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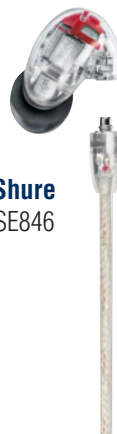
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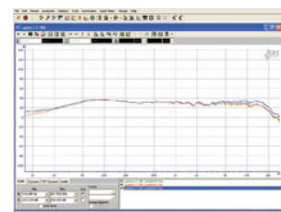
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**On the Cover:** Don Salter, front, with his team of engineers, from left, John Gray, Andre Nelson and Kyle Colley, at the Neve 6235 in Studio A, with new Mega Sound monitoring. **Photo:** Chadwick Fowler

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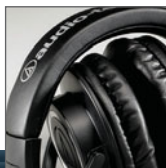


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## From the Editor

### GEAR, WITH PERSONALITY

I write this in the Thursday early morning from Room 335 of the Anaheim Marriott, just a football field and a few hours away from the doors opening on the 2016 NAMM Show. Three huge halls of products on display for musicians and recording types, with Yamaha alone annexing the Marriott and filling the ballrooms, enough space to showcase the 100 new products the company is expected to announce. It's mostly instruments up and down the aisles, but over the past decade there's been an ever-increasing pro audio presence bursting out of Hall A. Let the games begin!

There will be consoles and controllers from the likes of API, Trident, Avid, SSL, Yamaha, Mackie, Allen & Heath, Slate Pro, DiGiCo, Studer, Soundcraft, Audiotonix, PreSonus and many others. There will be hardware and software outboard gear from companies including Universal Audio, Focusrite, Manley, Waves, Chandler, Plugin Alliance, Radial and countless others.

There will be plenty of mics and monitors, of course, there always are, spanning the range of studio and stage. Audio-Technica, Royer, AEA, Shure, Marshall/MXL, CAD, DPA, Sennheiser, AKG, JBL, Genelec, Neumann, Yorkville Sound, EAW, VUE Audiotechnik, Electro-Voice, RCF... the list goes on and on. And each stop is punctuated with descriptive adjectives like "warm," "smooth" and "robust." Each of the products has a "personality."

But that's not the personality I'm talking about here. I'm talking about the people. With all due apologies to AES, NAMM has become leading pro audio convention and while the wealth of product introductions and the bombardment of features makes Anaheim our own personal candy store for a few days, it's the people I've met over the past 20-plus years that I look forward to bumping into.

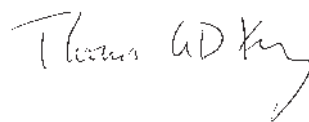
I typically start with Dan Zimbelman at API, the consummate salesman's salesman who has been carrying the analog torch for a long time and is always good for a joke or three. Then Phil Wagner at Focusrite, a longtime friend who has an astute a take on the di-

rection of the industry as anybody in the building. Peter Janis at Radial will walk me through the company's annual double-digit product introductions, and Erika and the team at UA always put on a show with some fabulous guest artists. There is Udi from Waves; we sneak outside to talk about the company's latest plugs. And running into EveAnna Manley is always a treat, as is stopping in on Wes Dooley and his son in matching top hats.

I like to stop in on Peter Chaikin at JBL, to see where they are headed with small-room monitoring, and around the corner is Frank Oglethorpe of Prism Media, each year seemingly introducing a new high-end interface. From there I like to run down the aisle by the wall and say hello to Dusty Wakeman and John Jennings of Mojave and Royer. Great mics. Great guys. Then it is almost de rigueur to swing by the Avid booth at noon to catch a glimpse of *Pensado's Place Live*.

All of this gear and all of these personalities come together on Saturday night at the NAMM TEC Awards. I have a special fondness for the TEC Awards, having been stage manager for nearly 20 years and writing the script through the 1990s and into the 2000s. TEC stands for Technical Excellence and Creativity, and it celebrates the technologies and the talent, the two driving forces of the professional audio industry, the left brain and the right brain of the production process. That has always appealed to me; it's what *Mix* is all about.

So let's get on with the Show! It's a sunny day in Anaheim, but we're headed inside. For the tools and the talent.



Tom Kenny,  
Editor



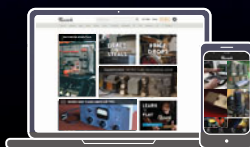


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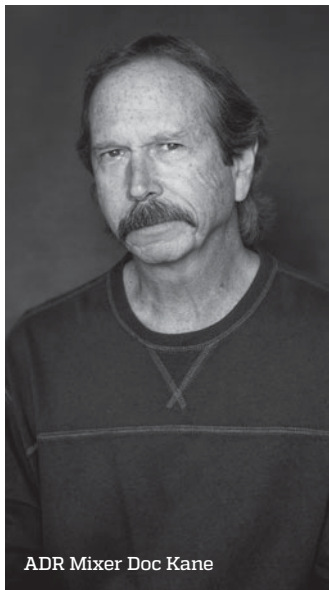
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## Cinema Audio Society Nominations for 52nd Annual CAS Awards



ADR Mixer Doc Kane

The Cinema Audio Society in Los Angeles announces the nominees for the 52nd Annual CAS Awards for Outstanding Achievement in Sound Mixing for 2015 in six categories and the CAS Technical Achievement Award Nominations.

"This was a year of terrific sound in both film and television," says CAS President Mark Ulano. "These nominations represent the outstanding sound mixing being done in each category and I congratulate each of our nominees."

The nominations for the 52nd CAS Awards for Outstanding Achievement In Sound Mixing for 2015 are:

### Motion Picture—Live Action:

*Bridge of Spies*, *The Hateful Eight*,

*Mad Max: Fury Road*, *The Revenant*, *Star Wars: The Force Awakens*; **Motion Picture—Animated:** *The Good Dinosaur*, *Hotel Transylvania 2*, *Inside Out*, *Minions*, *The Peanuts Movie*. **Television Movie or Mini-Series:** *American Crime*, Episode 1; *American Horror Story: Hotel*, "Room Service"; *American Horror Story: Hotel*, Episode 501: "Checking In"; *Fargo*, Season 2, Episode 5; *True Detective*, Episode 4, "Down Will Come." **Television Series—1 Hour:** *Better Call Saul*, Episode 110, "Marco"; *Game of Thrones*, "Hardhome"; *Homeland*, Episode 502, "The Tradition of Hospitality"; *House of Cards*, "Chapter 27"; *The Walking Dead*, "First Time Again." **Television Series—Half Hour:** *Modern Family*, "Connection Lost"; *Nurse Jackie*, Episode 708, "Managed Care"; *Parks and Recreation*, "One Last Ride: Part 1"; *Silicon Valley*, "Server Space" (Episode 13); *Veep*, "Mommy Meyer." **Television Non-Fiction, Variety or Music Series or Specials:** *Anthony Bourdain: Parts Unknown*, "Madagascar"; *Deadliest Catch*, "Lunatic Fringe"; *Keith Richards: Under the Influence*; *Kurt Cobain: Montage of Heck*; *Live from Lincoln Center: Danny Elfman's Music from the Films of Tim Burton*.

The nominations for the Cinema Audio Society Technical Achievement Award are:

**Production:** Aaton Cantar X3, Lectrosonics Venue 2, Sound Devices SL-6, and Zaxcom Wide Band Recording Digital Wireless.

**Post-Production:** accusonus ERA-D, The Cargo Cult Conformalizer 4, Cedar Studio DNS One with Learn, iZotope RX5.

Final balloting for both the Outstanding Sound Mixing and the CAS Technical Achievement Awards will open online Wednesday, January 27, and end on Friday, February 12.

The Awards will be presented at a sealed envelope dinner on February 20 in the Crystal Ballroom of the Millennium Biltmore Hotel. During the awards the highest honor of the CAS, the CAS Career Achievement Award, will be presented to ADR Mixer Doc Kane and the CAS Filmmaker Award will be given to Jay Roach.

On the evening of the Awards the Cinema Audio Society Website will be updated in real time as the winners are announced. Visit the Cinema Audio Society at [cinemaaudiosociety.org](http://cinemaaudiosociety.org).

## Motion Picture Sound Editors to Honor Sam Raimi with Filmmaker Award



Sam Raimi

The Motion Picture Sound Editors (MPSE) will honor Sam Raimi with its annual Filmmaker Award. The director of the blockbuster *Spider-Man* features and the low-budget horror classic *The Evil Dead* is being recognized for his outstanding

contributions to the art of cinema. Raimi will receive the award at the MPSE Golden Reel Awards ceremony on February 27 in Los Angeles.

Citing the director's innovative storytelling, the scope of his work and his passion for movies, MPSE President Frank Morrone says that Raimi embodies the spirit of filmmaking. "Sam Raimi has been the creative force behind some of the most popular, entertaining and scariest films of our time," Morrone says. "He has been a major influence on other filmmakers the world over. We are very pleased to honor his work and many contributions to the entertainment industry."

In addition, Raimi is a prolific producer, writer and actor. He is also the founder of Renaissance Pictures. He is currently producing the television series *Ash vs Evil Dead* for STARZ!

Past recipients of the MPSE Filmmaker Award include Darren Aronofsky, George Lucas, Ang Lee, Michael Bay, Steven Spielberg, Clint Eastwood, Brian Grazer and Gale Anne Hurd.



Mark Mangini was elected in 2015 to the Board of Governors of the Sound Branch of the Academy of Motion Pictures Arts & Sciences.

## Oscar Sound Nominations 2016

On January 14, the Academy of Motion Picture Arts and Sciences announced the nominations for the 88th annual Academy Awards, honoring movies released in 2015. The 88th Academy Awards ceremony will take place on Sunday, February 28, 2016 at the Dolby Theatre at the Hollywood & Highland Center.

The nominee lists for the Sound Editing and Sound Mixing categories were virtually identical, with four films nominated for both awards.

**Sound Editing:** *Mad Max: Fury Road*—Mark Mangini and David White; *The Martian*—Oliver Tarney; *The Revenant*—Martin Hernandez and Lon Bender; *Sicario*—Alan Robert Murray; *Star Wars: The Force Awakens*—Matthew Wood and David Acord.

**Sound Mixing:** *The Revenant*—Jon Taylor, Frank A. Montaño, Randy Thom and Chris Duysterdiek; *Star Wars: The Force Awakens*—Andy Nelson, Christopher Scarabosio and Stuart Wilson; *Bridge of Spies*—Andy Nelson, Gary Rydstrom and Drew Kunin; *Mad Max: Fury Road*—Chris Jenkins, Gregg Rudloff and Ben Osmo; *The Martian*—Paul Massey, Mark Taylor and Mac Ruth. ■



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# On the Cover

By Tom Kenny

## THE SALTMINE STUDIO OASIS, PHOENIX

Vintage Meets Modern in Five-Studio Recording Complex

Photo: Don Salter

The Saltmine Studios Oasis complex, as seen from the gated entrance, with bungalow/writer's studio to the left, the main building at the center, and stage to the right.

**V**ibe matters. That sometimes indescribable quality that makes a studio unique—from the Buddha in reception to the artwork on the walls, the leather in the lounge to the instruments on display, the sound of the room to the personality of the assistant engineer—is often what makes a studio thrive. Since modern recording broke away from the radio lab, lots of people have built world-class studios. Those that last, they have a vibe.

Don Salter opened The Saltmine Studios in 1988 over his three-car garage in Phoenix, then moved into an industrial park, then expanded in that industrial park, then moved into a three-building gated complex in 2003, complete with intimate stage and outdoor venue. That's 28 years in business as a studio, changing and adapting with the times in a mid-major music market, hosting artists such as Megadeth,

Lil Wayne, Soulfly, G-Unit, The Refreshments, Sevendust and Yes, among many, many others. The place has a vibe, and it starts with Salter.

Born and raised in Santa Monica, influenced by an optometrist father who yearned to be a classical pianist and an older brother who introduced him to the British Invasion, Salter ended up graduating high school in Utah and moving to Phoenix soon after. He opened a very successful restaurant/sandwich shop with his brother, then made his bones in commercial real estate in the go-go '80s, writing music after the lunch rush and between showings. He considers himself a singer-songwriter. He played in bands that recorded. When the last band broke up, he took over the makeshift studio. In 1988, he entered the recording industry full time. Now he's on the cover of *Mix*.

Salter is one of those personalities that seems peculiar to the audio industry, at times so familiar

and at other times completely unique, yet always driven by music. He's outgoing and charismatic, and at the same time focused and detailed. He can wax philosophic as he shoots pool on a purple-felt table off Studio D, and he can describe the process of filling the foot-thick masonry walls with sand to give "weight" to Studio A's live room. The Chinese gong in the entrance is all him, as are the Southwest tapestries that hang in just the right spots and the Egyptian motif throughout, along with salt rocks. He loves vintage gear and has amassed racks of Pultecs, Tube-Techs, Gates, Manley, Neve and API, and he was the first Arizona studio owner to buy into Pro Tools. He arrives at the studio around noon and typically stays past midnight. He considers himself a curator, providing the best possible environment so that artists can create the best possible music.

"I would like to say that I had some kind of



Studio A live room, looking back at the control room window, built into the heavy-duty masonry front wall.



The SSL 6064 E/G+, formerly owned by producer Ben Grosse, in the Studio B mix room, with Westlake monitors in the walls. Inset: the reverse view, with traditional producer desk and diffuse back wall.



grand plan, that I had a farsighted career dream to build a five-studio recording complex, but it just turned out this way, completely organic," Salter says. "Back when we opened, I just wanted to fill a niche in Arizona, a classic analog studio with a modern approach. Then I wanted to build something for both local and international artists that would rival anything in Los Angeles or New York. Here in Phoenix."

After the garage studio and well into the industrial park incarnation, with a vintage Neve console and Studer 827 analog machine, Salter found himself running out of space. Metal band Soulfly had hired super-producer Toby Wright for the record that became *Primitive*, and frontman Max Cavalera wanted to record locally. He found The Saltmine. It was a big band with a big crew, and Salter ended up renting a Winnebago and building an outdoor lounge/green room. It worked. Salter started thinking about a bigger space.

"We owe a great deal of gratitude to Toby Wright," Salter says. "He taught us so much about tracking, about using the room, about what goes into a great studio. When he first walked in and saw the Neve and Studer and the large rack of outboard, he asked our engineer, John Gray, 'Does all this stuff work?' John said that it did and asked him if he had a budget, not knowing who Toby was. We ended up doing 11 weeks, 18 hours a day on Soulfly. I figured that if we could do this with them, then we could do it with others. So I started looking for a building that could house a couple of studios, one that I could own."

In the early 2000s, Mesa, in Phoenix's East Valley, had proposed a new \$100 million downtown Arts Center and the metropolitan area was in the first stages of citywide light-rail construction. Salter started looking at real estate nearby, and soon found a three-building complex, a former newspaper headquarters, then a church, one block off Main Street, one block from the soon-to-be Arts Center. It had a security gate, a plaza, and tremendous possibilities. Salter closed in early January 2003; Soulfly came back for the inaugural sessions in late September, to record *Prophecy*. They would come back again for *Dark Ages*.

The nine-month build-out was intense at times. Salter assembled an architectural team, including Douglas Brimhall at Material Culture, Jerry Davis at Jeremiah Associates and Dennis Foley of Acoustic Fields, and served as general contractor himself. He has a penchant for design, starting with doors and windows and non-parallel walls, and he outlined the maximum use of space to fit his needs as a track/mix/master multistudio complex. The main rooms doubled in size from the industrial park. And the ceilings got much higher.

"That's one of the things Toby [Wright] taught me," Salter says. "Get the most space, the most size, and capture the most you can get, because you can always make something smaller later."

Studio A, pictured on this month's cover, would house the vintage Neve with Melbourne sidecar and run the large live room. Clients who had tracked at the previous location had asked for an SSL to mix on, so Studio B was central to the plan. Both rooms are floated from the main structure; isolation was paramount. This summer, Salter installed Mega Sound Cluster 5 main monitors, each with four TAD 1603 woofers and large wood 4001 TAD horns, powered by two Bryston 14 B SST amps.

"We designed 8x8x16-inch masonry block walls, to be filled with sand or concrete, sitting on floated footings, separated from the building by 2-inch foam spacers," Salter explains. "All the stem walls sit on footings that are floating but are bearing on the 14-foot sand-filled walls. Then we furred out interior walls, with dead airspace between. Then in the live room, we have a combination of hard and soft surfaces to suit any style of recording."

