the DAW.

### THE FOUR BUTTONS

Four Interface Configuration switches (A, B, C and D) determine routing options for each channel. A clear understanding of their functions is crucial to exploiting the GS-R24M's capabilities. When the FireWire+ADAT card is set to FireWire Only, every input has a "FireWire direct out" to the DAW, and a FireWire return from the DAW. The card supports other modes: ADAT Only, where the 32 FireWire I/Os are replaced with ADAT I/Os; and ADAT+FireWire, where buses 1-24 are FireWire and 25-32 are ADAT.

Think of the GS-R24M as an inline analog desk where the multitrack tape sends and returns have been replaced with FireWire DAW sends and returns. When all switches are up, the GS-R24M behaves like a "normal" analog mixer, routing mic/line signals through the channel and bus assignment, and providing latency-free monitoring. The bonus here is that the DAW sends are active, tapping the channel post-preamp/HPF and pre-everything else—enabling the desk to be used for live mixing (house and monitor mixes) while the FireWire sends are bused into your choice of DAW, undisturbed by EQ or inserts. Because the analog direct outs are also active, you could simultaneously record to a backup system in critical situations. Tré kewl.

### TRY THIS

The GS-R24M's routing capabilities make it a powerful summing mixer. You can easily use analog outboard to create a compression bus and mix it in with unprocessed drum tracks. In the DAW, set your drum track outputs to individual channels of the GS-R24M.

Then create an Aux bus in the DAW and route it to an unused channel on the GS-R24M. Push that channel's 'B' routing button so the DAW output feeds the channel pre-EQ and insert. Patch your favorite analog compressor into the insert on this channel, set it to a low threshold, fast attack and high ratio, and then mix the channel underneath the unprocessed drum tracks. You'll get a great compression effect and there won't be any latency on the compressed bus because the mixer handles the insert post-DAW.



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When switch "A" is engaged, signal to the DAW is post-EQ and post-insert. Switch "B" replaces the mic/line input with the DAW return, pre-insert and pre-EQ. That means that rear panel analog inserts and channel EQ apply to the DAW returns—a really slick feature. Switch "C" also engages the DAW return, only this time it's post-EQ and insert, so you can monitor the DAW output while using the EQ and insert on the signal going to the DAW. Switch "D" is fader bypass at unity gain. When you want to mix "in the box," use the Digital Master Return to monitor (see below), and set D for bypass so that moving a console fader changes the DAW fader but leaves the channel's audio level untouched. On the other hand, you can turn off D, set the DAW channels to unity, and use the GS-R24M as a summing mixer.

### OUTPUT SECTION

Each of two studio outputs can independently source from any output bus. The master section is equally impressive with LED metering for the L/R bus (this, in addition to the meter bridge VUs), talkback, headphone out, control room monitor source, alternate speakers, control room level, and a mono button. Dubbing switches allow copying from 2-track 1 to 2-track 2 or vice versa, which is very convenient. "Digital Master" is a virtual 2-track return from the DAW on buses 31/32, which I used as the stereo return from Pro Tools and Digital Performer. Beware that the digital master return can be dumped back into the L/R mix, setting up the possibility of a feedback loop.

### MIDI CONTROL

Before we discuss the GS-R24M as a DAW controller let's make clear the separation of control and audio functions: The GS-R24M functioned flawlessly as the audio interface to my Mac Pro at all sample rates, regardless of clock source (I used internal, word and ADAT clock) and software (Pro Tools, Digital Performer and Record). Inputs and outputs automatically appeared when I launched software (albeit with some difficult-to-read names) and routing was a snap.

Using the GS-R24M as a DAW controller was disappointing. The desk requires purchase of a third-party utility called Bome's MIDI Translator (approximately \$85 U.S.), for which A&H provides mapping templates. At this price the desk should include all requisite software. The manual states that the console may be run in HUI emulation mode, but the template does not support fast-forward, rewind or fader banking—so there's no fader con-

### PRODUCT SUMMARY

**COMPANY:** Allen & Heath  
**PRODUCT NAME:** GS-R24M with FireWire+ADAT I/O Module  
**WEBSITE:** allen-heath.com  
**PRICE:** \$10,999; FireWire+ADAT card: \$700  
**PROS:** Excellent build and audio quality, outstanding flexibility in I/O routing.  
**CONS:** DAW control requires purchase of third-party MIDI translator and is somewhat limited.

trol over channels past 24. To take full advantage of DAW control, be prepared to write your own Bome template. Fader read/write/on/off switches allow fader moves on the GS-R24M to be recorded by your DAW's automation, and the console faders respond to DAW fader moves. At times, though, faders resisted manual movement (even with automation deactivated), or the DAW faders would not reflect movement of the hardware faders.

I also discovered an issue with the GS-R24M's HUI mode. When the desk is set to HUI mode, the GS-R24M produces a MIDI tick. This tick cannot be isolated and infiltrates MIDI tracks when you attempt to record MIDI data from, for example, a keyboard controller. Setting the MIDI track's input to the keyboard controller (as opposed to "all") did not clear the issue, nor did turning off MIDI read/write on the faders. In fact, even if I removed the GS-R24M as a Pro Tools peripheral, the tick was still present in the MIDI stream.

### AND FINALLY

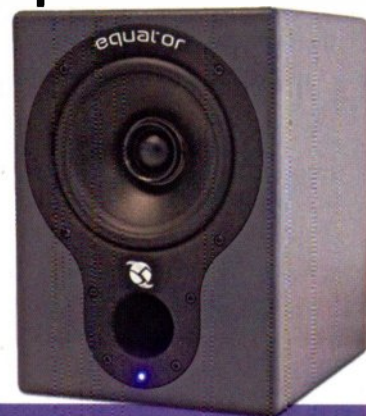
Allen & Heath's GS-R24M fantastically merges the requirements for routing and mixing DAW tracks with analog sources. It provides incredible flexibility for recording DAW tracks while monitoring the sources and/or creating front-of-house and monitor mixes. As expected from A&H, the audio path is clean and quiet, the mic pre's are well designed and the desk features the company's familiar EQ. As it stands, the GS-R24M is an excellent mixing console. If A&H make access to DAW control easier for Mac users, the GS-R24M will be a tour de force.

[Ed. Note: As we went to press Allen & Heath was finalizing the implementation of the HUI protocol directly into the console, eliminating the need for the BOM Software translator. This will be a free firmware update to the console available in the very near future.]