"In Arizona, it's typical that any time you track, you have to turn off the air conditioning," he adds. "So we designed floating, flexed ducting in a plenum above the ceiling that is coiled and dropped through a round vent, with no metal grille register to rattle or whistle. Supplies and returns are big and round with no vent bracing. The cold air rolls in nice and slow and quietly, with the additional benefit that excess sound pressure has a place to go. Each room has its own AC system."

The industrial park version of Saltmine kept humming, with John Gray engineering, while Salter supervised construction in Mesa. Simultaneously, gear was being added to fill out the other rooms—mics, outboard, and an SSL for Studio B. Phil Wagner found Salter a 6064E Series, owned by Ben Grosse and modified, restored, refurbished and swapped over the years by Paul Cox. It's working nearly every day.

Over the ensuing years, a small production studio was added, with keyboards and controllers and a small vocal booth. Studio D was filled out, after Salter picked up another SSL, a 4056 G+ with a "red panic button" formerly owned by David Foster and brokered through Dave Malekpour at PAD. In one of those full-circle moments, Foster visited Saltmine last Easter with Ariana Grande to work on a couple of songs, and the first thing he asked after walking through the gates, was, "Where's the console?" He signed it later that day.

There is also a two-bedroom bungalow, with a Mackie/Pro Tools writ-



er's space and private lounge and patio within the complex, 50 feet from the main building, completing the five-studio facility. But there's still more. A few years back, mastering services were added through a Manley backbone that rolls into Studio A. Recently, Salter started promoting the outdoor stage, complete with P.A. and lights, as the Oasis Venue. It's been used for record releases, parties and, most recently, for an eight-band daylong gig during the Mesa Arts Festival.

That's a lot of space to fill with music-only sessions, but business has been good of late. Roughly 50 percent of the bookings come from hip-hop and rap, with the other 50 percent "everything else," but mostly rock and hard rock. Artists are both local and from around the country. Phoenix is, after all, a destination city, with resorts and adult playgrounds and a big-event reputation.

And yet, for all the rooms and vintage gear and Pro Tools HDX systems, it's the people at Saltmine that bring the vibe. Since the early days, Salter has surrounded himself with staff engineers who are eminently creative and talented in their own right and yet completely content with assisting when a visiting engineer walks in the door. In the early days, there were guys like Mark Matson, who worked on the Refreshments, the Pistoleros, Dead Hot Workshop and Megadeth, among others. Later it was Lance Dean. Today, it's John Gray, Kyle Colley and Andre Nelson.

Gray, a Connecticut native who started recording at age 8 and moved his studio to Phoenix in the mid-'90s, has been with Salter since 1998 and provides the anchor and senior talent. He's a multi-instrumentalist, a songwriter, and sometimes beat-maker. He has a penchant for metal,

and he fits in, he says, with his long hair and pale skin. But the rappers like him, too. He's got great feel.

Colley came aboard as an intern in 2007, following graduation from the nearby Conservatory of Recording Arts & Sciences. A Michigan native, he assisted on the Lil Wayne sessions for *Tha Carter*, and has done a whole lot of hip-hop tracking with the likes of J. Cole and Bone Thugs-N-Harmony and countless local acts. He is a teacher, too, as well as a live sound engineer around town.

Andre Nelson, a mere pup at 21, is the newest to join the staff. He, too, is a recent CRAS grad, and a fine guitarist who ended up playing on a Lil Wayne track. He can bop to old-school soul, and there is metal and hard rock in his bones. He is just now establishing a client base and already in demand.

The rest of the place runs on the strength of interns, almost exclusively from CRAS, with which Saltmine has a long-standing relationship. Salter considers it his responsibility to teach them, train them, observe them, and then give them the chance to jump in the chair when the opportunity arises. Salter himself remains chief cook and bottle washer. Saltmine in Mesa is a long way from Saltmine above a three-car garage, but the vibe remains the same.

"It's been a complete natural progression," Salter says. "It wasn't predetermined that we would grow in this way, but I have confidence that I provide an opportunity to create at the highest level, and the Saltmine is a safe environment full of creative tools to make music 24 hours a day. And I get to be the curator of greatness! How cool is that!" ■

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# Music



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Credit: Courtesy of Waco Brothers

The Waco Brothers

## THE WACO BROTHERS' 'GOING DOWN IN HISTORY'

Langford and Co., Ripping It Up in Chicago By Barbara Schultz

**T**he Waco Brothers began as one of Jon Langford's side projects, the cow-punk alter-ego of British punk band The Mekons. But more than 30 years after The Mekons formed, the Wacos' raw, explosive sound is every bit as vital as the group that made Langford a force in alternative music.

The Wacos recorded and mixed their latest album, *Going Down in History*, for Bloodshot Records in Chicago, the label and city that Langford has called home for 20-plus years. Bloodshot has been an excellent fit for Langford and his various bands (Pine Valley Cosmonauts

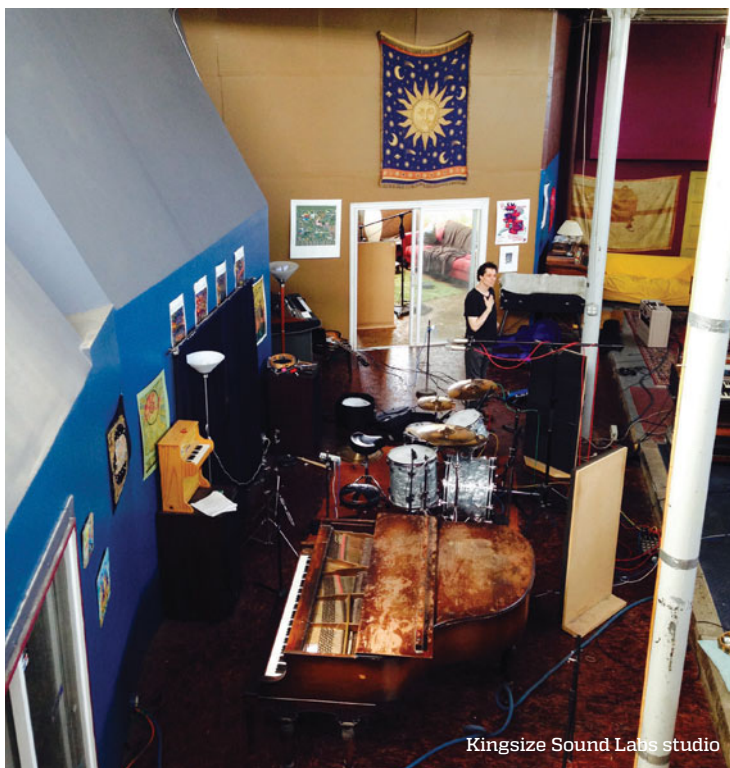
and Skull Orchard, as well as The Mekons), with its self-proclaimed support of "insurgent country" music. Also a great fit for Langford's projects: engineer Mike Hagler and his Kingsize Sound Labs studio.

"The first time I worked with Jon Langford was on *Retreat from Memphis* [1994], a Mekons record," Hagler says. "My business partner at the time, David Trumfio, introduced me to Jon."

Trumfio eventually moved to Los Angeles and opened a sister studio, Kingsize Sound Labs L.A., while Hagler now shares Kingsize Chicago with engineer/bassist John Abbey. "When I first

saw this space, it was a former woodshop—a big empty room filled with sawdust, leaky ceilings and a busted water pipe," Hagler recalls. "But it was perfect for me because I knew the rent would be affordable. This is the fifth studio I've built, and it's the biggest."

The 2,500-square-foot Chicago facility includes a large tracking space with 20-foot ceilings, three iso rooms and two control rooms—Abbey's on the main floor, and Hagler's in a loft space. Hagler's room has less headroom than Abbey's, but Hagler has fine-tuned it over time to where he's totally comfortable and happy with the sound.



Kingsize Sound Labs studio



Kingsize Sound Labs control room

“Downstairs we have a 1980s Neve 66—a converted broadcast console from WGN Studios,” Hagler says. “So if somebody I’m working with wants to mix on a Neve and get that sound, we have that, whereas in my room I have a lot of outboard preamps. I’m more modular. I have a lot of 500 Series and rackmount stuff. Most of the time John [Abbey] likes working downstairs and I’m in my room.”

Hagler frequently refers to himself as “impatient.” He likes to record live bands quickly and hear results just as fast. This also fits well with Langford’s MO—The Wacos are well-loved as a live, loud band.

“Jon [Langford] has a very punk-rock aesthetic,” Hagler explains. “Everybody’s in the same room, and sometimes even the vocals are live with the band, to an SM7. This record was tracked in two live six-hour-long sessions.”

Hagler offers analog recording as well as digital at Kingsize; this time out he captured the sessions in Pro Tools. “I have the Burl Mothership, and those converters are really nice-sounding,” he says. He also has a carefully curated mic collection. Whereas the Shure SM7’s good rejection worked well for live keeper vocals, Hagler also made use of a 1930s RCA 44 BX and sometimes one of his Pearlman mics (TM1 or TM47) for vocal overdubs.

“Jon and Dean [Schlabowske] share most of the lead vocals and the songwriting,” Hagler says. “But everybody sings—the others all sing backup.”

Vocal mics usually went to an Avedis MA5 or BAE 1073 preamp. “I also have the AwTAC Awesome preamp,” Hagler says. “They’re really high-end and they have an EQ section; I used that on some stuff, too.”

“I do things in the studio at a very gut level,” he continues. “That’s part of my not being very patient. I have a large palette to work with, so if I’m getting a little frustrated with something, or the vocalist is sounding a

little rough or a little dark that day, I might quickly switch to a brighter preamp. If there’s too much attack, I might try something slower.

“As far as compression, I have Distressors and Tube-Techs, and the Pendulum DS8 tube compressor, but I’ve noticed over the years that when I’m using digital, I use less and less compression because I like to have more control on the mix side.”

Hagler situated Tracy Dear and his mandolin in an iso booth with sight lines to the main studio, miked up with a Coles 4038 and a Pearlman mic for his vocals; but the remaining four musicians were in the studio together, with a little baffling around Joe Camarillo’s drums, and between guitarists Langford and Schlabowske.

The engineer captured Alan Doughty’s bass with a combination of a Neumann U 47 FET and a DI, and the guitar amps—mainly the studio’s vintage Ampeg, Fender, and Vox amps—were miked up with a Royer 121 and a classic ribbon each.

“The guitar amps were probably four feet apart, with Royers on the speakers and RCA 74s—the smaller version of the 44—perpendicular to the amps, about three feet away, so the side is facing it,” Hagler says. “That way you get kind of a figure-eight. I can also use the ribbon as kind of a room mic, and I might pepper that with another close mic—a 57

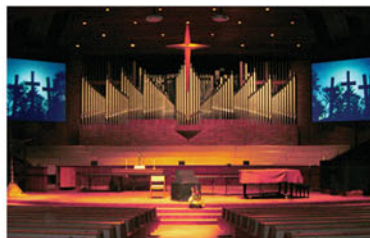
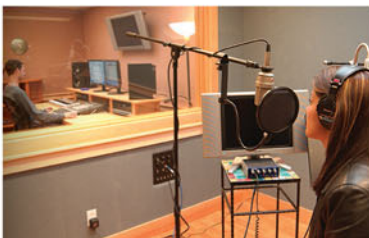
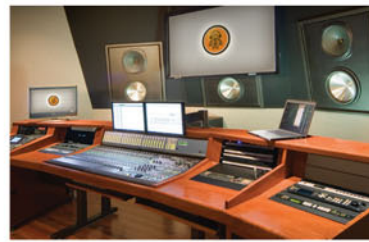
along with the Royer—for a little brighter sound.”

Overall, the Wacos’ record is all fans will hope and expect—loud and fast with plenty of edge and twang, and lyrics that are somehow enthusiastic and cynical at once. For example, the album leads with Schlabowske singing “DIYBYOB,” which you might guess is a tongue-in-cheek send-up of the music industry: “This is the first track from the last album/No one knows which way this ship will head/Sailors take warning/Red eyes in the morning/You can’t kill us, we’re already dead.” ■



Engineer Mike Hagler





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## SAM MEANS BUILDING '10 SONGS'

Singer/songwriter Sam Means built his latest album, *10 Songs*, piece by piece with producer/engineer/musician Steve McDonald, in McDonald's studio/rehearsal room The Whiskey Kitchen (L.A.). "I usually do things as live as possible. When I work with a band, I let things bleed, and everything's live except for the vocal," says McDonald, who plays bass with Off! and Redd Kross. "But with Sam, who's a solo artist, we did it all over-dub-style because everyone he plays with is spread all over the country."

Means' main instruments on the album were his Wurlitzers, a Yamaha upright piano that lives in McDonald's studio, and a vintage Hohner Clavinet. "The main chain that we used on keyboards started with a Wunder Audio CM7 microphone, which is like a U 47 clone," McDonald says. "It has a really nice sound that's not overly hyped-up on the high end like a lot of mics—just a good, well-priced, large-diaphragm condenser, and it gives some of the same sound qualities that we love on things that were recorded with U 47s."



"And then I have some 500 Series pre's," McDonald adds. "I have a 512C that is sort of my main preamp, but then I've also made a bunch of 500 Series stuff from kits from Classic API and Hairball Audio. So there's a lot of DIY involved, and we just built up his singer/songwriter sound the best we could." —Barbara Schultz

## COOL SPIN: JOHN NEWMAN, 'REVOLVE'



John Newman is perhaps better known as a feature vocalist than a singer/songwriter in his own right, but that is doing the multi-talented Newman a disservice. His second full-length, *Revolve*, much like his debut,

*Tribute*, is a little too detailed with rave-y jams made by traditional instruments for the pop audience at which the personality-filled Newman is aimed.

Everything about *Revolve* is huge: gospel choirs, brass section, pianos, organs, strings. This herd of big-band elements stampedes the album, with Newman gamely belting his gritty, sometime nasal, but nonetheless excellent voice. Snuggled in the folds of *Revolve* are three of its strongest songs. "Lights Down" has the whooshing builds and the chanting drops that are characteristic of EDM tracks, but Newman throws some classic disco vibes into the mix. "Come And Get It" also has some '70s saucy swagger, and on "Blame" Newman manages to drag out "night" into an infectious five-syllable word that overrides the cheesy trance Euro-rave breakdown that serves as the song's chorus.

For a minute there, Newman and Sam Smith were neck-in-neck in the British blue-eyed soul bracket, but Smith has left Newman in his dust, which is a damn shame. —Lily Moayeri

For a complete list of credits, visit [mixonline.com](http://mixonline.com).

## LELAND SUNDRIES AT THE CREAMERY

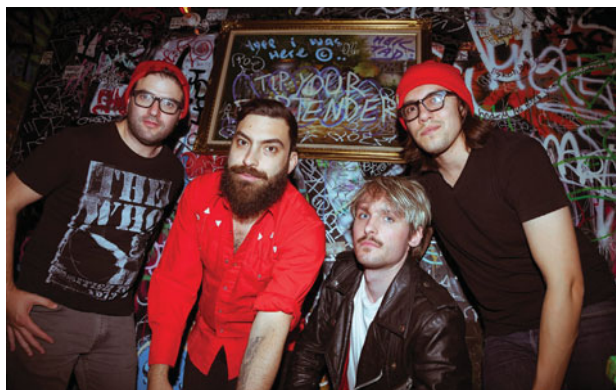


Photo: Nixxi Black

"What compels me about Nick's music is his storytelling," says engineer/studio owner Quinn McCarthy; he recorded and mixed *Music for Outcasts* from Leland Sundries, a garage/roots-punk band fronted by Nick Loss-Eaton. "It's the characters, and the places and the situa-

tions that he paints. And then he is able to fold a lot of styles of American roots music together, that large musical vocabulary."

Leland Sundries did a lot of live band tracking in McCarthy's studio, The Creamery (Brooklyn, N.Y.), a converted industrial space that McCarthy has developed over the past seven-plus years. "When I moved to New York, I couldn't find a studio to work in that would even keep me in PB and J and PBR," McCarthy recalls. "But it turned out that if I sold my car, I could afford enough sheet rock to take over this space."

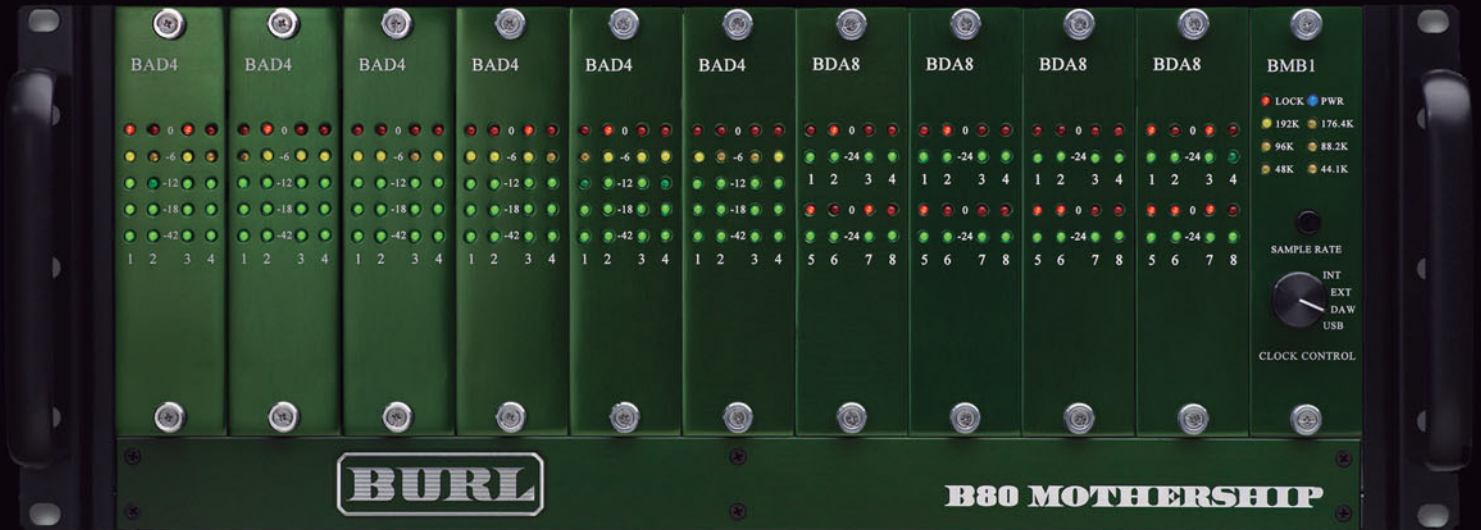
McCarthy recorded Leland Sundries to his Tascam MX16 machine as well as Pro Tools. "A lot of times, I'll have that running while the repro is dumping into Pro Tools. I call it the 'tape pedal.'"

Loss-Eaton mixes things up vocally—singing in character, speaking, using effects and distortion. He sang mainly into a Shure SM7B mic, but occasionally McCarthy would also put up a 520DX bullet/harmonica mic for effect. "On 'Radiator Sabotage,' the single, we re-recorded the vocals, but I wanted it to still sound like it was in the room," McCarthy says. I had his voice going to a P.A. or an amp, and then I would room-mike that, rather than using reverbs and delays to create the space.

"I definitely intentionally distorted a lot of the vocals as well," McCarthy says. "A lot of times, that was just me slamming the pre on my 6176 [UA channel strip]. I must have done that a lot, because I'm having to buy replacement tubes for it pretty often." —Barbara Schultz



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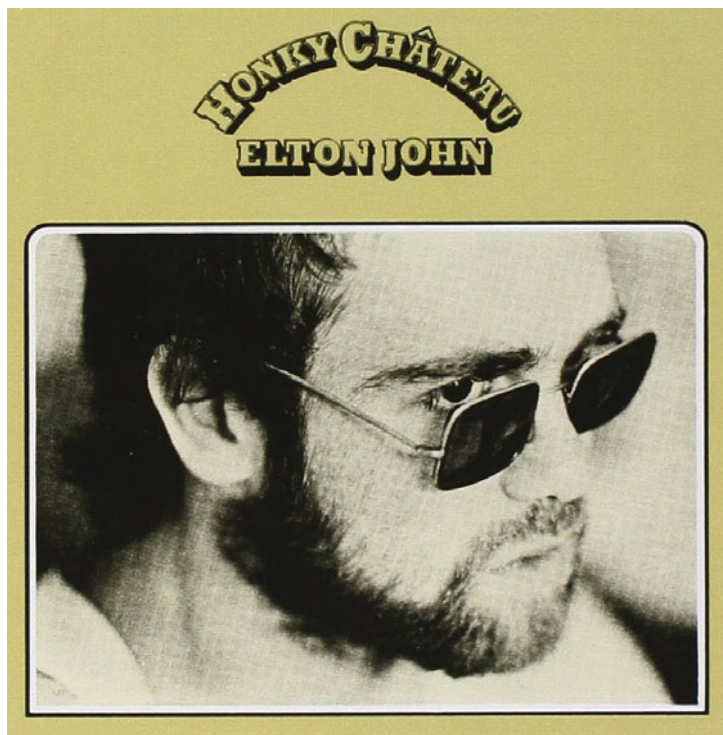
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**Engineer**  
**Credits- Jack Johnson, The Mars Volta, Los Lobos**



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# Classic Tracks

By Robyn Flans



## "HONKY CAT"

Elton John

**H**ow do you choose a classic track out of Elton John's vast collection of greatness? You gotta go for the unexpected, I guess, and 1972's "Honky Cat" stands out in that way. Not that the great songwriting pair of Elton John and Bernie Taupin was ever predictable, with such compositions as "Rocket Man," "Bennie and the Jets," "Crocodile Rock" and on and on, but this one definitely comes from another ZIP code. With its funky New Orleans groove, John tickles the keys while horns punctuate the track, and all you can say is, "That's the cat."

"Honky Cat" was the second big single off *Honky Château*, reaching Number 8 on the American charts, proving that John's decision to record with his live band—bassist Dee Murray, drummer Nigel Olsson and brand new member, guitarist Davey Johnstone—was a good one.

The album was John's first of three cut at France's Château d'Hérouville, engineer Ken Scott says, originally for monetary reasons.

"There was a strange British tax law at this time which stated, as I understand it, that if recordings and/or music written took place outside of the UK, then all monies earned from outside the UK would be taxed in the country of recording and/or writing," Scott says. "France had much lower taxation rates at that time, and so the decision was made to write and record there. How the

Château d'Hérouville was discovered, I do not know. I know that the Grateful Dead had spent time there, but I've never heard of any other artists, other than French artists, who had recorded there prior to us."

This was going to be Scott's first full album with John. "After the recording of *Madman Across the Water*, the wonderful engineer Robin Cable, who had recorded all of Elton's earlier work, was in an extremely bad car accident," Scott recalls. "So bad that we were unsure for a while if he would come through it. Commerce always wins out, and the album had to be mixed, regardless, and as I had worked with Gus Dudgeon, the producer, previously at Abbey Road, I was put on the mix sessions."

When it came time to hire an engineer for the follow-up album, which became *Honky Château*, Scott was called again.

Scott says the perk of recording at a residential studio was "total submersion." Pre-production was done in the dining room.

"That's where I first heard everything," Scott says. "As an example, Bernie Taupin brought a stack of lyrics down to breakfast for Elton to go through as he ate. Elton would then go over to the piano and work on the lyrics he liked, on one occasion leading to 'Rocket Man' in 10 minutes. Then the band would work on the arrangement."

Davey Johnstone recalls those dining room sessions as well, sitting in a semi-circle with a tiny setup of guitar, bass, drums and piano, while the crew was setting up in the studio.

"When Elton was writing the song 'Honky Cat' to Bernie Taupin's lyric, I picked up my banjo, thinking, 'This might be cool on this song,'" he says. John ended up agreeing, and apparently so did Joni Mitchell. Johnstone says he was bowled over when he met Mitchell and she told him how much she loved the banjo on that track. "It's interesting to note that banjo was my main instrument before joining Elton," Johnstone adds.

Scott was excited about recording somewhere different, which he said had a few "small hiccups." One was the language barrier, and another was that there were no isolation booths. They had to be constructed.

"Gus had some carpenters put together a box the shape of the piano and about three feet higher, which went over the top, and there were two holes for me to put the mics in through," Scott recalls. "I used a Neumann U 67 on the low end and a Neumann KM 56 on the high end."

Another issue was the board. Scott remembers it as "a very strange custom-made job" with a learning curve. The Internet suggested it was either an MCI or the Dutch-built Difona. Scott says he's inclined to think the Difona makes more sense.

"There were Lockwood monitors," he says. "We used Dolby A, we recorded 16-track, but I don't remember the make of the machine. Scully is certainly a possibility."

Scott says everything was recorded the same way: piano, bass, drums and sometimes a guitar all at once. Then the overdubs would begin. "Once we had the master of the basic track, Elton overdubbed a Fender Rhodes," Scott says.



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The horn players were locals. “The mics would have been Neumann U 67s—obviously my favorite all-around mic—on the saxes and Coles 4038s or some other ribbon on the trumpet and trombone,” Scott says.

At the mention of “Honky Cat,” and questions about the drums and period at the Château, you can feel the smile across the miles as drummer Nigel Olsson responds via e-mail while in Australia on tour with John.

“Every moment at the Château was a brilliant time in my life,” he wrote. “When I first heard ‘Honky Cat,’ it sounded like a British pub song, a sing-along kind of thing. I was using a mishmash of Premier drums, my sponsor at that time, which included a couple of concert tom-toms tuned way down low. As the recording room was kind of small and we were all playing at the same time (the way recording should be done), we built a box out of tall baffles around me and the drums for separation. I was totally closed in. I couldn’t see the rest of the lads at all. In fact, it took me five minutes to get in and out. Very low tech, but it worked great. I think we cut the track in two takes. To this day it’s a fun song to play live, and it gets a great

***“Every moment at the Château was a brilliant time in my life. When I first heard ‘Honky Cat,’ it sounded like a British pub song, a sing-along kind of thing...To this day it’s a fun song to play live, and it gets a great reaction from the crowd.”—Nigel Olsson***

reaction from the crowd. One more thing about that studio was they had a live echo chamber, which inspired my huge drum sound from then onward. I love echo and reverb in my headphones, and I always have it onstage in my mix. Life as it should be!”

Scott says the mic on the bass drum was probably an AKG D12. He says he probably used a Neumann KM 56 or KM 54 on the snare, and for overheads, probably ribbons.

“On the toms I have no idea,” Scott says. “Nigel was using concert toms at that time and the mics were placed up inside them, so I’m sure

they weren’t my usual U 67s, which means I just don’t know,” he laughs.

On John’s vocals, Scott is also unsure. “I can’t remember if I used a Neumann U 67 or an AKG C12 for his vocals, but it was always the same mic,” Scott says. “Elton got bored in the studio. He would of course be there for the basic tracks and any overdub that was specifically him. Other than that, he was rarely around. Same went for the mixes. He only came by for a final play-through. He totally trusted Gus and the band so he didn’t feel the need to micro-manage.” ■





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# LOS CENZONTLES

## ‘Alma Campirana’ Spotlights Group’s Core Quartet

By Matt Gallagher



Los Cenzontles, from left: Emiliano Rodriguez, Fabiola Trujillo, Lucina Rodriguez, and Eugene Rodriguez

Photo: Michael Melnyk

For the 23rd album release since 1995 from California-based Mexican roots music band Los Cenzontles, the four core members—Eugene Rodriguez, Emiliano Rodriguez, Lucina Rodriguez, and Fabiola Trujillo—produced a collection of traditional rancheras and corridos whose title, *Alma Campirana*, translates approximately to “country soul.”

“*Campirana* is a word that isn’t widely used, but it’s very appropriate for the style of music,” says Eugene Rodriguez, who founded the group. “It’s country soul, but when you say the word ‘country’ in English, it kind of brings up Taylor Swift and pop-country. But when you think ‘country’ in this sense, it’s not really country as a market; it’s more like a lifestyle—these little ranches in Mexico of a time that doesn’t even exist any more. The earliest songs [on the album] are from the Mexican Revolution, probably the early 1920s—I’m assuming they were written back then—and then up to the ‘60s.”

Rodriguez also founded the nonprofit Los Cenzontles Mexican Arts Center and Cultural Arts Academy in San Pablo, Calif., which educates students about traditional Mexican art forms through classes and performance ensembles. “It started over 25 years ago as a youth group,” he reflects. “Then I incorporated as a nonprofit in ‘94, the same year that Milo [his son, Emiliano] was born, the same year I was producing a children’s record for Los Lobos and Lalo Guerrero,” for which he received a Grammy nomination. “I decided to start the center [in its present location] in ‘98. It’s been a

good adventure—complex and challenging, but very rewarding.”

The band typically records its albums at the Center. However, *Alma Campirana* signaled a departure from Los Cenzontles’ previous efforts with larger groups, including *Shades of Brown* and *Regeneration*. “I would say that we took more control over the sound we wanted,” says Eugene. “We had more time on this record than we typically do.”

“Usually we invite guest artists,” explains Emiliano Rodriguez, who plays bass and other instruments, and serves as Los Cenzontles’ production manager. “We’d set up here and capture everything that’s going on in the room. And that often doesn’t leave a lot of room for a creative recording style. Our jobs are less about the sound of the record and more about just getting people to work together. This was an opportunity to really pinpoint what we want from the sound of the album. We wanted to test new equipment, because we want to upgrade our studio.”

This led them to schedule studio time with veteran engineer David Luke, a frequent collaborator, at Opus Studios, a private facility in nearby Berkeley where Luke is chief engineer/studio manager. “I really like the vocal mics [at Opus],” Eugene says. “[In the studio] you can hear the quiet. Here [at the Center], we can hear the sirens, the shopping carts, the car horns, car radios, airplanes, helicopters, the rumble of motorcycles.”

*Alma Campirana* features traditional stringed instruments: the vihuela and guitarra de golpe (both played by Lucina), and Eugene’s 12-string guitar, as well as acoustic guitar, and upright and electric bass played by Emiliano. Their goal was to breathe new life into 20th-century songs and bring them into the present for a new audience. “This music in its element—especially historically—is dance music,” Eugene notes. “We listen to these old folk musicians with modern ears and we think they’re quaint and delicate. But they’re not. I wanted [the instruments] to feel big, bright and warm. Milo and Lucina developed a really fantastic groove that I’m very proud of.”

Luke made use of the studio’s layout and premium mics and outboard gear. “For part of the tracking Eugene was in the control room with me; we just wanted more isolation,” he says. “[Trujillo and Lucina Rodriguez] usually always sing together so they were in the booth together. I was wearing headphones, and Emiliano was in the studio, just so we had control. If they wanted to redo a part, we didn’t have the leakage factor. They wanted the option to be able to redo parts. There was some overdubbing done but not too much. Most of it was captured live to Pro Tools.”

Eugene considers the sound of Emiliano’s basses—an Eminence Portable Upright Bass and electric Rickenbacker bass—to be foundational to the music and the album as a whole. “I think he did a tremendous job at finding a bass sound,” Eugene says. “Most of the songs were recorded with a Rickenbacker. But even Ry [Cooder] assumed that it was an acoustic bass because of the quality of the sound that came out. Milo had this whole chain that he plugged his bass into to get that sound.”

“He had compressors and EQ in his effects chain, so I recorded that



separately,” Luke says. His bass recording options included an Éclair Evil Twin Tube Direct Box into a Manley Massive Passive EQ and Purple Audio MC77 Limiter (an 1176 clone); the effects pedals through a Radial JDI into a Vintech Audio X73i preamp; and a Victoria bass amp and Randall isolation cabinets housing 10-inch Eden Bass speakers, inside a back room.

“The 12-string had a KM 184 mic on the bridge,” Luke says. “And then around the 12th fret, pointing toward the hole, was a Royer 121. Being a figure-8, it rejects the squeaks from the fret board. Both of those went through the Vintechs. I did a little EQ with the Vintechs, and then to a Focusrite Red compressor [applying] light compression.” Acoustic guitar, vihuela and guitarra de golpe each took a DPA 4011 and Coles 4038 through Grace Design preamps, Manley Massive Passive and dbx 160.