*Steve LaCerra is a New York-based live sound and recording engineer.*

Fix it in the Mix

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## THREE PORTABLE HANDHELD RECORDERS

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I recently had the opportunity to engineer some interesting field recordings. The first was at the Arizona Railway Museum recording train sounds to be used for a new toy train from Lionel. The other was to record sounds for a stop-motion short for director Trevvor Riley in various large, abandoned spaces. In each case the client specifically wanted clean, direct sound recordings of specific elements, but also wanted to capture the context of the recording environment. Armed with a trio of slick, new handheld recorders from Roland, Tascam and Nagra, I was able to simultaneously record ambience and spot mics with great results.

The Roland R-26 and Tascam DR-40 really shined in their ability to record using a combination of onboard stereo mics, while also offering phantom-powered XLR inputs. The Nagra SD came in handy by offering a variety of high-performance modular microphones that could be attached to a tiny, lightweight unit. Coupled with Rycote's Portable Recorder Kit, providing a shock-mounted pistol grip and fur windmuff, the Nagra SD became the perfect tool for moving, fast-to-follow action.

### ROLAND R-26

In terms of features for the price, the Roland R-26 is astounding. The device includes four miniature electret condenser microphones. Two of them employ cardioid pickup patterns and are arrayed in an X-Y configuration. The other two are a widely spaced pair of omni-directional pickups. In addition, XLR/TRS combo jacks can be used to receive signals from dynamic microphones, phantom-powered condenser microphones or line-level signals. Alternatively, a 1/8-inch stereo miniature jack can be used for external input. At sample rates ranging from 44.1 kHz/16-bit all the way to 96 kHz/24-bit, six-channel recordings with all four internal mics plus a stereo input are possible.

The build quality of the R-26 is sturdy. The large LCD touchscreen offers an onboard graphic waveform editor, allowing trims and fades to be performed in a way that will be pleasantly familiar to DAW users. The smooth rotating controls allowed me to make adjustments during recording without noticeable noise being picked up. Other features include a 1/8-inch mini jack for headphones, a built-in speaker,

an SDHC card slot, and a 4-pin miniature B-Type USB connector, which can be used for transfers or to make the R-26 an interface. Using the included drivers, the R-26 acts as an I/O device compatible with Pro Tools 9, PreSonus StudioOne, Nuendo, Apple Logic and most other popular DAWs. A copy of SONAR LE is included.

I was truly impressed by the quality of the recorded sounds when using the onboard mics. Whether the low-end resonance of a train horn or the low-frequency waveforms that developed when stomping in an empty warehouse, the bottom end was excellent. The mic pre's also worked very well with external mics.

I did a shootout sourcing a vocal through an Audio-Technica AT4071a into the R-26 pre's, the DR-40 pre's, and through a Sound Devices USBPre2 connected to the analog inputs of the R-26, and then the DR-40. The Sound Devices took the win, sounding remarkable through the A/D converters on either unit. The R-26 performed relatively similarly in the low to low-mid frequency range, however losing a slight amount of detail and sounding a bit muffled in the upper midrange. The DR-40 lost some low-end, performed respectably in the upper-midrange, but in the highest frequencies displayed a slightly "digital-sounding" garbling seeming to be the result of clocking and A/D inaccuracies. Also, in the top end, each device had varying degrees of slight hissy noise, but it seemed most pronounced in the R-26. When recording something as loud as a train, this was not noticeable at all. When recording nature ambience, this was apparent in recordings from both the built-in mics and the mic pre's. Regardless, I still found the overall character of the analog front end to be superior in tonal quality to the DR-40, and in all

### TRY THIS

Both the Roland R-26 and Tascam DR-40 allow you to use their built-in mics and stereo XLR inputs at once. This is great for concert recordings. Use the onboard mics to pick up drums, room and crowd, while taking a split from the front-of-house mixer into the XLR inputs. The FOH mix will have more vocal, keys, kick, and snare. Blend the two together for a great sounding bootleg or live release.





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## Ryan Hewitt On the New MA-300

"I've had a pair of Mojave MA-200s for years now and use them on all sorts of sound sources, but I've been begging the company for a variable pattern version for almost as long. I am really amazed with the MA-300's performance. The ability to tailor the response of the mic, along with the new high pass filter and pad has greatly increased its versatility. I'm now able to use the MA-300 even more creatively."

### Ryan Hewitt

Engineer: Avett Bros., Red Hot Chili Peppers, Flogging Molly, blink-182

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ways preferable to what I've heard from the Zoom H4n.

Especially for the price, the analog front end was more than useable. With a rugged, professional look and feel, audio interface option, impressive sound quality and a mile-long list of features, the R-26 could easily sell at a much higher price tag. Given its retail price under \$500, I could see the R-26 becoming a go-to recorder for serious professionals.

### TASCAM DR-40

Tascam's DR-40 has stepped up as the least expensive (\$199) XLR-input recorder on the market. It doesn't have all of the bells and whistles of the higher-priced recorders, but offers features that allow it do almost everything you need at a reasonable price. The onboard pair of electret mics can be adjusted between X-Y and A-B (wide stereo capture) recording configurations. The XLR inputs can receive dynamic mics or phantom-powered condensers, or can be switched



to easily receive line-level signals. Up to four tracks can be recorded simultaneously, always resulting in stereo files. Naturally, the four tracks can be used to capture a combination of the two built-in mics plus signal from the XLR inputs. Skipping two of those inputs frees up two tracks, which can then be used to redundantly record a single pair of inputs at a lower level, providing a safety copy.

When close miking a train engine with an SM57, the DR-40 got the job done without coming up short. Recording voice with phantom power engaged, there was a cyclical, intermittent, high-frequency whining sitting deep beneath the track. This was absent when using an external mic pre, suggesting that there was some sort of

electronic bleed creeping into the low-level-input microphone signals. That said, I was pleasantly surprised with the sound of the onboard mics. For the size and price of the capsules, the amount of low-frequency pickup and clarity in the top-end was impressive. Concert recordings were true-to-life. The stereo imaging on music as well as sound effect recordings reads really well. The ability to pan a mono spot mic up the middle while using the onboard stereo mics was really helpful. The panned and leveled mix of the four tracks could also be mixed down to a new stereo file within the DR-40. M/S decoders were common on all of the recorders reviewed. However, it was nice that the DR-40 would allow monitoring through the decoder using its variable-width option, and then print the result if desired. The headphone output was weak, especially when working in close proximity to the sound source; it was often difficult to hear the recorder's output over the actual sound traveling through air. Moreover, the plastic body and noisy buttons made this the recorder most subject to handling noise. But all in all, this is a great little unit for under \$200.