Luke says that vocalists Fabiola and Lucina “have distinctly different voices, but the way they blend together, they really complement each other, because Fabi has a softer voice and Lucina has the edgier voice. For both of them we used the UA LA-610 preamp. Fabi was on the 251, and then the 610 fed an LA-2A, no EQ and straight to Pro Tools. And for Lucina we used the U 47, and that went from the UA 610 to the Phoenix compressor and straight to Pro Tools.” Eugene also sang into a U 47. “I try not to use EQ when I record vocals,” Luke adds. “It’s easier to fix it later.”

“When we ended up handing the tracks to [mix engineer] Greg [Morgenstein], I felt like the tracks already had an identity attached to them—more so than on previous recordings,” Eugene says. “I think ultimately we were going for that lo-fi compressed sound, as Ry [Cooder] called it. I

think it was the correct choice.”

Morgenstein is another longtime collaborator with Los Cenzontles, and once again mixed their album at Enormous Studios in Los Angeles. “Maintaining the quality of those instruments is really the trick,” Morgenstein says. “On this album I didn’t need a lot of compression. I use a Fairchild 670 and a bunch of Pultecs for warming everything up. I use Avedis EQs to bring out the air and the presence. I use a few UAD plug-ins, as well, for color. I try to use as much analog gear as I possibly can. I mixed it all in Pro Tools.” Reuben Cohen at Gavin Lurssen Mastering mastered *Alma Campirana*.

Los Cenzontles returned to Opus Studios in December 2015 to begin working on another album project. “Yes, we are back at Opus,” Eugene acknowledges. “We were so pleased by the ‘vintage’ sound we achieved for *Alma Campirana* that we wanted to take a similar approach with added instrumentation, including drums. So, we are doing an album of rock covers using Mexican instruments mixed with drums and more. A great deal of fun.

“Honestly, I thought the *Alma Campirana* record would be of most interest to Spanish-speaking people from Mexico,” Eugene says, “more so than some of the other fusion records that we’ve done. My hope would be that everybody could appreciate this. I think it has a nice feeling to it. Actually, there’s such a gulf between the Mexican world and the non-Mexican world. Sometimes it can be a little discouraging, but it’s also an opportunity. We’re here to help everyone in. We’re all connected.” ■

The advertisement is split into two main sections. On the left, two AEA Nuvo ribbon microphones are displayed vertically against a light grey background. The one on the left is black and labeled 'n8' at the bottom, with the text 'Overheads & Rooms' below it. The one on the right is silver and labeled 'n22' at the bottom, with the text 'Kick, Snare, & Toms' below it. Above the microphones, the text 'NUVO' is written in a large, stylized font, followed by 'COMPLEMENTARY PHANTOM-POWERED RIBBONS'. A small circular logo for 'TEC 31st ANNUAL AWARD FOR TECHNICAL INNOVATION' is visible next to the n8 mic. On the right side of the advertisement, a black and white photograph shows a man, Dan Schnelle, playing a drum kit in a studio. A large AEA Nuvo n22 microphone is positioned over the kit. The name 'Dan Schnelle' is written in a script font next to him. At the bottom of the advertisement, a white banner contains the text 'FIND OUT WHAT AEA CAN DO FOR YOUR SOUND: Call + 1 626 798 9128 | www.RibbonMics.com' and the AEA logo.

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# Live



GREGOR ZIELINSKY &  
SENNHEISER

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Photo: Peter Spinney

The Junge Deutsche Philharmonie  
at Central Hall Westminster, London,  
conducted by Jonathan Stockhammer.

## RECORDING THE ORCHESTRA IN 9.1

Tonmeister Gregor Zielinsky Teams Up With Sennheiser

By Gary Eskow

**I**s 5.1 playback merely a rest stop on the road to true immersive sound? The film community is sure betting on it, and so is Sennheiser. For the past five years, a team led by Grammy Award-winning engineer Gregor Zielinsky (Best Engineered Recording, Classical, 1991, Leonard Bernstein's *Candide*) has been working on a system that offers an additional four channels of material, designed to capture the audio that floats upward during a performance.

This past September, Sennheiser sponsored a concert at London's Central Hall Westminster featuring the Junge Deutsche Philharmonie orchestra led by Jonathan Stockhammer. Grammy Award-winner Imogen Heap made an appearance at the concert, which was given to an invited audience. Rehearsals were recorded under

Zielinsky's supervision and played for a group of journalists prior to the performance.

The results were startling. Listening to playback off of a Pro Tools system set up in a temporary control room next to the performance space (with DiGiCo SD7 desk, nine Neumann KH 120 monitors and a pair of KH 810 subwoofers), the exceptionally well-played versions of Mendelssohn's "A Midsummer Night's Dream" overture and pieces by John Adams, György Ligeti and Philip Glass seemed to dance around the room. A sweet spot remains with 5.1, but the move to 9.1 eliminates this limitation. The addition of "upper floors" allows music to breathe more naturally.

Following the performance, *Mix* had a chance to chat with Zielinsky.

**If all you're doing is adding four extra microphones to capture the information in the upper atmosphere, why has it been such a difficult process to develop?**

It has been extremely difficult because we wanted to capture the room and the orchestra in its entirety. This meant that we first had to acquire some experience of how this is best done, not only from a technical point of view but also from a psychoacoustic perspective. For example, when setting up the microphones for one of our very first 3D immersive audio recordings we put up the upper front microphones and we suddenly had flutes, oboes and clarinets coming from above because these instruments project their sound upwards at a 90-degree angle from the instrument. There are many technical as-



Peter Brandt of Remote Recording Network at the DiGiCo SD7 in the makeshift control room.

pects involved but even more psychoacoustic phenomena, and we had to experiment and learn where to place which microphones to best capture the orchestra.

At a certain stage we were faced with the task of simplifying the microphone setup. In its largest “extension,” the 3D microphone setup—the so-called Zielinsky Cube—consists of nine MKH 800 Twin microphones. They deliver 18 signals, which is quite a few channels and quite an investment!

#### Can you share any of the thinking that has gone into the development of this technology?

The Zielinsky Cube is based on the A-B main microphone technique. Just as a spaced A-B pair for stereo recordings corresponds to the loudspeaker positions during reproduction, the 3D immersive audio system used in the recording reflects the loudspeaker setup for 9.1 reproduction. Experience has shown that this equivalent microphone setup gives an extraordinarily good 3D signal.

What is important is that in the cube setup, we not only have a horizontal AB but also a vertical AB that reproduces all vertical nuances as such. When we began recording in 3D immersive audio and demoing this new technique, we were often faced with critical remarks such as, “But there is sound coming from above.” The next time you’re sitting in an auditorium and listen to an opera, close your eyes for a while: You will be amazed at the amount of sound that is actually coming from above. Our eyes define in a certain way where the sound is coming from. This leads to a sort of recording dilemma. Do I say, “Yes, the bassoon does actually come from above?” Or do I say: “That may well be, but when I’m sitting in the venue I perceive the sound as coming from the front.” You have to find a sort of compromise there.

#### You said that purity-mixing a 9.1 recording by transferring the audio exactly as it was recorded in the cube does not yield the most satisfying results. Can you clarify this remark?

We are talking of musical phenomenology in this respect. This was developed by the conductor Sergiu Celibidache. Phenomenology focuses on the question: “What does arrive in the brain? What does the brain receive, perceive? Celibidache once said that the musical notation does not matter, it does not matter what the conductor does, or what the violinist does. All that matters is what reaches the head, what our head perceives. And this is exactly how I am con-

sidering a recording technique and recording equipment. What is important is that when you’re sitting in front of your loudspeakers, it’s important that we simulate a situation for the brain such that the listener feels as if he or she is sitting in a concert hall, including the optical information; that is, the orchestra sitting in front of him or her. And we want to produce exactly this perception in the brain, which the audience has in a concert hall seeing the orchestra in front of them. This is why you need to change a few things in the mix.

Additionally, there are some dynamic aspects, or sometimes you would like to add a spectacular effect, for example making the drums a bit louder and crisper in some places than the original can sound in the hall. That’s what this is about. On the one hand, we have the pure reception that we want to re-create, and then there are some aesthetic aspects where we would like to put a certain emphasis. Of course, this does not mean that you will put the orchestra upside down in your mix, take the back to the front and the like. Putting the grand cassa in front of the conductor would certainly be overdoing it...

#### You said that you’re working on an algorithm that will hopefully allow some of the material recorded in 9.1 to translate into a stereo mix.

This is actually not about an algorithm or a process that translates 9.1 loudspeakers to stereo loudspeakers. This is what every tonmeister has to do on his own. Either you do a completely separate mix for stereo or you will do a downmix from 9.1 to stereo and have to see how you can translate the many things you were able to do in 3D to stereo.

What I referred to was the virtualization, a virtualization technique that Sennheiser developed. The virtual representation of any signals in a three-dimensional space with headphones. I was their listening partner, so to speak.

#### If there is still a sweet spot in 5.1 playback, how does adding four extra fields in the “upper atmosphere” remove it?

The sweet spot in 5.1 reproduction results from the fact that the signals often fall very much apart and become divided into front signals and rear signals; I call this the front-rear effect. And there’s also this hole at the sides. The latter is due to the phantom sound source in the middle. 9.1 is different. Via the cube, the signal positions itself. Every signal is reproduced by at least three, four or even more loudspeakers, and thus you can clearly hear where the signal is coming from. For example, if a signal comes from the bottom right, it will be played on the front right and rear right, and its “counterpart signal” (a mix of direct sound and reflection) will come from the top left rear and top left front. Also, the remainder of the speakers will play this sound in some way or other. So both ears and the brain get involved in a three-dimensional space.

A given signal will be reproduced by all speakers; not the very same signal of course, but all room reflections. All loudspeakers will play the reflections that this signal has in the room. And here we’re back at the original idea of 3D, which is to reproduce the concert hall as it is, and we’re exactly reproducing the room, and this is why we do not have a sweet spot. Of course, the signal changes if you move to the front, it will become more direct, just as it would become more direct if you moved further to the front in the real-life concert hall. If I move further to the front, the orchestra will become more direct; if I move toward the back, it will become more indirect. And when I choose to sit at the very rear underneath the balcony it will sound crappy! So it would be good if you chose a seat in the first third of the hall or in the middle, as this would also be the best seat in a concert hall. But there is no sweet-spot effect because the brain gets more information on where a signal source is located, quite unlike as with stereo or 5.1 recordings. ■



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### Spirited Rock 'N' Roll Revival

Singer/songwriter/guitarist JD McPherson has been steadily building an enthusiastic new following with his own infectious take on North American rock and R&B of the 1950s, which he blends with his other influences, including The Clash, Led Zeppelin, The Pixies, and Wu-Tang Clan, among others. McPherson and his four band mates—Sutton, Jason Smay (drums), Ray Jacildo (piano/keyboard) and Doug Corcoran (sax/guitar/keyboard)—are continuing to tour behind McPherson's 2015 sophomore release, *Let The Good Times Roll*. Following a winter run through clubs and ballrooms in the continental U.S., they will land in Australia for gigs in February.

Mix caught McPherson's January performance in Seattle at The Showbox. Tour manager and front-of-house engineer Ryan Mchugh says that while no sound company is supporting the tour, he and the band happily dive into a DIY approach to achieving their tour sound.

"JD has never actually toured with production, so far," Mchugh says. "We have some pretty quirky backline. We've got vintage Ludwig drums, an old Kay upright bass, a Hammond M3—we don't have the muscle or the trailer space for a B3 quite yet—and an old spinet piano. The guys have been dialing these elements in for a long time, though it's an ever-evolving process."

Mchugh embraces the challenges of relying on house-provided sound reinforcement gear, and developed his workarounds for McPherson's show. "There's something more intuitive about mixing a show on a big



JD McPherson and his band in Seattle's The Showbox on January 12, 2016.

Photo: Todd Berkowitz

board with faders and knobs that push back," he says. "With that said, I've really come to love certain features of the SC48. I'll put those [Avid] Smack! plug-ins anywhere I can fit them. I also love to put the Pultec EQs in front of the Fairchild comp, and then carve away the bad mids and pump in the warmer frequencies, making the comp get a little wacky."

For McPherson's vocal, Mchugh uses the tracks on *Let The Good Times Roll* as a starting point. "There's warmth and grit and the right type of compression," Mchugh says. "It sounds thick and full [with] none of those shocking high-mids. If I'm on the SC48, I'll put the Pultec MEQ5 in front of the Fairchild comp. I'll chomp out some 2k, then pump in a little low-mids. Then I'll get that Fairchild fluttering away. Then I've got my channel EQ to pull out any other little bad guys and I might use the key frequency feature of the channel comp to get a little wideband de-essing, depending on the room." —Matt Gallagher

## BERKELEY REP INSTALLS MEYER SOUND CONSTELLATION

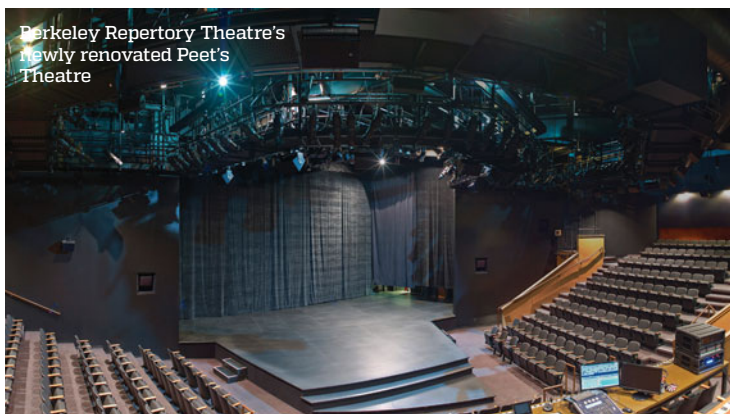


Photo courtesy of Meyer Sound

Berkeley Repertory Theatre in Berkeley, Calif., recently underwent a reported \$7 million renovation. The renovated Peet's Theatre—formerly called the Thrust stage, and renamed to reflect Berkeley Rep's new partnership with the coffee company—is scheduled to reopen for its first production in early February. It will be the first venue in North America designed principally for dramatic presentations with a Meyer Sound Constellation acoustic system.

Constellation instantly transforms the acoustics of a performance space, enabling a venue to enfold audiences in a host of different ambient sonic characteristics. In Peet's Theatre Constellation is a dual-zone system dedicated to both enhancing early reflections from actors onstage and creating reverberation characteristics appropriate for any production. Digital processing is hosted by the D-Mitri digital audio platform, which hosts the patented VRAS acoustical algorithm. This works in con-

junction with 24 microphones and 23 HMS-5 surround loudspeakers, 11 MM-4XP and six MM-4XPD self-powered loudspeakers, 18 UP-4XP and 12 UP-JuniorXPVariO loudspeakers, and eight UMS-1XP subwoofers.

Once programmed, Constellation's acoustical environments can be changed instantly with the push of a touchscreen button. When required, direct sound reinforcement is supplied by a separate system of six Meyer Sound loudspeakers suspended over the stage.

"This is a 270-degree thrust stage, which means that actors are directly facing only a third of the audience at any given time," says Peter Dean, production manager at Berkeley Rep. "Without Constellation, the actor has to be acutely aware of projecting out to the audience. We're now eliminating some of that complexity, which makes it easier for the actor to react to the emotions in the scene."

James Ballen, Berkeley Rep's sound supervisor, says that he expects that Constellation will also benefit older patrons with marginal hearing loss. "We will still offer the mandated ALS systems, but with Constellation's enhanced intelligibility, some patrons with borderline problems may find they no longer need to wear headsets."

Constellation will be pre-loaded with a number of presets for different acoustical environments, with others custom programmable for each production. "Even though you are sitting in a relatively small, enclosed room, we can make it sound like a castle or concert hall," says Dean.

Constellation's loudspeakers can also double as a sophisticated surround sound system. "This will revolutionize the way we think of sound design in drama for regional theater," says Ballen. "With the comprehensive loudspeaker coverage provided by Constellation, the possibilities are practically limitless." ■



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# BUILD YOUR OWN (MOSTLY) ANALOG STUDIO FOR \$100,000

By Wes Maebe

It's that time of year where a couple of us at *Mix* get to put together a recording setup for a specific price. Once again I've been put in charge of the full analog studio for \$100K. Let's assume we already have our computer and furniture in place, ready to be loaded up with amazing analog gear.