### NAGRA SD

Anyone familiar with field recording knows the name Nagra. The Nagra SD is barely larger than



# AEA RPQ500

a cigarette pack and constructed from sturdy aluminum. The back panel is covered in switches, and the face features a small display screen and various level, transport, and menu buttons. On one side is a headphone jack and the SD card slot, on the other is a miniature B-Type 4-pin USB connector for data transfers. The narrow top surface features a pair of 1/8-inch mini jacks designed to connect to the different clip-on input options; they can also directly receive mic or line-level signals.

All clip-on mics and cables are sold separately, but offerings include a mono, cardioid microphone; a dual-capsule stereo mic; a high-quality dual-capsule stereo mic; an omni mic; a stereo mic cable with dual XLRs; and a line-level stereo cable that terminates to dual XLRs. Neither of the microphone cables offers phantom power, so external mics requiring phantom power demand an external power supply. Accessories from Nagra's ARES-M/MII/ML recorders are also compatible with the Nagra SD.

I spent the most time using the omni mic (marked with a blue band) and the high-quality stereo capsule (marked with a green band), which impressed me the most. The low midrange frequencies were very clear and detailed with great bottom and smooth, as well as balanced upper midrange and excellent top-end detail. As a result, I achieved an incredibly visceral image.

I was confused by the decision-making on the physical design. Certain features were given dedicated hardware switches that might have been as easily assigned to menu selections and vice versa. The unit included a protective carrying case with a tripod-style mount, which kept handling noise out of the recording. The case, however, blocked access to all of the back panel switches such as the mic-gain high/low toggle and the HPF—switches that I often needed to engage on the fly. De-casing required disconnecting headphones, making the process rather awkward. Similarly, pressing buttons through the clear, plastic top face of the case often caused errors, as two buttons would inadvertently be depressed at once.

The menu system was often difficult to navigate. For example, when you are four layers deep in a menu, it would be beneficial if the menu button brought you back to the top; instead, you have to scroll and navigate your way back home. Also, choosing whether you want to record a stereo or mono file should be a menu option, not a hardware switch. And for that matter, if I can't get to the switches without taking off the case, I'd just as soon use the menus to gain access to them.

That said, you'd be hard-pressed to find another light, portable all-in-one recorder that sounds as good as this one. I think that Nagra envisioned the SD for broadcasters doing on-the-fly interviews, as that seems to be the connotation in the instruction manual. Given the microphone choices and portability, the unit seems more than capable of doing just that. With a little more ergonomic functionality, however, the SD could easily dominate the high end of the handheld recording market. ■

*Brandon T. Hickey is a freelance engineer and audio educator.*

## PRODUCT SUMMARY

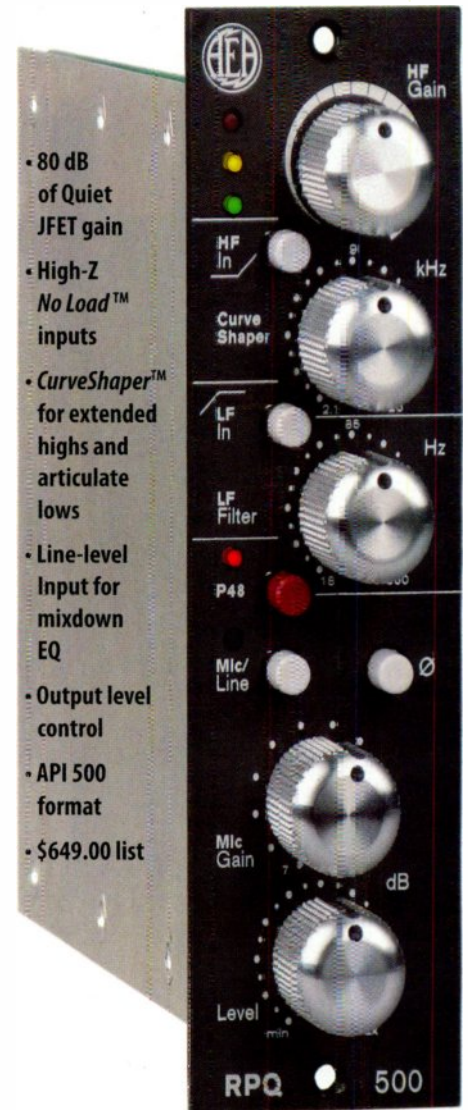
**COMPANY:** Roland  
**PRODUCT:** R-26  
**WEBSITE:** roland.com  
**PRICE:** \$495 (street)  
**PROS:** Great feature list for price point.  
**CONS:** Preamps sound slightly muffled in upper midrange.

## PRODUCT SUMMARY

**COMPANY:** Tascam  
**PRODUCT:** DR-40  
**WEBSITE:** tascam.com  
**PRICE:** \$199 (street)  
**PROS:** Impressive clarity in low and high frequencies.  
**CONS:** Noisy controls and weak headphone output.

## PRODUCT SUMMARY

**COMPANY:** Nagra-Kudelski Group  
**PRODUCT:** Nagra SD  
**WEBSITE:** nagraaudio.com  
**PRICES:** \$975 Recorder; \$184.95 Omni Mic; \$329.95 High Quality Stereo Mic; \$199.95 Cardioid Mic; \$159.95 Stereo Mic Cable  
**PROS:** Incredible sonic operation across all frequencies.  
**CONS:** Case blocks access to back panel switches. Clunky software implementation.



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## LISSON GROVE R-124 COMPRESSOR

Unique-Sounding Gain Controller With EMI, Altec Lineage



**T**he Lisson Grove R-124 single-channel, variable- $\mu$  compressor is an homage to the EMI/Abbey Road RS124, which itself started out life as the U.S.-made Altec 436B compressor originally released in 1958 for telephone and broadcast use. American recording engineers found them unreliable, lacking good bass response, and mostly ignored them. EMI's engineers recognized the Altec's potential and made extensive circuitry changes, tube substitutions and operational modifications, transforming the unit into the superior-sounding RS124. The RS124 was used exclusively at Abbey Road and other EMI studios throughout the world. It became a big part of the "British Sound," appearing on countless records in the '60s and '70s.

The Lisson Grove R-124 builds on the RS124's legacy with further refinements, enhanced reliability and some modern touches—all without deviating far from the original's core sonics.

### BUILT LIKE A BRITISH CHALLENGER II TANK

The U.S.-made, two-rackspace R-124 comes in an all-steel cabinet painted with a super-thick and scratch-resistant industrial coating. The "chicken-head" knobs, institutional-green front panel, vintage jewel pilot light and antique-looking Hoyt Electric gain reduction VU meter all combine to give it a militaristic retro look.

Inside, a steel truss panel running the width of the unit supports the main circuit board on one side, and three horizontally mounted tubes on the other. The power supply board is mounted on the inside of the unit's back panel and has a switchable 110/220 VAC mains IEC socket.

Point-to-point hand-wiring is used throughout, with pots made by Pec or Alpha, switches by Carling, and critical audio capacitors from Auricaps and Solen. The three tubes (6ES8, 6CG7 and 6AL5) are in ceramic sockets but without hold-down brackets. Sowter makes the input transformer; the output transformer is a custom-made CineMag.

To counteract changes in sound and operation over time caused by tube aging, component drift and the quirky 1950 circuit design, the R-124 (like the EMI RS124) uses a clever tube-balancing method. With the unit connected and patched, pushing a front panel button activates a NE-2 neon bulb relaxation oscillator circuit that sends a 3Hz pulse to both cathodes of the triode halves of the 6ES8 push-pull input stage, causing a low-level "ticking" sound in the unit's output.

The recording engineer would then adjust a lockable front panel trim pot labeled Balance so that this ticking sound is at minimum, indicating that both triode halves are balanced. This 20-second procedure is required one or two times a month and can be done at any time—even during a session.

### WHAT'S THE DIFFERENCE?

The R-124 comes with a continuously variable attack time control with a range of 15 ms to 125 ms, along with a new O/P Load control feature. O/P's front panel control sets the R-124's output impedance anywhere between (CCW) 200 ohms (labeled "Dark") to 600 ohms (CW). Also new is a rear panel, ¼-inch link jack for stereo operation of two R-124s, with the unit that is compressing more acting as the master.



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Release operation is also completely "remixed" on the R-124. A faster release time replaces the RS124's fastest position—it's now 310 ms on the R-124, with all other five release times the same as on the RS124.

Like the RS124, the R-124's Release rotary switch allows access to the compressor's unique Hold or Infinity mode. As soon as you switch to Hold, the current amount of gain reduction at that moment is "frozen," with no recovery of gain back to unity as is typical of a compressor. To engage Hold, there are six interstitial switch positions between the six release time positions, making the Hold mode always one click away from any selected release time.

For hands-free operation of Hold, there is a ¼-inch rear TS panel jack for connecting a normally open foot-switch (not included). Shorting the tip to the sleeve returns the unit to normal operation.

### IN THE STUDIO

Operating the R-124's input, output, attack and release controls reminded me of setting up a UA 1176LN peak limiter except without threshold or ratio controls—much easier. Simply turn up the R-124's input level control to set the amount of compression and adjust output to makeup gain.

During a mix, a young female singer's overly dynamic vocal tracks were easily managed by the R-124. I used the fastest attack time and the number 3 release position. With input at nearly full CW, I saw 20 dB of gain reduction resulting in a solid sound that revealed the singer's every vocal nuance and detail. This worked well for the lead vocal track to keep it "tucked in" and not overpower-

### Proto Loudness Wars?

I heard a story about a certain Beatle record that was mastered through a "wound up" EMI RS124 and reported to be the loudest record of all time when it first debuted on the radio in 1968! Using two R-124s for stereo mix bus compression or mastering might seem like a wrong choice—we're not talking about transparent and unobtrusive, high fidelity dynamic control here.

But I did try my single review R-124 on a (summed) mono mix and it was fun but not part of my particular engineering style. I find "coloring" audio most effective on an individual track/source basis and not globally over the entire mix. But I do think the bypass mode coupled with the right O/P setting would make a fine, alternative choice in the mastering studio. But I'll reserve a final opinion about compressing a mix when I have two matched R-124 stereo-coupled and across the mix bus in my studio.





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## PRODUCT SUMMARY

**COMPANY:** Lisson Grove  
**PRODUCT:** R-124  
**WEBSITE:** vintageking.com/  
Lisson-Grove-R-124  
**PRICE:** \$5,000  
**PROS:** Unique classic compressor.  
**CONS:** Expensive. Could use a  
hard-wired bypass.

ing the dense rock track I was mixing.

However, with 20 dB of makeup gain in the chain, in between the singer's phrases I could also hear headphone spill, the tube mic/preamp noise floor and the producer talking in the next room! Plus, the song's "call and response" vocal production meant that several seconds of time elapsed between lead vocal sections. Every time the singer started in on the next section, the R-124 attacked and started gain reduction, but, because the release time had expired, there was a tremendous "pop" at the front of her first note.

Hold allowed me to freeze the release time (and therefore gain reduction) at the last moment of the singer's previous section. When my singer came back in, I immediately clicked out of Hold and avoided an attack "pop." The R-124, already in GR, was back to normal operation with the vocal at about the same volume. I found this process easy to do and liked having the option to use it or not.

Processing direct Fender bass is great fun—you can compress to needle-pinning depths off scale—around 25 dB and it sounds fat, rich and super-dense. I was working on a song in drop D tuning and the bass player's performance and sound was good, but it was not "reading" well in the final mix.

I went with the R-124's input control at 9, output at 8, attack time control straight up and the fastest release. In spite of the fast release time and about 15 dB of squash, the R-124 did not distort sustained bass notes. The bass track had about a 3dB dynamic range, stayed "in your face" at all times and took on raucous character as if we had used a bass amp that was about to explode.

Here, the O/P Load function became useful because at the 600-ohm position, this bass was too bright, so I went halfway between the darker 200 and full-range 600 ohm. I found O/P's tonal range to be vast for an effect anywhere from subtle to dramatic.

Pulling out on the R-124's Attack knob switches to a throughput bypass—audio passes through the unit without compression. Because this is not a true bypass, switching to it will necessitate all-new level settings. In a future R-124 version, I'd like to see a hardwired bypass switch because doing A/Bs should be easier.

I had a lot of fun overdriving the R-124 by winding up the input control. I liked the many analog colors possible, from subtle warming to brutal distortion. On the Dark side of the O/P control, the sound fuzzes out, low frequencies thin out and the output level decreases. Toward the 600-ohm side, high fidelity is returned.

Bypass worked well for overly clean electric guitars that I wanted to "throw out into the street" and rough up. Different combinations of O/P and input settings offer many tonal choices, from somber and dire to brighter and full-sounding.

A Martin D18 acoustic sounded better after a pass through the R-124. I preferred barely compressing (4dB max) with the slowest attack time setting, release set to 1 or 2, and O/P set at full 600 ohms for an open sound.

Individual drum tracks, loops, a mono drum mix bus and most percussion are also good subjects for the R-124's magic. Even under massive compression (greater than 10 dB), the sound does not dull out and lose high frequencies. Set the attack time anywhere from 12 o'clock to faster, release on either 1 or 2, and O/P set to 12 o'clock or higher.