This is my fourth installment of the Build Your Own Studio series, so in addition to a few trusted regulars, I've incorporated a bunch of "new faces" that haven't been featured yet. The following is inspired mostly by personal experience and in-the-field use, complemented by choices based on feedback from colleagues. Now let's go shopping!

## THE GREAT BRITISH SOUND

As our centerpiece to handle all recording and mixing duties, I've chosen the **Trident Series 88-32** (\$34,999.99). The Trident name is synonymous with world-renowned EQ and a great sound originally made famous in St. Anne's Court, London.

This 32-channel console will supply all the mic pre's needed to track a band. The 88 can be configured as an in-line or split console, providing all the routing options to cover studio requirements.

The console is fully modular, allowing for easy maintenance. I wanted to point that out, especially as we find ourselves in more situations where there is no on-site maintenance staff. So having access to a modern console offering a modular design could save a session when one of the modules goes down and it needs to be replaced with a spare.

The desk features 4-band sweepable EQs on each channel, including a tilt EQ on the monitor path. There's low and high shelving on the FX and monitor returns. And with its eight aux sends and eight subgroups, this is a very flexible, true analog board.

## THE ENGINE ROOM

In order to remain flexible with other studios and people's various workflows, we need to record to a DAW. We can still track to a trusty 2-inch reel-to-reel multitrack; however, we still need to be able to deliver sessions in the digital format. **Avid's Pro Tools 12** (\$599) will take on the recorder duties for us. And to feed into our DAW, I've spec'd **Antelope's Orion 32** (\$2,795). The Orion 32 provides plenty of analog I/O, with a vast array of digital expansion possibilities and, of course, Antelope's notorious clocking.



Trident Series 88-32



The Slate Raven MTi2

When it comes to dealing with automation moves in the DAW, I prefer to have access to several parameters at the same time. The **Slate Raven MTi2** (\$999) will insert analog-style touch to the software.

## ON THE WAY IN

Now we're ready for some signal input, so let's fill the microphone cupboard with some tasty tools. In all likelihood, we'll be looking at the general recording setup: drums, bass, guitars and vocals. But our mic selection should be

versatile enough to cover any eventuality.

Having spent quite a bit of time in the studio with hip-hop programmers and vocalists over the past few months, I've grown to love the **Shure SM7b** (\$349). It is killer at recording vocals in the control room, with great rejection of the stuff coming over the monitors. They're also great on heavy guitars. Just in case there's more separation required, the **sE Electronics Reflexion Filter Pro** (\$119) will do just that.

No mic collection would be complete without a couple of **Shure SM57s** (\$99 x 2 = \$198). These workhorses will cover snares, guitars and pretty much anything you throw at them.

On kick detail, the **AKG D12VR** (\$499.99) will do the donkeywork, and we'll supplement that with a **Telefunken M82** (\$399) and an **Electro-Voice RE20** (\$449), which can also

take on a lot of bass and brass recording.

I recently worked with a producer who introduced me to the technique of putting a **Sennheiser MD441U** (\$899.95) on the snare. Until now, I've always used SM57s and KM 84s, but hearing that Sennheiser on snare drums was absolutely mind-blowing. I do like putting a small





sE Electronics Rupert Neve designed RN17



The Shadow Hills Industries Dual Vandergraph



Advanced Audio CM 251



Meris Mercury 7

condenser on the side of the snare drum, just looking over the rim, and the **Advanced Audio CM1084** (\$659) sounds just great for that. On toms, I'm sticking with the **Sennheiser MD421s** (\$379.95 x 3 = \$1,139.85).

My magic hi-hat microphone has always been the **AKG C451B** (\$499.99), and recently I've had fabulous results with the **sE Electronics Rupert Neve designed RN17** (\$999). The AKG also performs nicely on acoustic guitars, giving you that zingy string sound. Completing the small-diaphragm collection is the very open-sounding **Lauten Audio Torch ST221** (\$899).

Having used these mics successfully on so many sessions now, I have to revisit the **Advanced Audio 47 fet** (\$295), **CM251** (\$995) and the **CM67se** (\$965 x 2 = \$1,930). I love the 47 FETs on double bass, and the CM251 performs amazingly on acoustic guitars, vocals and strings.

The CM67se is my mic of choice for vocals. The last time I used it at RAK Studios, the producer asked me to put up an original vintage Neumann U 67. It's in great shape and has been maintained very well. We went through the same API pre, and both got a little squeeze on a Fairchild. After recording one verse, the producer asked me to unplug the original 67 and keep on recording with the Advanced Audio. I like to use two of those mics so we can cover stereo applications and



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API 2500

Glyn Johns-style drum recordings.

For piano recording, I am a champion of a couple of original 414s. Because those are no longer made, we're swapping them out with a couple of **Advanced Audio CM414s** (\$389 x 2 = \$778), inspired by that original design.

And that brings us to the missing link in our mic selection: ribbons. To complement the 414s on piano, it's really lush to add a **Royer SF12** (\$2,695) stereo ribbon.

I've always liked ribbon mics on guitar cabs, and the **Royer R-121** (\$1,295) has done me proud on countless occasions. On my recent jobs engineering for Elliott Randall, we haven't had access to the Royer, so we've been using an **sE Electronics Rupert Neve designed RNR1** (\$1,995), which has been sounding stellar on trumpets and saxophone.

Topping off the ribbon family is the **AEA KU4** (\$4,356). This hyper-cardioid ribbon is something else entirely. I had the opportunity to put it to use on a classical piano session

at British Grove Studios. One of the pieces had a vocal, and the KU4 blew all the vintage tube mics straight out of the water. It was warm, smooth, and yet nicely open on top. Not what you expect from a ribbon. It impressed me enough to put it on this list. Rounding out the input section are a couple of **Rupert Neve Designs RNDIs** (\$269 x 2 = \$538).



Watkins Copicat

## RACK-AND-ROLL

The 500 Series is a widespread phenomenon now, and almost every manufacturer has jumped onboard. I've installed a value-for-money 10-slot **Fredenstein Bento 10** (\$531) holding a few sets of EQs, **Crane Song Insigna** (\$1,299 x 2 = \$2,598) and **Pultec EQ-P500A** (\$1,295 x 2 = \$2,590) that can be used on single channels, but will also serve for bus EQing.

The **Shadow Hills Industries Dual Vandergraph** (\$2,085) and the **Smart Research C1LA** (\$1,750) will take care of any stereo compression, while the **Little Labs Vog** (\$420) will deliver low-frequency substance to kicks, snares, toms, bass and anything that war-

# Primacoustic... better design, better



"The ease of install really allowed us to experiment with placement and with the quality of the treatments, we achieved the sonic balance we were looking for!"

~ **Tommy Lee**

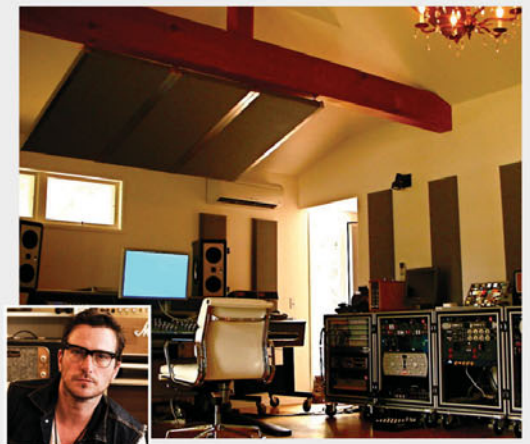
Founding member - Mötley Crüe.



"Being able to fine-tune a room on site makes all the difference. The Impaler mounting system make the panels easy to install and let you make adjustments without trashing the surface. It works!"

~ **David Rideau**

Engineer/producer - Janet Jackson, Sting, TLC, George Duke and Jennifer Lopez.



"The Primacoustic is up and kicking butt at my new studio in Santa Monica. I love the way the control and tracking rooms sound now... and so does everyone that records here!"

~ **Butch Walker**

Engineer/Producer - Avril Lavigne, Fall Out Boy, Pink, Sevendust, Hot Hot Heat, Simple Plan, The Donnas.

*"I love the way the control and tracking rooms sound now... and so does everyone that records here!" ~ Butch Walker*



rants a touch of extra oomph.

The DAW will have plenty of time-based effects, but this studio has a tactile approach, so filling up the Bento 10 is the brand new **Meris Mercury 7** (\$549), a very cool reverb unit.

No studio is complete without API and Manley. The **API 2500** (\$2,800.75) and **Manley Variable Mu** (\$3,960) are stunning-sounding units with amazing character and can be used on any material.

Tying off the dynamics section is the **Chandler RS124** (\$2,875). Based on the original EMI Abbey Road unit, which can be heard on a lot of Beatles records, this compressor is the don when it comes to severe squeezing.

The final piece of outboard has to be a bit special. Last year when I engineered the Comsat Angels at RAK, we used a vintage tube **Watkins Copicat** (\$720) as the main "space" on vocals instead of reverbs, and it sat just right in the mix. So I promptly hunted around for one and added it to my mix toolkit.

## LET'S BE HEARD

I've chosen two pairs of monitors: Neumann KH 310s (\$4,499.90) for



Barefoot Micromain 35 Gen2s

transparency and the very flexible **Barefoot Micromain 35 Gen2s** (\$8,275).

Nothing is more important than your artists being able to hear themselves properly in the live area. That's why I'm installing an **Aviom D800 system** (\$1,599) with four **Aviom A320** (\$399 x 4 = 1,596) personal mixers. The headphones of choice are **Audio Technica ATH-M70X** (\$299 x 4 = \$1,196).

## MAKE IT SOUND GREAT

All the gear is in place. This setup works great for recording, mixing and even some basic mastering.

Music production is both fun and intense. To provide a little distraction and comic relief, I'm bringing in the **BB-8** (\$149.99) as a little studio mascot of sorts.

A couple of **27-inch Grande Lava lamps** (\$99.99 x 2 = 199.98) help to set the mood and provide a bit of ambience. Any leftover cash will be spent on a few bottles of Jack Daniels in honor of the late, great Lemmy.

**GRAND TOTAL: \$99,775.39**

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~ **Daniel Adair** Drummer - Nickelback.

**"Not only does my room sound amazing, it's also really beautiful!!!"**

~ **John Rzezniak**

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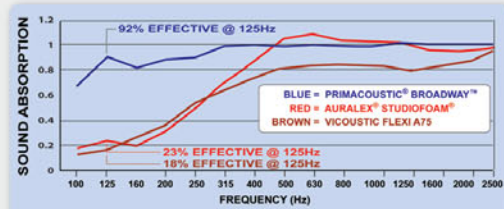
"We've got a mixture of bass traps, diffusion and clouds and the result was phenomenal. It ended up costing less than 25% of the custom solution and it turned out very cool."

~ **Keb' Mo'** - Grammy winner, roots-legend.

*Primacoustic Broadway™ high-density glass wool acoustic panels perform well where the others fail, in the critical low frequencies.*

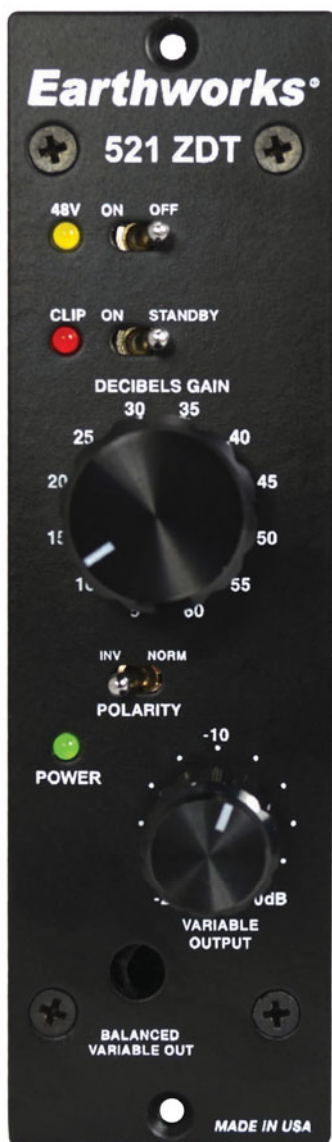


"Not only does my room sound amazing, it's also really beautiful!!!" ~ **John Rzezniak** - Goo Goo Dolls.



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— Recording, March 2014

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## IN THE BOX FOR 35,000 BUCKS THIS SMALL-ROOM PROJECT STUDIO DOESN'T SKIMP ON PRO QUALITY

*By Markus Rovito*

More and more projects are moving to completely in-the-box production and post-production. With such a workflow and some judicious choices, you can outfit a well-rounded project studio for \$35,000 or less.

For the following studio configuration, we assume you already have a fairly powerful Mac or Windows computer with a free Ethernet connection and Thunderbolt port. All the plug-ins listed are Mac/Windows AAX Native-compatible to go along with the chosen Pro Tools DAW. Prices listed are MSRPs.

### DAW/CONTROL SURFACES

Despite the record number of great DAWs in the world, many of which enjoy booming user bases, Pro Tools still has the lockdown on professional industry-standard status, so that's where we begin. You can add extra, usually lower-priced DAWs, as you see fit.



Avid Pro Tools | S3

This is the year that we embrace subscription plans, and **Avid Pro Tools 12** (\$599) has different options available. However, the purchase price in this case fits nicely into the budget, and we'll pair it with the powerful, small-format **Avid Pro Tools | S3** (\$4,999) Eucon-enabled controller, mixer and 4x6 high-res AVB (Ethernet) audio interface with 16 motorized controllers, channel displays and 32 touch-sensitive, pushbutton encoders. This gives you complete ability to



Avid Artist Transport

create and record tracks, write automation, launch plug-ins, manage routing, etc. Add in the **Avid Artist Transport** (\$444) jog wheel/shuttle ring/numeric key/transport controller, and barely touch your keyboard and mouse in the studio.

But that's not the end of the Pro Tools-specific control. For years, the iPad has been the multitouch controller of music producers' dreams, and last year, we got the gift of an even bigger iPad screen for musical applications. The **12-inch Apple iPad Pro 128GB with Smart Keyboard** (\$1,118 total) gives you an ample and beautiful display for Avid's free Pro Tools | Control app. When paired with the S3 and Artist Transport, Pro Tools | Control uses the same Eucon technology over Pro Tools and other DAWs, to help you create smooth and custom workflows.

Finally, a couple of high-class MIDI controllers round out this section. The tank-like **Arturia KeyLab 88** (\$999) combines a Fatar-designed 88-key hammer action keyboard with velocity sensitivity and after-touch with Analog Lab software—including





Akai MPC Touch

A huge innovation to the venerable MPC line, the **Akai MPC Touch** (\$799) adds a multitouch color display to a completely re-envisioned controller to make the piece eminently more capable while keeping it compact. The included MPC software provides a deep beat-making environment that runs stand-alone or as an AAX/AU/VST plug-in. MPC software even hosts VSTs, so you could use it as a back door for bringing VSTs into Pro Tools. A USB audio interface makes this an excellent portable studio along with a laptop, and it fits on top of the KeyLab 88's empty surface when you're not traveling.

DAW/control surfaces sub-total: \$8,958

## MONITORING

We'll use the S3's monitoring outputs for a couple pairs of TEC Award-nominated monitors. The mains will be the super-accurate **Barefoot Sound MM45 Micromain45** (\$5,995/pair) 3-way, 8-inch aluminum woofer active monitors, which offer the same sound quality of the larger MiniMain 12s but for a much smaller price.



Barefoot Sound MM45 Micromain45

We chose the **JBL LSR305 5-inch Active Studio Monitors** (\$399/pair) as the small-format near-field reference speakers. They're designed for accuracy and a great stereo image at lower volume levels.

For headphone mixing and mastering, the **Audio-Technica ATH-R70x** (\$489) professional open-back reference headphones issue a flat response across its full range of 5Hz-40kHz. Proprietary 45mm neodymium drivers also help deliver accurate frequency balance.

Monitoring sub-total: \$6,883

## MICS & RECORDING

In the mic department, we want something special yet not too taxing on the budget. A matched pair of **Audio-Technica AT5045** (\$2,499/pair) large-dia-

5,000-plus presets from the Arturia V Collection of vintage-inspired soft synths. Its complement of knobs, faders and pads are pre-mapped to the synth presets.

phragm condenser microphones fits the bill. Their side-address design, 149dB SPL handling and remarkable, smooth detail make them a fitting choice for many recording situations and tight spaces, whether used in a single-mic or stereo dual-mic situation.

To take care of the all-around workhorse mics, we'll procure one each of the **Shure Beta 58A** (\$199), **Beta 57A** (\$174) and **SM7B** (\$436), which all told give you something for every singing, voiceover and instrument recording situation.

Finally, we treat ourselves to an especially fine ribbon microphone—the highly acclaimed **Royer R-122 MKII** (\$1,995) active ribbon mic—to enjoy the advantages of its sensitive



*Continued on p.59*

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## NEUTRIK

# Don Henley

## Out in the Country with 'Cass County'

By Matt Hurwitz



Photo: Danny Clinch

It had been 15 years since Don Henley released a solo album, but when he finally did, he decided to take listeners for a ride in the country. Nashville, to be specific, where the majority of *Cass County* (Capitol) was recorded and mixed, using mostly local session players and engineered by one of the town's top engineers, Jeff Balding, over a period of nearly five years.

Co-producing with Henley was longtime collaborator and former Tom Petty & The Heartbreakers drummer, Stan Lynch. The two have been writing and producing on Henley's records since producer Danny Kortchmar introduced the two during the production of 1989's *The End of Innocence*; Lynch also worked on The Eagles' *Hell Freezes Over* reunion project in 1994.

*Cass County* got its start in late 2009, following the initial leg of The Eagles' Long Road Out of Eden Tour, when Henley called Lynch from his home in Dallas about making a new record—in Nashville. "I'd enjoyed making demos and records there, but I'd never done anything at this level," Lynch notes. "I suggested us recording there to Don, and he said, 'Hey, let's give it a shot!'"

To get his feet wet, Henley decided to begin by recording demos of some covers, themselves country favorites—including Billy Sherrill's "Too Far Gone," the Louvin Brothers' "When I Stop Dreaming" and Tift Merritt's "Bramble Rose," which would eventually serve as the album opener.

The demos were tracked at Luminous Sound in Dallas by engineer Chris Bell, with Eagles touring guitarist Stuart Smith (another regular co-writer with Henley and Lynch) and pedal steel player Milo Deering

contributing. Both would prove major players in the sound of *Cass County*.

After another leg of Eagles touring in the summer of 2010, Henley and Lynch returned to Dallas to continue the demoing—and writing—process, this time at Henley's home facility, Red Oak Studio. Engineering was handled initially by Hank Linderman, who, with Richard Davis, typically mans Henley's home studio in Malibu (which Lynch describes a veritable "history of recording," due to the presence of classic analog gear Henley keeps). Some demos and initial tracking for some titles were also done at the Malibu studio, including "Train in the Distance," "Waiting Tables," and bonus track cover, "It Don't Matter to the Sun," which features Stevie Nicks duetting with Henley. Most later rounds of demo recording at Red Oak would be tracked by Gordon Hammond, who would assist Balding in Nashville.

Red Oak's engineering setup is not unlike a basic mobile arrangement, with a Pro Tools HD rig, an Avid Icon console (which went unused here), a pair of Avalon Design Vt-737sp channel strips, API 512 and 550 preamps, UA 1176s and a Neve 33609 compressor. Henley sang into a Neumann U 47, with other recording covered by a Shure SM7, with Hammond supplementing those with his own Mikték C5s for acoustic guitars and some Cascade Fathead ribbon mics. "We used four mics at a time, and if we did drums, it was two mics—we were just trying to get a feel and a vibe," Lynch says.

Working typically 10 days at a time together, the engineer explains, "Stan and I would get up and go to work, building up some tracks, and then take them to Don, and Don would then spend time developing his lyrics and come back and sing, doing quite a lot of writing at the mi-



crophone. There would be a lot of back and forth—Don would tweak his lyrics and come back and sing alternates, we might change the key—just working it out. He'd change words, write new parts, all the way through the process, always trying to make it better and better."

Percussion often consisted of a work loop made of Lynch, perhaps shaking a box of rice from Henley's kitchen, perhaps filled out later by a musician. "The demos were just the beginning of those songs, just trying to get some structure, tempo and key stuff figured out before bringing it in front of a band," Hammond explains.

By January 2011, it was time to take the songs to formal tracking in the studio, so Lynch connected with Balding, whom he'd known from occasional work he'd done in Nashville, and with whom he'd always wanted to make a record. "Besides his obvious sonic skills, he has the right kind of personal qualities," says Lynch. "He's very controlled in how he presents his case, always in a rational way that makes sense, not talking out of any ego. And with a top-tier artist like Don Henley, having the right personalities and chemistry is critical."

The first sessions took place in Studio A at Sound Emporium (where Hammond, at that point, served as a staff engineer, moving to assist Balding for this project). The batch of six songs included mostly covers, such as the catchy "The Brand New Tennessee Waltz" (found on the album's Deluxe edition), "When I Stop Dreaming" and "She Sang Hymns Out of Tune," as well as new tracks like "Waiting Tables" (originally an Eagles candidate track).

The first step in the process always involved Henley, Lynch and Balding evaluating the demos to determine if any of those versions could either form

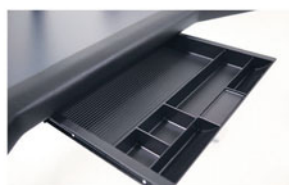


Engineer Jeff Balding, left, with co-producer Stan Lynch in Blackbird Studios, Nashville.

the basis of the final track or offer a part to retain, or if the track should be cut anew, which was frequently the case. Notes Balding, "They'd come in with the demo and say, 'You know, we think we can raise the bar on this by recutting it.' Or Don might say, 'There's something going on here that I'm not hearing, that I'm wanting out of it,' whether it was a drum part or a bass part."

Sometimes it was Balding who would help his colleagues see where an improvement could be made. "I'd say, 'Jeff, open the files on this song and tell me what you think,' and you could read him like a book," Lynch says. He'd say with a smile, 'Well, have you met Jimmie Lee Sloas? He's a really great bass player.' Oh, I get it," he laughs.

Lynch and Henley drew upon a core group of musical talent, both for tracking and overdubbing, including (but not limited to) Stuart Smith on guitar, Greg Morrow on drums, bassist Glenn Worf, and Tony Harrell on piano.



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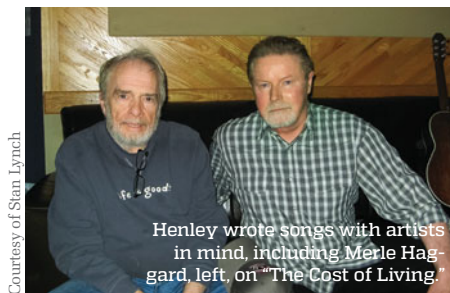
Milo Deering's pedal steel was recorded in Dallas at Red Oak, while the team drew on Nashville-based Russ Pahl and Dan Dugmore when needed locally.

Though pedal steel is thought of as a central instrument to country music, the producers' and Balding's approach for it, as well as all instrumentation, was a simple mixture of basic, well-performed music supporting Henley's vocals. "One of our mandates on this record was, 'How little can we get away with?'" Lynch says. "I would listen to Patsy Cline records, and there's nothing on there that doesn't need to be. So it was, 'When in doubt, leave it out.'"

Though he does not perform any instruments on the record, Henley would typically sing his vocal live with the backing musicians, working with them on the arrangement as recording would proceed. "Don arranges on the fly," Lynch says. "He would be at the microphone, and you'd hear him say, 'Hey, man, I like what I'm hearing. Let's go around a couple more times on that.'"

The musicians drew strongly from Henley's vocals, both in tone and in his skillful phrasing, to the point of insisting he could be heard well while tracking, Lynch recalls. "We were cutting 'Too Much Pride,' and Glenn Worf actually said, 'Here's something I don't always say—Turn the lead vocal up in my headphones.' And you heard the whole band go, 'Yeah.'" Adds Balding, "Guys at that level are listening to the lyrics, and they're playing what they play to those lyrics. They want that vocal in their ear."

Balding typically recorded Henley's vocals with either a Neumann U 47 or



Courtesy of Stan Lynch

Henley wrote songs with artists in mind, including Merle Haggard, left, on "The Cost of Living."

M 269, depending on the song. For drums, he would use anywhere from three to a dozen microphones, with both high and low overheads and extra room mics, both close and far.

There are plenty of guest vocalists—some trading verses with Henley, such as Merle Haggard on "The Cost of Living" or Dolly Parton on "When I Stop

Dreaming"—most of whom Henley planned on at the writing or demoing stage. "He wrote that second verse with Merle in mind," Lynch recalls. While Lynch provided a click track for Parton as a lead in for the a capella opening to "Dreaming," she requested he remove it. "I asked, 'Well, how are you going to know when to come in?' and she answered, 'Turn up Don's vocal; I can hear him breathe. When he inhales, I know he's gonna sing.' It was magic."

A plethora of other country stars also appear—including Trisha Yearwood, Vince Gill, members of The Dixie Chicks, Alison Krauss and others—but singing only harmony vocals or backgrounds. "It's fairly common in Nashville to see people record on each other's records," Hammond says. "It's a communal small town; everybody knows everybody." Henley, himself unequalled as a harmony singer, would guide his guests some, but would also allow them to do what they do best. "My theory," says Lynch, "is never discourage a generous impulse. We can always focus it, if we feel like it's getting a little wide."

The cycle of demoing and tracking would continue over the following two years at a variety of studios around Nashville, including House of Blues, Blackbird Studios, and Trisha Yearwood's and Garth Brooks' Allen-

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Eric Boulanger

'The Bakery' - Mastering Engineer  
Imagine Dragons, Neil Young, Colbie Caillat, One Republic

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## PH60 phono stage

for moving coil



- Phono stage for moving coil cartridge
- Ultra low noise transformerless design with 70dB gain
- Switchable high-pass filter to eliminate rumble
- Internal jumpers to match cartridge impedance
- Plug and play easy to set up and use



Chuck Ainlay

Grammy winning Engineer - Producer  
Mark Knopfler, Taylor Swift, Band Perry, Eric Clapton

"My Hafler PH60 phono preamp kicks ass! I've never heard my turntable sound that good. Actually, I didn't think it was possible."



town (the former Jack's Tracks, built by Jack Clement, located on Music Row), the latter two serving as "home bases" to most of the project.

"Allentown's very private," says Lynch. "So Don would sequester himself on the second floor and go into a lyric lockdown. I'd go downstairs and use it as a laboratory to do some demoing," working with Hammond (assisted by Matt Allen), for both demo and track recording.

By July 2012, there were 14 tracks ready, which Balding would begin mixing at his personal studio, Opolona Mix Room, a hybrid space with an API 32-channel analog desk, a host of outboard gear and large selection of plug-ins, including favorites from Universal Audio.

The process—which carried on for more than a year—would involve Balding creating his mixes, and then Henley living with them for several weeks, then returning comments, typically involving requests for level adjustments. "Henley hears the smallest of details," says Balding. "He would have tweaks that would involve adjusting something sometimes by as little as one-tenth of a dB."

With the cycle of refining and whittling continuing over time at various studios, Balding felt it necessary to work close to where recording was taking place, requiring him to be able to recall mixes at one studio in Blackbird to allow him to include new instrumentation/vocals recorded elsewhere at the studio. To do this, he created mixes that could be easily recalled from his original Opolona analog-based mixes.

"Because I automate my levels in Pro Tools, I could use tones to document fader levels on my console, which could then be used to recall the correct fader levels for the mix at Blackbird," he describes. "Between the recall documenta-

tion, the plug-ins I used on the mixes and a few key pieces of outboard gear that I took with me to Blackbird, the mixes could be recalled with great accuracy."

When the mixes were finished and ready for mastering, Balding would print individual instrument stems, along with the stereo mix versions, and then use the stems to make any last-minute adjustments needed, even during mastering. "To ensure the stems truly represented the stereo master mix, I fed an uncompressed stereo mix into the keyed input on the stereo bus compressor, so it reacted the same on each stem mix as it did on the stereo master mix. This allowed the sum of the stems to exactly match the stereo master mix."

The album was mastered by Bob Ludwig at Gateway Mastering in Maine. "Bob really latched onto the organics and the structure of the whole record," Balding notes. "When he heard it, he got it, and then just raised the bar again on it."

For Lynch and Balding, working with a legacy artist like Henley meant an opportunity to spread out and enjoy his making available whatever resources were needed to make the record he envisioned, for a project Henley had quietly always wanted to make happen.

"Don knows precisely what he is looking for," Balding says. "I actually feed off that, because we're all reaching for the same goal. You get inside the artist's head and the producer's head as much as you can, and then add what you feel on top of that."

Adds Lynch, "And the way Don went after it, allowing as much time and talent as was needed to do that is a critical process nobody gets to experience anymore these days. It was an incredible pleasure to be part of that process." ■

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Daveed Diggs, Okieriete Onaodowan, Anthony Ramos, and Lin-Manuel Miranda, the director, writer, lead, in 'Hamilton.'

# 'HAMILTON' BRINGS HIP-HOP TO BROADWAY

Photo: Joan Marcus

## Sound as Big and Bold as American History

BY ERIC RUDOLPH

*NEARLY 40 YEARS AFTER EMERGING FROM THE STREETS OF THE BRONX, HIP-HOP IS FINALLY A HIT ON BROADWAY, THANKS TO THE SRO JUGGERNAUT KNOWN SIMPLY AS 'HAMILTON.'*

Ticket demand is so intense for this mashup of American history, hard beats and street rhyming that in an off week it grosses \$1.5 million. The show is widely expected to do well at—as in, sweep—the Tony Awards next June.

*Hamilton* was written (book, music and lyrics) by 35-year-old Lin-Manuel Miranda, the Tony-winning creator of the urban Broadway musical *In The Heights*. Miranda also plays the lead role.

This unlikely musical came about by chance. Miranda bought Ron Chernow's 2004 Alexander Hamilton biography at the airport before a vacation, and saw Hamilton (a brilliant but impoverished Caribbean immigrant, born out of wedlock) and cohorts as bold, street-wise revolutionaries—and enthusiastic skirt chasers—who had much in common with rappers. In fact, Hamilton's upbringing reminded Miranda of Jay

Z's early life in Brooklyn housing projects, he told the *New York Times*.

The complex story of the remarkable and ultimately tragic life of Alexander Hamilton, George Washington's right-hand man and the first Secretary of the Treasury, who died in his 40s in a duel with Vice President Aaron Burr, is told entirely in hip-hop songs and R&B ballads. African-Americans and Latinos play the founding fathers. "Our cast looks like America now," Miranda told the *Times*. "It's a way of pulling you into the story and allowing you to leave whatever cultural baggage you have about the founding fathers at the door."

This unusual production meant sound designer Nevin Steinberg had to make a long, loud hip-hop show work for a traditional Broadway audience, which is mostly older, white and which, until *Hamilton*, showed little or no interest in hip-hop. He also had to make sure every audience member could understand every single word during the two-and-a-half hours of singing and rhyming.

Steinberg, who also designed the show for its Public Theater debut, felt *Hamilton* could go quite loud on Broadway if the system were built for what he terms "high definition" and extreme dynamic-range elasticity. While *Hamilton* gets loud, it also goes very, very quiet.

"Loud isn't a bad thing if you think about what it means in conveying peoples' emotional experiences, as opposed to just trying to be



loud,” Steinberg says. “But going loud is also a big responsibility, because you have an audience that you don’t want to discourage from listening, so you don’t want to be hitting people really hard, at least not constantly!”

Associate sound designer Jason Crystal hasn’t run a meter and so couldn’t state a dB level, but says, “We get much louder than it sounds. But we are very tightly tuned, so it is not harsh.”

Step one in achieving high-definition audio meant running the entire system at 96 kHz (up from 48k Off Broadway). “Everything—monitors, the band, the console, surround—everything is clocking at 96k,” Crystal notes. “We’re firmly in the camp that 96k just sounds better, clearer and more detailed.” The pit band, monitoring on earphones via Aviom systems, noticed the improved sound immediately.

Another change from the much smaller Off-Broadway house was a major speaker upgrade.

“Every aspect of speaker system is intended to keep excess sound off-stage,” Crystal says. “Our speakers are incredibly good—we have 20 of the new d&b Y8s in our two main line arrays, and they are impressive in their directionality. We’re the first Broadway show to use them.” Two pair of L-Acoustics ARCs immediately offstage on both sides round out the core of the main system. *Hamilton* uses a total of 172 speakers, including six Meyer Sound subs.