### OLD IS ALL-NEW

The Lisson Grove R-124 compressor is like a glimpse into the toolkit of English recording engineers working at Abbey Road circa 1960. It's not perfect, it's not pristine and it's not like any other compressor. It sounds distinctive and is one of my favorite compressors of all time. ■

*Barry Rudolph is an L.A.-based recording engineer. Visit him at [barryrudolph.com](http://barryrudolph.com).*

### TRY THIS

Because there is (essentially) no noise in digital recordings, you can record and then re-record the same track(s) again and again through the Lisson Grove R-124 without a buildup of tape hiss, modulation noise and analog generational loss—as was the norm in olden analog tape times. I had already recorded bass guitar through the R-124 using fast attack and release times, and then re-recorded the same track through the unit again—this time with longer attack and release settings. Compressing each time over 15 dB, the final bass sound was incredible with volume changes of only about 1 or 2 dB no matter what was played. The bass remained dynamically "still"—at a constant level for a consistent and never-wavering position in the mix.



Continued from p. 49

In Fig. 1, at the top left of the schematic, resistors R40 (220k $\Omega$ ) and R38 (470k $\Omega$ ) combine the dry and wet signals, which on the factory schematic feed C24 (.02uF) and then pin 2 of V3A (12AX7), which is one-half of the power amp driver stage. To insert the new Master Volume Pot into the path, the junction between C24 and R38/R40 must be broken and rerouted to the top of the new Master Volume Pot (1M $\Omega$  log/audio taper). The wiper (pot output) now feeds C24.

Based on my former student and now fellow geek John Kargol's experiments, the new Master Volume Pot lives between noon and 2 o'clock so that the Rhythm and Lead level controls can finally be turned up a bit. The Drive Control level is guitar-dependent (2 for Tele, 4 for Gretsch Electromatic), and the Drive Master moved from 1 (pre-mod) to 6.5 (post-mod). The new gain structure allows John the ability to play in the center of the sweet zone, using a lighter touch for clean and a heavier touch for more saturation. This is similar to a compressor-limiter's soft knee.

#### SURPRISE FEEDBACK TWEAK

If you like the vintage tone of Tweed-era guitar amps, you might be interested to know that part of their charm is due to the lack of negative feedback around the power amp. Negative feedback reduces gain by injecting a bit of the output into the input, a simple process that reduces distortion and improves frequency response. This works great for hi-fi applications,

but it makes overdriven power amps sound like broken glass.

Deep in the belly of the Hot Rod Deluxe—and to the far right of the schematic—the feedback source is the 4 $\Omega$  secondary tap (Green/Yellow wire) of the power output transformer, T1. At the External Speaker Jack, this tap connects to a gray wire that feeds a 10:1 voltage divider (R 69 = 47k $\Omega$ , R68 = 4k7 $\Omega$ ), the junction of which feeds the input (pin 7) of the 12AX7 driver tube V3b via C25 (.1uF).

The adjustable feedback mod swaps out R68 (4k7 $\Omega$ ) for a 5k $\Omega$  pot, the wiper of which connects to R69. When the wiper is at ground (max CW), there is no feedback so the power amp has more gain—another reason for the new Master Volume pot. Turning the wiper fully counter-clockwise returns the feedback to Stock.

#### FEATURE CREEP

You know how digital recording allows production decisions to be postponed until the very end? Well, design engineers start with more variables than end up in the final production. Some ideas aren't necessarily "features," but variables in the equation that must be nailed down before the product's release. And some features can always be improved—or at least modified—to suit the shredder.

Feel free to ask any questions or share your own mods on my blog! And many thanks to John Kargol, my former student and very motivated geek brother!

*Eddie Ciletti's virtual residence is at [tangible-technology.com](http://tangible-technology.com).*



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## MOJAVE AUDIO MA-300 TUBE MICROPHONE

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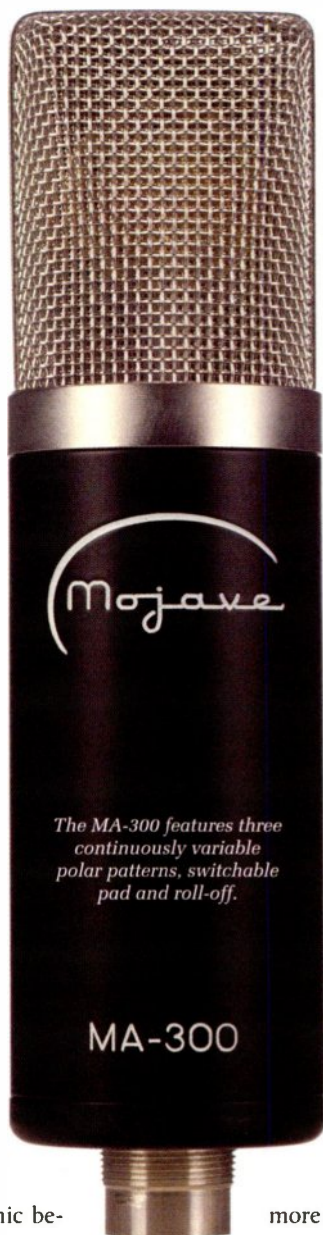
**T**he sixth model in a growing line of microphones, Mojave Audio's MA-300 comes from the mind of David Royer, a stickler for details. Just after Mojave released its first product, Royer told me about the difficulties of producing a mic long-distance (the units are built in China) and said that although he would painstakingly map out production details, he later found some elements had been changed, even in a small way.

For instance, an extra inch of wire was used from point to point—or some other detail was altered—and he wasn't too happy about it. He returned the early production test models and made sure subsequent attempts closely followed the design spec before he approved the final build. It's this kind of attention to detail that makes or breaks a product, especially when it's manufactured 6,000 miles and 15 time zones away. For this reason the Mojave line has picked up some serious street cred. The pair of MA-300s tested here were used on a wide variety of instruments and vocals and sounded great across the board.

### THE BODY AND BUILD

Everything about the physical product is top-notch. Packaging is excellent, offering more than enough protection for the mic and accessories. The shockmount is sturdy and offers a good range of adjustability. It was easy to set up and place the mic in all applications. The cable from the mic to power supply is a well-made seven-pin XLR.

The MA-300's two capsules are 3 microns thick and based on the design of Mojave's MA-200. Rather than a stepped pattern selector, the MA-300 offers a continuously variable, remotely controlled pattern control between omni and figure-8. This is always welcome in a multipattern mic because it offers infinite possibilities in the amount of room you let into your recording. Too much room spill? Dial it



*The MA-300 features three continuously variable polar patterns, switchable pad and roll-off.*

MA-300

back toward figure-8. Want more room vibe? Head toward omni.

The build inside is based around a military-grade JAN 5840 vacuum tube and Jensen transformer. Before coming to market, each mic, power supply and cable is burned in for 24 hours, tested, and then packed and shipped in a sturdy outer briefcase that contains the mic (housed in yet another latching hard shell case), power supply, cable and shockmount.

### MA-I USE YOU?

Whenever I get a pair of mics for review, I like to hear them over a drum kit and piano right off the bat. Placed as overheads over a kit, the MA-300s rendered transients beautifully, with an even and pleasant balance of lows, mids and highs. You can definitely hear the tube and how it beefs up the low-mids and bottom. Cymbals are nicely reproduced, with clear stick hits and open highs without hype. Tom hits, kick and snare are well-represented, and the room is also brought into play as the pattern selector is rotated closer to omni.

The mics fared equally well over a Yamaha C3 piano. The piano sounded warm and natural, with tight transients and even tone that was never strident, even when played hard. The pattern adjustment let me dial in more or less spill from the lid and room, making for handy adjustments on-the-fly as other players were added to the mix.

I heard the MA-300 placed just off-center of the speakers of a Fender Supersonic guitar amp. I also placed an SM57 and Sterling ST6050 Allen Sides Edition in relatively similar positions. As I expected, the MA-300 had much more bottom than the 57, which rolls off naturally starting at about 150 Hz. The Sterling sounded very good in the upper mids and highs, but didn't have the beefy vo-





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World Radio History



cal, the mic offered plenty of body and even representation of the singer's range. I would probably add a bit of top end for a mix but not a lot. There's a pleasant midrange that particularly flattered this singer; that can be harder to capture with "cleaner" mics. Sibilance was not a problem, and the mic sounded good even when the singer drifted a bit off-axis. It seems like the cardioid pattern offers some tonal forgiveness when not directly on-axis: it sounds great at zero or up to 30 degrees left and right.

This mic wouldn't be my first choice for certain hand percussion. It has the wrong personality for accurate and clinical applications; I prefer a super-clean condenser or a ribbon depending on the instrument. For me, a tube mic is too gritty for high percussion that needs the clarity of an FET or ribbon through a good-quality preamp. For instance, when used to record tam-

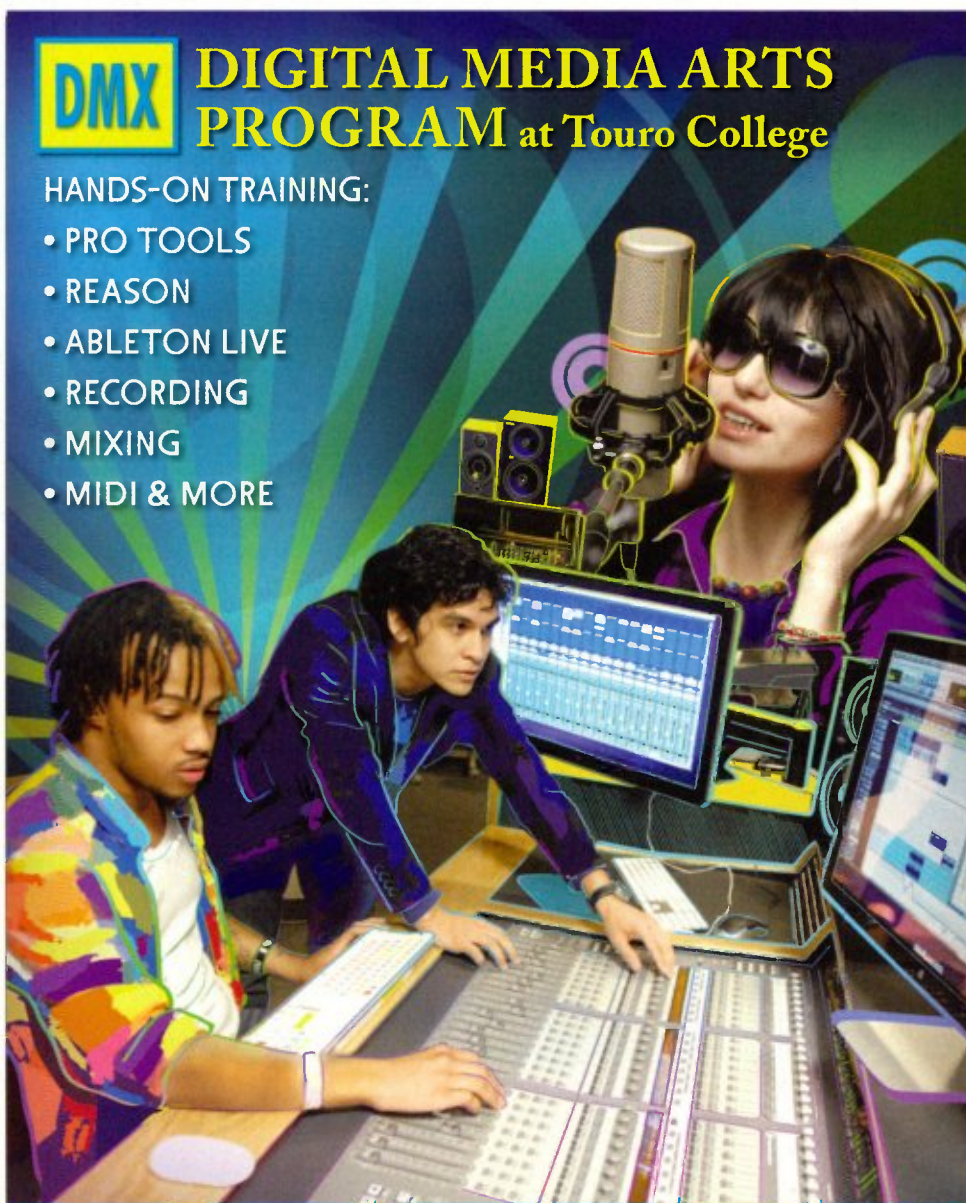
bourine, the MA-300 sounded fine. I rolled off the bottom and ended up with a track that sat nicely with the drums and other percussion. But on triangle and VibraTone, the upper range was better represented by the AEA KU4 or Sterling ST6050 Allen Sides Edition through an SSL G Series console preamp.

#### DO YOU WANT MO-JAVE?

The Mojave MA-300 is a great mic at a price that may not fit every budget, especially since they work well as a pair. That said, you get what you

#### PRODUCT SUMMARY

**COMPANY:** Mojave Audio  
**PRODUCT:** MA-300  
**WEBSITE:** [mojaveaudio.com](http://mojaveaudio.com)  
**PRICE:** \$1,295  
**PROS:** Great sounding, full-featured mic.  
**CONS:** You need a pair! Not the perfect mic for clinical recording.