“No one is hearing only a simple stereo left/right house mix [from around the proscenium],” Crystal adds. “We have tremendous control over individual speakers—how they are amplified and mixed. Each section of the house gets a special mix. Nevin sat in each section during previews and made these adjustments.” There are roughly 20 separate zone-specific mixes in the 1,319-seat Richard Rodgers Theatre, Crystal estimates.

Further distinguishing *Hamilton*, and complicating life for the sound team, is a complete lack of spoken dialog. Virtually the entire show is sung. That made 100 percent intelligibility, always job Number One in a musical, a key challenge for the sound team.

“We spent 12 hours doing Meyer Sound SIM 3 system tuning,” Crystal explains. “Nevin spearheaded this tuning, I helped out. This gives us a lot of info about how the system is behaving. SIM gives us the data, and



*Hamilton*'s sound designer Nevin Steinberg at the DiGiCo SD7T in the Richard Rodgers Theatre.

the speaker control afforded by the DiGiCo SD7T control surface gives us tremendous ability to manage the system.”

However, assuring intelligibility was not Steinberg’s biggest challenge. *Hamilton* must be as big, loud and bold as American history, but then turn on a dime and zoom in emotionally and audibly on much smaller character moments. As it turns out, his key challenge was managing the energy and emotion of the show as expressed in the sound’s wide dynamic range.

The team was constantly asking themselves, “How do we make sure the audience is also taken to those same extremes, that we don’t limit the transformation that’s available to us through musical theater—because we also exaggerate it at times. This piece is ripe for that,” Steinberg says.

The big, loud scenes are intense. The Battle of Yorktown has “guns, percussive physical movement of the cast, a record-scratch solo and what I call angry bass guitar and drums,” Steinberg says. It also has some huge, booming explosions. This is a hip-hop musical, after all, and Steinberg asked himself, “How far can we go, without damaging anyone or anything, but still actually try to move air in the theater in a way that lives up to what a modern operatic version of that battle might be? Then, we

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also zoom in on the characters of Aaron Burr and Hamilton's wife Eliza, so we asked, 'How small, focused, dry, thin with volume, texture, reverb, can we go?'"

The DiGiCo SD7T control surface, along with its proprietary theater software, gives the team tremendous control over 28 matrixed outputs, which makes managing the wide dynamic range much easier, Crystal says.

These major dynamic shifts happen fast. In a pivotal Act Two moment, Hamilton is being blackmailed by political foes who have caught him in an illicit love affair. Hamilton chooses to publish a pamphlet admitting his guilt in great detail, sacrificing his personal reputation to try to save his political life. He seems oblivious to the impact this will have on his wife, Eliza.

This scene, Reynolds Pamphlet, "is incredibly raucous, exuberant, downright noisy," Steinberg says. "That matches the chaos of the emotion of that moment, the havoc that's been wreaked on Hamilton and his family. It is a lot like the Battle of Yorktown scene in that way."

Immediately following that scene, Eliza sings the quiet, wrenching ballad "Burn," and literally burns letters from Hamilton, onstage.

"We exaggerate the quiet moment of 'Burn,' immediately following Reynolds Pamphlet, and zoom in on the loneliness and isolation of Eliza, singing of how she's going to deal with the emotional consequences, and of her resolve to respond. The orchestration is stripped down to solo piano. The focus of the entire production is on one person sitting on a bench with a lantern."

It is an intensely quiet moment, absolutely the only time the audience can hear ventilation, lighting fans or anything making a whisper of a sound in the house, "And it tickles me that we can do both," Steinberg says.

Part of managing the wide dynamic range is choosing gear that can handle the extremes. For example, "We have some extended low frequency in this show you don't generally hear on Broadway," Steinberg says. "We added low-frequency extension with these two Meyer Sound 1100-LFC subs, which are big for Broadway, and we heard new music (from keyboards and electronic track) that was inaudible downtown. We just didn't have room for these monsters Off Broadway."

The 250-pound powered subs, with two 18-inch drivers each and a 28Hz-100Hz range, sit vertically on the floor flanking the stage,

out of sight. Four Meyer Sound 600-HP subs sit in plain sight, however, mere inches from audience members, in both orchestra and balcony seating boxes.

Another challenge of bringing hip-hop to Broadway is that the singers are not using handheld mics—"the instrument of hip-hop," Steinberg says. And there wasn't any useful way to make RF lav mics sound more like handhelds, so they ultimately did not try. "We simply took a more traditional Broadway approach, to make the RF mics sound good," Crystal explains.

The leads wear a mix of head mics hidden in wigs (Hamilton) and customized booms for characters without hair (Burr, Washington). Burr's boom also allows classic hip-hop vocal echo effects to go live rather than through playback, thanks to the proximity of the mic.

However in cabinet debate scenes in the Washington administration, staged like hip-hop throwdowns, a wooden dueling-pistol case is brought out and in the show's only truly meta moment, Hamilton and Thomas Jefferson take out iconic Shure SM58 mics (actually Shure UR2s with Beta 58 heads). They go at each other gleefully, forcefully expressing their contrasting political and economic views in street-rhyming style. The mics were chosen for their classic hip-hop looks, as well as sound quality.

Ironically, the team added processing to make them sound even more like handhelds (used close for maximum proximity effect), "Squashing them with compression, increasing the low end," Crystal says, wryly.

Monitoring is basic, another change from hip-hop practice of wedge monitors running loud vocals. The cast "self-monitors for vocals, hearing the system reflecting from the house to stage," Crystal explains. "The only time they hear vocals in monitors is from the handhelds in the cabinet battles. This was a big adjustment for performers." Otherwise, the static monitor mix is band-only. There are 12 monitor speakers overhead onstage, eight in the wings and eight hidden on the stage lip.

Steinberg got full support for his sound design; the producers understood how crucial sound was to making hip-hop work on Broadway. "We were given the resources to do what we needed to do. The producers were behind us 100 percent, and at every turn I got choice 'A!,'" he notes with satisfaction. ■



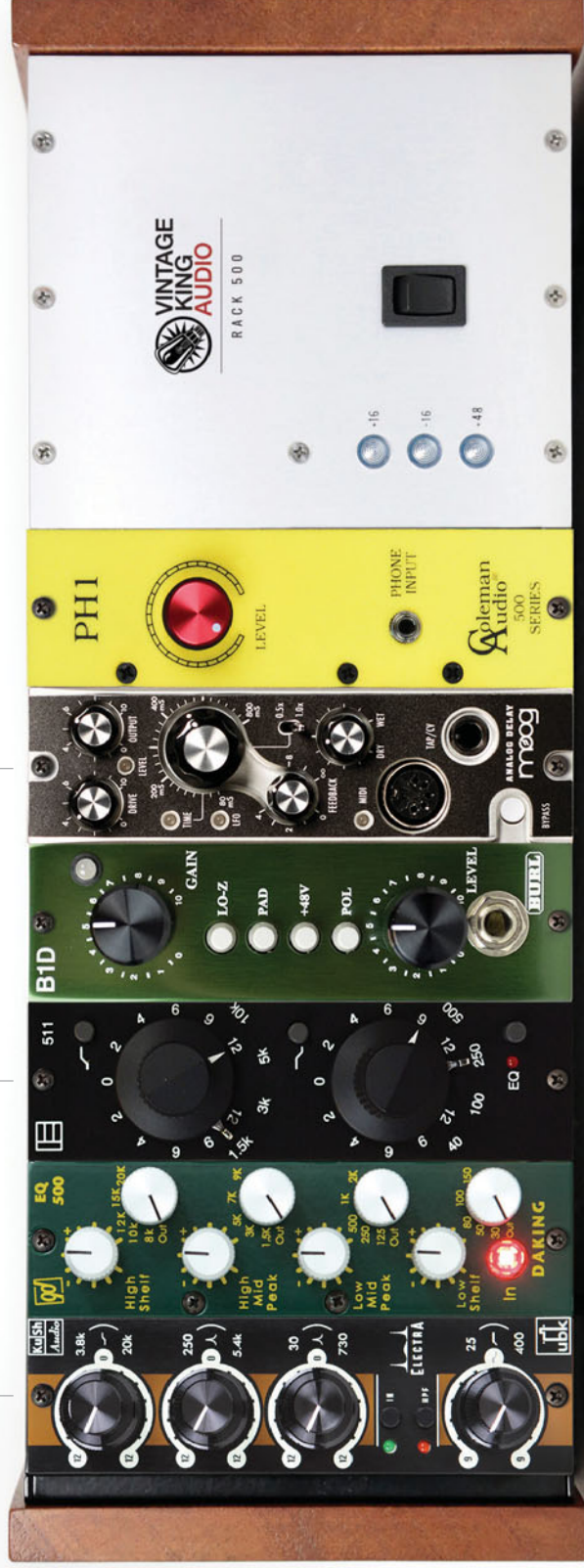
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# TWO TO GO: WORLD-CLASS DUAL-CHANNEL MIC PREAMPS

BY STROTHER BULLINS

Ah, freedom. Today, highly capable DAWs are easily stuffed into featherweight laptops and even tablets; as such, audio can be captured, processed and mixed virtually anywhere, and quite well at that. Other than perhaps the drum kit, most sound sources are most easily recorded with no more than two inputs, thus making a flexible, world-class 1U 2-channel microphone preamplifier a most desirable, useful purchase.

Grab any one of the following 15 preamps, your DAW, converter and/or I/O, headphones and a great pair of microphones: The audible world is yours for the taking, uncompromised.



## A-DESIGNS PACIFICA

The solid-state Pacifica was specifically designed to deliver the unique sound of the '70s-era Quad Eight console's preamp. It features custom Cinemag I/O transformers, the outputs being custom-wound and identically built as those found in the original Quad Eight desk. Other notable features include a very broad frequency range (9 Hz-101 kHz), 72 dB of gain and balanced XLR I/O plus hi-Z front-panel input, phantom power, -20dB pad and phase reverse per channel.



## AEA RPQ RIBBON

Makers of beloved, vintage-style ribbon microphones, AEA offers this preamp featuring its trademarked CurveShaper EQ and useful LF

proximity control, plus phantom power and phase reverse per channel. The RPQ's JFET circuit provides up to 80dB of gain, and its extended bandwidth is reportedly 1 Hz to greater than 200 kHz. Despite its ribbon mic-focused branding, owners of the RPQ report of its complementary nature when paired with moving coil, tube and solid-state mics, too.



## API A2D MIC PREAMP/A-D

The first API product to feature an integrated digital output—S/PDIF single-ended RCA connector and an AES digital out via XLR per channel—A2D is a great mobile recording package. Further, the A2D features a coaxial BMC accepting SuperClock, which reads as “EXT SYNC LED” on its front panel when locked. The A2D is made up of a pair of API 312 mic preamps and API 2510 and 2520 op amps with phantom power, phase reverse and input pad, 2:1 transformer routing, plus mic/line switches. Six sample rate choices and a slave-ready design (to be paired with other A2D units) rounds out the package.



## CRANE SONG FLAMINGO

Notably flexible in tonality, the Flamingo provides transparent preamps capable of “vintage-style” sounds or a range of new textures. Features include switchable phantom power and phase reversal settings, a two-choice impedance switch (the second of which is to best match large diaphragm condenser microphones as recommended by mic designer David Bock), adjustable gain ranging from 6 to 66 dB, and three unique, switchable settings named IRON, SOUND and TONE; IRON puts

iron in the path, SOUND changes the type of amp, and TONE—a three-position adjustment—allows standard Flamingo, transparent, and “colored” settings.



## EARTHWORKS 1022

Well-known as featuring Earthworks' famous “ZDT zero distortion preamplifier,” the 1022 provides a pair of David Blackmer-designed preamps featuring a 1 Hz-200 kHz frequency response, +/-0.5 dB—touted as clean as a “piece of wire with gain.” It provides very high output level (+30 dBu), phantom power, phase reverse and clip indicator plus separate XLR and quarter-inch TRS outputs per channel with gain control. Reportedly boasting the lowest noise of any preamp on the market, the 1022 is an ideal solution for stereo orchestral recording, among other such dynamic and detailed audio capture applications.



## FOCUSRITE ISA TWO

A result of collaboration between Sir George Martin and Rupert Neve to build new console modules for Air Montserrat Studios in 1985, the ISA Two provides a pair of ISA 110 mic preamps with the Neve-spec'ed Lundahl LL1538 input transformer; Focusrite also offers 4- and 8-channel versions of this ISA Series offering. Features include, per channel, front-panel hi-Z instrument input, variable input impedance (low, ISA 110, medium and high), phantom power, phase reverse, variable highpass filter, continuously variable trim, eight LED user-calibrated level meters and more.





### GREAT RIVER MP-2NV

Inspired by the legendary Neve 1073 yet with a reportedly overall “tightened” sound to be quite helpful in mixing as track count grows, Great River’s MP-2NV features dual preamps of a most flexible nature, featuring a 10 Hz-30 kHz frequency response, front-panel hi-Z input, per-channel phantom power, phase reverse, input impedance and output loading switches plus hi-Z input and output level adjustments per channel. Custom-wound Sowter transformers and quarter-inch, -10 dBV output (for “no latency DAW monitoring”) round out this package that so many engineers have grown to love.



### JOHN HARDY CO. TWIN SERVO 990

Why is John Hardy’s preamp regularly called the “world’s finest preamp”? For decades it has been utilized by our industry’s most respected golden-eared engineers, while many fledgling recordists may not even know of its existence—but it’s just that good. Its basic circuit is the Jensen JT-16-B mic input transformer, and each channel uses two 990C op-amp modules that are developed and patented by Jensen. As a result, the Twin Servo 990 is reportedly capable of one-tenth the distortion and twice the bandwidth of a single-stage design. Available with either a 20 ohm mic switch or 20 dB pad, the Twin Servo 990 features, per channel, the JT-11-BMQ output transformer, phantom power and phase reverse, 20-segment LED Vu meter and LED illuminated front-panel switches, and more.



### LACHAPPELL AUDIO 983S TUBE

For those needing super-portable tube pre-amplification, LaChapell packs loads of tube tone into 1U with the 983S, featuring dual 583S tube preamplifiers plus phantom power, phase reverse, front-panel hi-Z input with auto-switching lowpass and highpass filters, and more, per channel. The 983S is outfitted with two 12AX7/ECC83 tubes and provides a 10 Hz-50 kHz frequency response with a maximum output (1%, THD+N) of +26 dBu.



### LAVRY ENGINEERING 4496-18

Here, Dan Lavry offers a 2-channel, transformer-free preamplifier featuring 21 to 70 dB of gain in 1 dB steps, adjustable via an up/down switch and LCD digital readout. Used for stereo pairs, the 4496-18 provides a mic selection switch (condenser, dynamic or ribbon) for mic load optimization; the condenser setting automatically activates phantom power. Other features include a 10 dB pad, which provides 11-60 dB of gain.



### MANLEY LABS TNT “TUBES/NO TUBES”

Getting its moniker via a “tubes/no tubes” acronym, Manley Labs’ TNT is a truly unique dual-channel preamplifier. On the “T” side, Manley has included its vacuum tube from the now-legendary SLAM!; the “NT” side (labeled “Cool”) features a clean-yet-tweakable solid-state preamp. Features per channel include phantom power, phase reverse, highpass filters, front-panel hi-Z input, variable impedance (three settings on the “T” side and 10 on the “Cool” side), as well as “Color” and variable “Iron” settings on the “Cool” side. As such, there’s likely not another 1U, 2-channel preamp on the market offering this much versatility.



### MILLENNIA MEDIA HV-32P

Out of this 15-product collection, the HV-32P is likely the most “road ready” of the bunch. Built within a rigid, 2-pound DI box-style chassis (measuring 5.67 x 1.69 x 8.19 inches), the HV-32P provides Millennia Media’s pristine pre-amplification featuring continuously variable gain control, ribbon mic-ready +10 dB gain boost setting, phantom power, phase reverse, and -15 dB pad, per channel. The HV-32P also features 12 to 15V operation with a 100 to 240V line lump power supply.