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*The MA-300 ships in a sturdy briefcase that contains the mic, cable, power supply and shock-mount.*

pay for. It is well-made and tested, and comes with quality accessories and packaging. And as insurance, it's made under the watchful eye of David Royer. Sonically, the MA-300 delivers, bringing its wonderful tube-y personality and great transient response to any recording. It's a great go-to mic for vocals, drums, guitar amp, acoustic guitar and more.

*Kevin Becka is Mix's technical editor*



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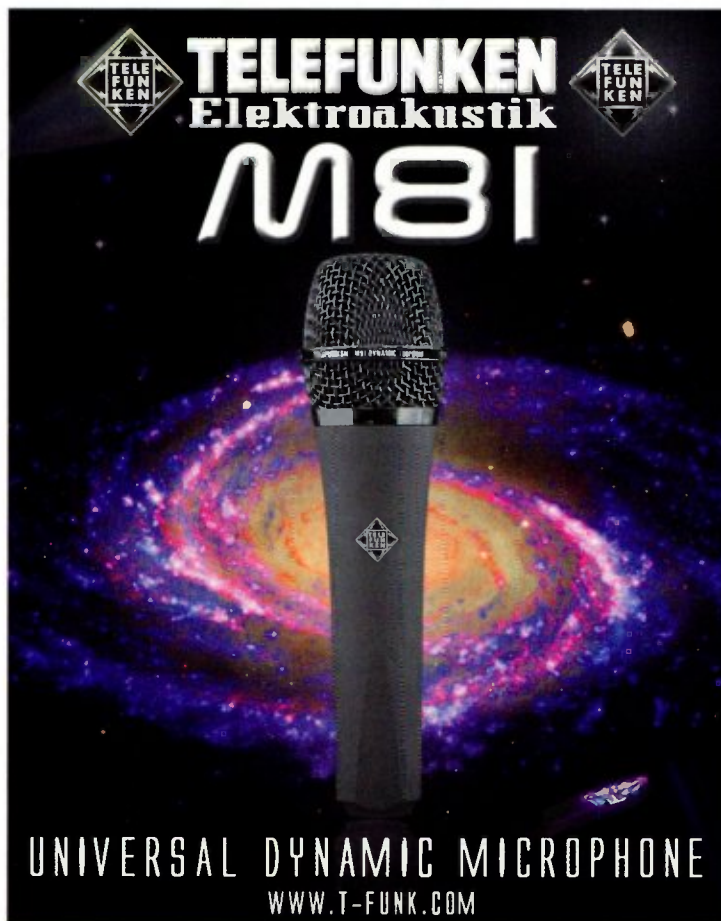
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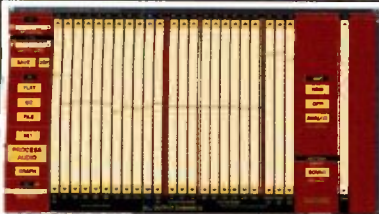
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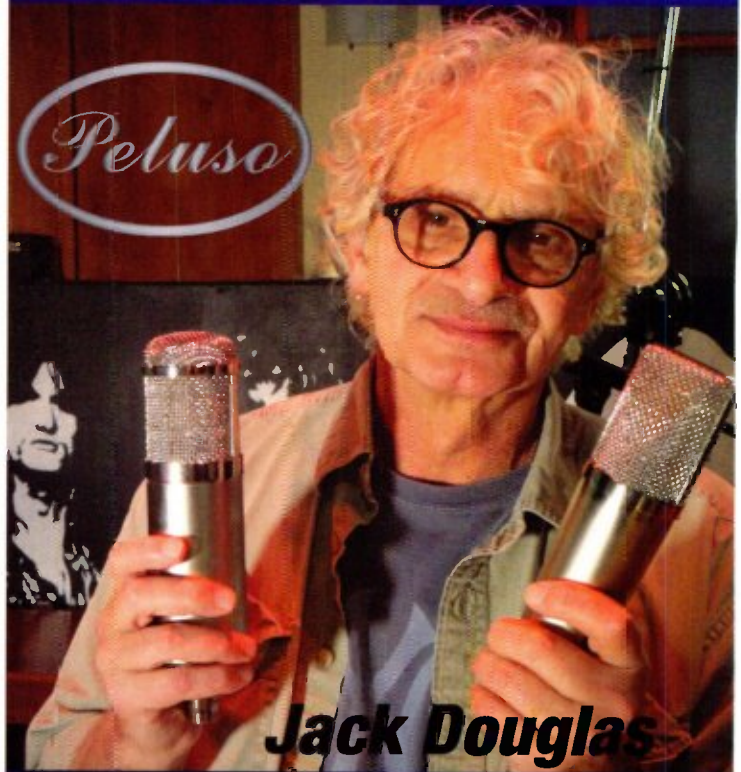


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## CLEAN POWER AND LIGHT



By Kevin Becka

If you haven't been following my column for the past few months, I'm in the middle of building a small mix room—a high-end workspace on a moderate budget—while cutting a few corners as possible. Two of the most important considerations when building any listening space are light and power, both of which can impact audio quality. At this point in the build, I needed to make my lighting decisions while I still had Tim Solis from Urban Contractors onsite. Is track lighting practical? Can I have dimmers? What about heat?

I want to be “green” and produce the least amount of heat, as I knew I'd have a variety of tube gear (aka, space heaters) in my rack. Halogens and incandescent lights, although aesthetically pleasing, run hot, and CFCs can be noisy. In addition, AC dimmers can play havoc with audio. I explored other options. LEDs offer low power consumption and low heat but are new to the game and a bit more expensive than other options. Also, because LEDs are new, it's difficult to get good info and/or product from “home” or lighting stores. I remained determined.

After searching brick-and-mortar and online stores, I came across Elemental LED in San Francisco, and I'm sure glad I did. I started by searching their Website and using their excellent online chat feature, instructional videos and free phone support before I bought a single item. I figured out my lighting runs and searched for the correct DC driver. I explored AC vs. DC dimmers, strip vs. bulb options. Once I got my order together, I ran it by Dan Casey at Elemental; he verified my choices and made some alterations, steering me in better directions. This is the kind of customer service you rarely find any more.

I ended up using a 150W, 12V dimmable driver, high-density, warm white, Brighter LED strip lights, and aluminum channel strips with slip-on diffusers and hanging clips. The whole rig is controlled via two of Elemental's DC Reign dimmers and brightly lights the whole room using only 70 watts. I was able to mount the noisy driver in the wall in the adjacent laundry room and make power at DC into the room. Because the dimmers are DC, it is quiet and they cause no problems with the audio.

I did save some money because everything came in pieces ready for assembly, giving me the ability to customize the length of my runs. There are two 6-foot and two 4-foot fixtures that are no bigger around than your little finger and look slick on the ceiling. The LED strips come in a 16-foot spool and have a sticky back that lays into



the aluminum channel. The diffuser fits over that and you're done. I had an electrician come and install the driver and dimmers. The total cost for lighting was about \$1,500, and it looks great.

Next, I looked at balanced power and voltage regulator units from Equitek, Furman and Monster and decided to go with the Monster AVS 2000 Voltage Stabilizer and Pro Power 7000 PowerSource UHC balanced power unit. It was the most affordable option that I trusted. My good friend David Rideau uses the same setup at his studio; I've heard his room and it's excellent. He has tested the systems, is confident they deliver as advertised, and so am I.

I've also been talking to Michael Griffin at Essential Sound Products about AC power and how it affects audio system performance. He suggested I upgrade my outlets to “hospital grade” plugs. These units cost less than \$10 each, and I only needed a couple to go to my Monster power units. I'm also using ESP's MusicCord Pros for my speakers and two 14-gauge IEC cables for my converters. I mentioned Michael in my August column when I wrote about quality and where to find it. Michael is a former GM engineer and knows power. He can also speak well about the science behind his products and they are worth looking into. He also suggested Belkin heavy-grade distribution power strips, which contain none of the consumer-grade “protection” and offer the best affordable option for distributing clean power to all my gear.

Every little improvement I've made has taken another layer of “gauze” off my imaging and sound quality. I'm a big Tour de France fan and avid cyclist, and I sometimes am known to equate audio with high-end cycling machines. It's always the last few elements (usually expensive ones) that elevate a bike to Le Tour readiness. It's the same with a studio. The last few tweaks: good power cords, solid speaker stands de-coupled from the floor, balanced power and regulated voltage cumulatively make a big difference in your listening experience. My room is another step toward completion, and I'm itching to ride. ■





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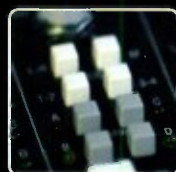
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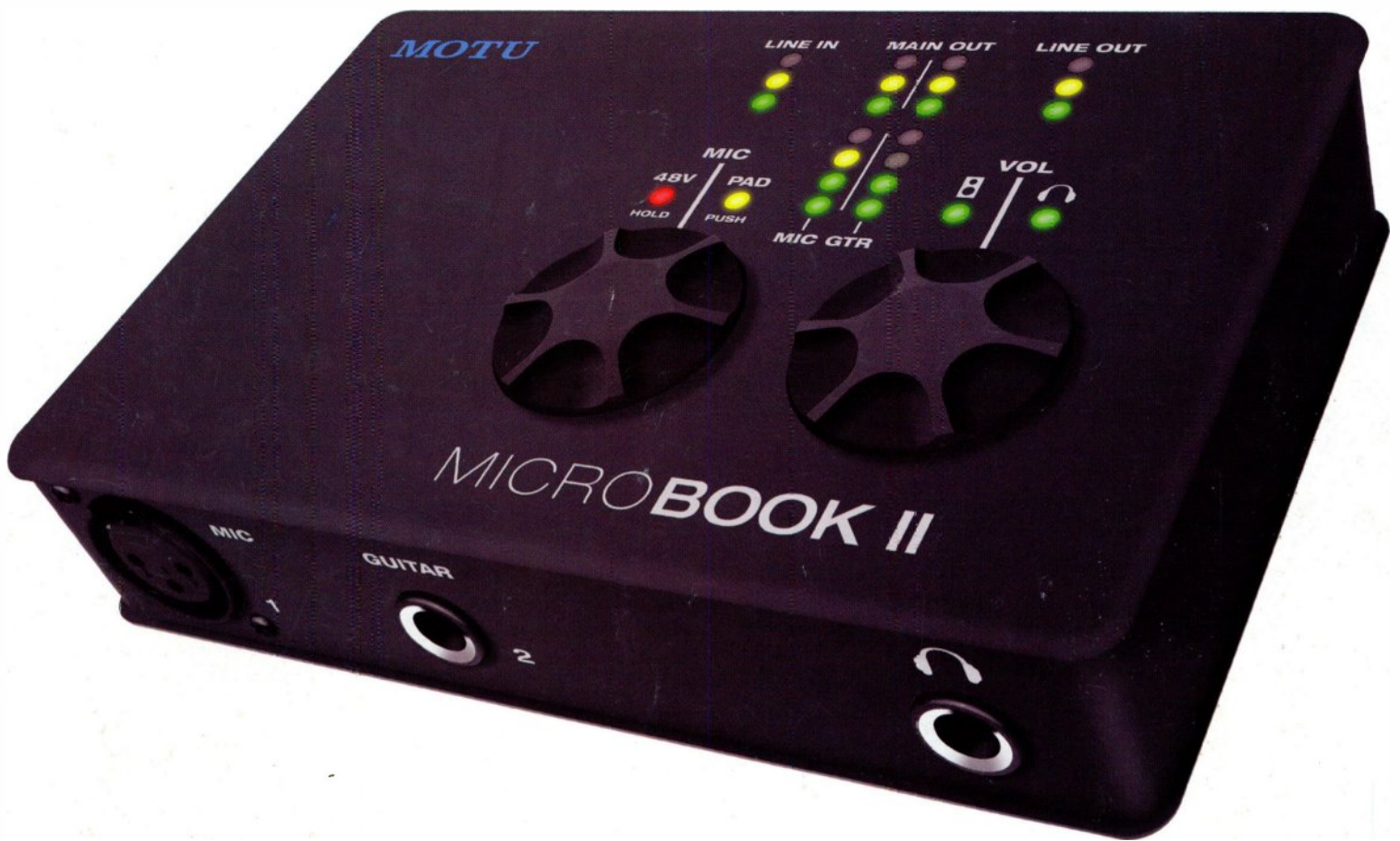
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- Stereo line input (balanced TRS 1/4-inch or stereo mini).
- Stereo balanced TRS 1/4-inch main outs, plus 1/8-inch mini line-level out.
- S/PDIF digital out at rates up to 96 kHz.
- Multi-band EQ, compressor, and test tone/noise generator.
- Instrument tuner and analysis tools, including FFT display and oscilloscope.
- Includes AudioDesk DAW software for Mac OS X and a USB cable.

**PERSONAL STUDIO RECORDING. EVOLVED.**