### NEVE 1073DPD

Neve’s dual-channel 1073DPD combines desirable vintage flavor with modern 24-bit/192 kHz A/D technology while offering other no-



table features. The package includes Neve 1073 preamplifiers, world-class digital converters and a unique Neve DSD output to further increase flexibility. Phantom power, phase reverse, dedicated input gain and output trim controls are available, per channel. Format, sample rate and sync indicator lights are featured on the 1073DPD’s front panel, too.



### RUPERT NEVE DESIGNS PORTICO 5012 HALF-RACK

Even smaller than a typical 19-inch, 1U unit—housed in a half-rack chassis—the Rupert Neve Designs (RND) Portico 5012 is a dual-channel preamp featuring a “transformer-like amplifier,” or TLA, balanced but not floating amp with a toroidal Common Mode Rejection lowpass filter that excludes frequencies above 150 kHz. Per channel, the Portico 5012 provides +66 dB of gain in 6 dB increments with +/- 6 dB of trim, Rupert Neve Designs’ proprietary Silk setting “for nostalgic warmth” when engaged, phantom power, phase reverse, fully variable high-pass filter from 20-250 Hz, and more. A “To Buss” output is also offered, an unbalanced, high-impedance output intended for use with RND’s Portico Buss Amp/Monitoring modules.



### SLATE PRO AUDIO FOX

Providing 1073-style vintage tones to modern and vibrant hues, Slate Pro Audio’s Fox “Quad-Tone” 2-channel preamp provides a wide range of great-sounding settings gleaned “finished,” sculpted tracks. Per channel, the Fox offers two independent mic pre circuits, Vintage and Modern. In Combo mode, a Fox channel combines input and output sections of both circuits for unique, flavorful results. Usefully, the Fox manual provides the user with a “quick start guide” based on sound source and need—very helpful in initially learning the ways of the Fox. ■

*Strother Bullins is Technology Editor for New-Bay Media’s AV/Pro Audio Group, active musician, recordist and small-venue sound reinforcement wrangler.*

# MIX REGIONAL: FLORIDA

## SAE Miami Launches Masters of Sound Web Series



With Grammy nominations for instructors on the rise at SAE Institute's Miami campus, faculty decided to supplement their award nominations by launching a new Web-based video series titled Masters of Sound. This ongoing video series was to launch in January 2016 and continue throughout the year with monthly

installments as a way to showcase the achievements of the school's unique and diversely talented instructors, or "masters."

The Masters of Sound series launch features two Grammy award-winning instructors. The first is Frankie "El Medico" Rodriguez, an educator who graduated from SAE Miami in 2002 and currently acts as the campus' certified Ableton and Pro Tools instructor. While working for SAE for the past 12 years, Rodriguez has also built a name for himself within the Latin American music market. He has been involved in projects for notable Latin artists, including Daddy Yankee, Marc Anthony and Ricky Martin.

During his Masters of Sound series session, Rodriguez discusses earning his first Latin Grammy in 2007 for his work on Daddy Yankee's *El Cartel* album. He also talks about being nominated for four more Grammys since his original victory. His advice to students is to never stop learning: "I'm still learning new things everyday, if not new, then better ways of doing things." He goes on to explain that to truly succeed you must master not one but one hundred things.

The second Grammy award-winning instructor for the Masters of Sound series is Matt Desrameaux, one of the key engineers who worked on Pharrell's Grammy award-winning track "Happy," which debuted on the soundtrack for *Despicable Me 2*. During his interview, Desrameaux discusses his successes as well as the forgotten struggles of a sometimes hyper-glamorized industry. He reminds growing engineers to stay humble, because in this field it's not about who you know, it's about what you know. He says that his attention to detail and ability to get things done right is a key factor that has helped him reach success.

Desrameaux also discusses his previous Grammy nominations and a win that he received for his work on Stephen Marley's album, *The Book of Revelation*. Toward the end of his interview, Desrameaux says that he's currently working on projects in relation to the rebranding of '90s rap star Trina, and shares a few spoilers of what to expect from the artist in the near future. You can view the Masters of Sound series playlist on SAE Institute's YouTube channel.

## Producers Danja and Marcella Araica Open Dream Asylum Studio



Photos: Cheryl Fleming Photography [www.cherylfleming.net](http://www.cherylfleming.net)

Two hit producers on the contemporary music scene, Nate "Danja" Hills and partner Marcella Araica, have added a cutting-edge, Walters-Storyk Design Group-WSDG recording studio to their N.A.R.S. (New Age Rock Stars) label. Danja and Araica are recognized for their work with artists ranging from Britney Spears and Madonna to Justin Timberlake, Mary J. Blige and Jay-Z.

Dream Asylum's 600-square-foot Live Room/iso booth is linked to two primary control rooms via below-floor wiring channels to provide flawless connectivity throughout the

complex. The 360-square-foot Control A features custom-designed wooden wall-mounted equipment cabinets, which bookend an oversize client couch set on a raised platform beneath a dropped ceiling. A custom-designed rear-wall wooden resonator and a geometrical ceiling cloud distinguish the 269-square-foot Control B. Both control rooms are outfitted with identical SSL 9000 consoles and WSDG/Augsburger Monitor Systems. Thanks to room-within-room isolation, Dream Asylum enables Danja and Araica to record live sessions via either control room, while a second engineer/producer simultaneously mixes another project. Distinguished by an oversize "fan"-inspired ceiling cloud, a 192-square-foot mixing/writing room has been created for guest artists.

WSDG Project Manager Romina Larregina says, "We worked closely with Marcella to find the most appropriate site for the studio, and formal design work on Dream Asylum Studio began in 2011. She is extremely savvy about design and acoustical issues, and having knowledgeable clients who can articulate their design and technical goals is always a plus."

Carved out of a nearly 4,000-square-foot former warehouse in Hallandale Beach in south Florida, the Dream Asylum complex includes a lounge/screening room and a solarium, as well as two oversize in-wall tropical fish tanks.

"Danja and I have worked in many great studios, from Electric Lady to Jay-Z's Roc the Mic," Araica says. "I started out as an intern at The Hit Factory, and their Studio E Live Room was one of the best-sounding rooms ever. John Storyk's design and acoustical skills contributed to the success of all those rooms. When we decided to build our own studio, we were committed to going with the best. I called John to bring WSDG on board. They worked with us on every level, and we love what they've done for Dream Asylum. It was a great collaboration."

In other Dream Asylum news, the following projects were all produced by Hills, engineered by Chad Jolley, and mixed by Araica: Chris Brown's "Discover," Monica's "Deep," Jason Derulo's "X2CU," Meek Mill's "Stand Up," Kenna's "Sleep When We Die," and Luke James's self-titled album on N.A.R.S./Island Records.



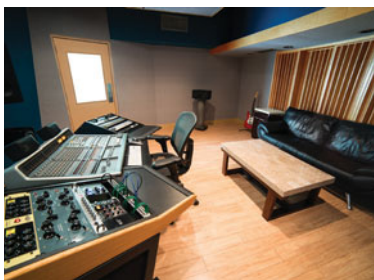
## Vanquish Studios Launches Record Label



Vanquish has recently opened a record label, Vanquish Records, representing musical acts from all over the world, along with countless producers, engineers and musicians. Studio owner Joseph Salamida says the label is also focusing on providing CD artwork and photography, which is run by his wife, Caitlin Salamida. "We are really striving to be a full package deal, doing our best to be a turnkey solution for our clients' needs," Joseph says. "In an industry that's turned upside down right now, our clients feel safe and sound knowing they're coming to Vanquish."

The new label is releasing a major project this year for its artist Jina McCool. "This record really stretched us," Joseph says. "Our lead producer, Chris Hardy, had to really dive into the mindset of the overall focused goal. Jina lost her husband seven years ago to cancer and has been writing and preparing for the album ever since. With her two kids by her side the whole way, we had to immerse ourselves into songs about loss, recovery, tragedy and ultimately triumph. We know this project will really help and bring closure for those who need to hear it."

## Clear Track Recording Studios Builds New Mastering Room



Clearwater-based Clear Track Studios recently opened a new state-of-the-art option for mixing and mastering: Studio M. Inspired by its own Studio A's Wes Lachot design,

owner/chief engineer of Clear Track Studios, Mike Johnson, created Studio M to provide a no-compromise approach in accurately shaping and finalizing artists' sound. Construction for the 425-square-foot studio took approximately a year and a half to complete.

Studio M features a customized digital audio workstation with an SSL Matrix console, Dynaudio mains, compressors and EQs. There is currently one iso booth under construction.

## SESSIONS: FLORIDA



(L to R) Terry Clark, drummer for Neil Alday and Further South; Jerry Gaskins, chief production engineer; and Neil Alday of Further South.

**GASOLINE ALLEY RECORDING STUDIO, TALLAHASSEE**  
Southern/country rockers Neil Alday and Further South just wrapped up tracking the first two songs for their upcoming CD. John Kurzweg (Creed, Puddle of Mudd) produced the project, with house chief production engineer Jerry Gaskins assisting...Gaskins has been busy with Southern Blues Rock artist Heather Gillis Band, recording and mixing their first EP...Singer/songwriter David Lareau and the Copperpots have been recording and sorting song selections for an upcoming CD.



(L to R) Trunoyz staff in the studio's A-Room: mastering engineer Andrei Fossari, producer/engineer Eddie Perez and engineer Tim Sperty.

**TRUNOYZ RECORDING STUDIOS, FORT LAUDERDALE**  
Maná worked on "Mi Verdad (Bachata Remix)" (feat. Shakira) and "La Prision (Bachata Remix)," with producer Steven Cruz of La Republika and engineer Eddie Perez. The project was mastered by Andrei Fossari... Mark Teslasca worked on the album *Heavy Breathing*, with Perez and Teslasca producing. It was recorded by Perez and Tim Sperty, mixed by Perez, and mastered by Fossari...Pablo Alboran worked on "Recuérdame (Bachata Remix)," with Cruz producing, Perez recording/mixing, and Fossari mastering.



Timbaland and Scott Van Pelt

### THE HIT FACTORY CRITERIA, MIAMI

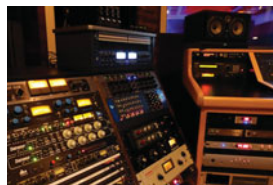
ESPN host Scott Van Pelt joined video producer Sharon Matthews and hitmaker Timbaland in the studio as they put the finishing touches on an alternate version of the iconic Sports Center Theme. Dave Poler engineered, with assistance from Femio Hernandez...iHeart Radio recently completed mixing 2015's *Fiesta Latina Broadcast* with producer Liz Kelly and Emmy/Grammy-winning engineer Eric Schilling. The performances included such notables as Jennifer Lopez, Pitbull, and Prince Royce.



Bobby Ingram of Molly Hatchet and producer/engineer Luke Beaulac

### EVERMORE SOUND, ORLANDO

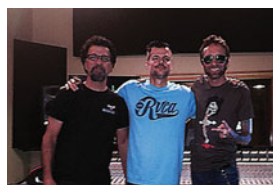
All of the following projects were produced and engineered by Luke Beaulac in the Neve Room at Evermore Sound: Molly Hatchet was in the studio working on material for the new album set to come out this year...Fusion band Ari and the Alibis completed their debut album *Dirty Little Secret*...The Marty Ryan Group is in the final stages of completing their album...Pop/punk band Somewhat Sovereign completed their debut album.



Mystic continue to track their new CD, with Tracy engineering and Victor Ballo producing.

### MIX FACTORY STUDIOS, BONITA SPRINGS

Blues artist Brittany Russell was in the studio with engineer Doug Tracy and producer Chris Blood tracking for her upcoming album release...Vocalist Lizzy Hill worked with in-house musicians Chris Blood and Steve Friedman on her solo release "Jessie," with Tracy engineering, Blood mixing/overdubbing, and Kingsley Gardner producing...Modern



Tony Rombola, Chad Zuchegno and Shannon Larkin

### THE VIBE RECORDING, FORT MYERS

The band Blue Cross (Shannon Larkin [Godsmack], Tony Rombola [Godsmack], Rafer John and Brian Carpenter) worked on the song "Devil in Me," which was recorded and mixed by Chad Zuchegno...The song "Queen of Hearts," composed by Lucius Craig Cervantes and recorded by the London Symphony Orchestra at Abbey Road, was mastered by Tony Catania and Zuchegno.

# ERIK RUTAN'S MANA RECORDING STUDIOS

BY LORI KENNEDY



Erik Rutan in Mana Recording Studios

Situated in “The Sunshine City” of St. Petersburg on Florida’s gulf coast, Mana Recording Studios is surrounded by bright skies, blue water and palm trees. But on the inside, guitarist/producer/singer/songwriter/studio owner Erik Rutan is immersed in crushing, raw, intense tracks for death/thrash-metal bands such as Cannibal Corpse and Goatwhore and also indie-rock legends The Mountain Goats, as well as hardcore/punk legends Madball and Agnostic Front. The view outside serves as an excellent foil to the imperfections happening inside, which suits Rutan just fine. In fact, he embraces it, as his studio philosophy is “performance over perfection.”

“In this day and age, there’s a perceived notion that perfection is the norm, with the overuse of technology—in my opinion—such as auto-tuning and quantization,” Rutan says. “I believe the essence of a quality album is capturing that moment in time and the magic behind it, utilizing the magic from the artists with as little ‘studio magic’ as possible. I try to preserve the performances as much as possible, with as little use as possible of all the editing capabilities. All the little subtleties and humanistic inconsistencies are what gives albums character, and if I need to use any studio magic, I am creative in my own ways to allow the original performances to shine.”

Rutan played for Ripping Corpse and Morbid Angel before forming his own band, Hate Eternal, for which he sings lead vocals and plays lead guitar. Wanting a creative space of his own, Rutan opened Mana in 1999, originally in a 700-square-foot storage facility. In 2003-04, he had a studio in an old house in Tampa. Then in 2005, Rutan opened the current iteration of Mana, which was built in 2004 by his former partner Geno O’ Dor. The studio complex is about 2,000 square feet, located inside a 20,000-square-foot warehouse.

“We have an A room and a B room. The A room is where all the recording magic happens,” Rutan says. “Our live/drum room is 20 by 25 feet with 14-foot ceilings. In addition to our bigger live room, we have a small iso room where I do guitars, vocals, etc.; and we have a nicely sized control room.”

The B room, which used to be a smaller recording area across the hallway with a control room and one iso room, is now occupied by Granville Guitars,

which builds and repairs guitars and amps, as well as makes guitar pedals. “I think we may be one of the only studios I know locally that has a guitar luthier/amp repairman on-site,” Rutan says.

At the heart of Mana is a 56-channel Amek Mozart console that Rutan has been using for almost 10 years. “I use a Pro Tools HD3 Accel rig for my DAW, and also, from time to time, I use my Otari MTR 90 II 24-track analog machine when I am fortunate enough to do so,” Rutan says. He uses a Neumann U87 as his main vocal mic, KM 184s and AKG 451s for cymbals and acoustic guitar, Sennheiser 421s for toms and guitars, plus “the usual microphones like SM 57s, RE20s, etc. I really like to use my Royer R-121s for guitars and other applications as well. As far as mic pre’s, I use my Vintech x73—1073 design—pretty religiously for guitars, along with a Great River MP2NV. I own an x81 and a 473, all from the Vintech line.” Rutan says he also likes Focusrite mic pres.

When it comes to dynamic processors, Rutan prefers his Distressor and his pair of original dbx 160 VUs. For his mix bus compression, he uses an Alan Smart C-1 compressor. “I do not mix in the box,” he says. “I love the summing of the analog console and tend to use as many channels as needed. I do my automation in Pro Tools, as well as editing and whatnot, so I utilize both in conjunction during mixdown. I have tons of amps, cabs and a great Pearl Reference drum kit, as well.” Some of his favorite amps include Marshall JCM 800 and JMP, Fender Twin Reverb, Engl Powerball and his 1971 Ampeg SVT.

Rutan prefers the production style of older albums, but uses a more modern approach to get that sound. “I love the workflow and characteristics of Pro Tools, but I still tend to approach recording to it as if I were recording to tape,” he says. “I use Pro Tools, I do not abuse Pro Tools, if that makes sense. I always want my albums to sound like the band on their best day. I do love to use Pro Tools for all the automation and editing capabilities as well as other things, of course, but I really, truly believe in trying to maintain and preserve the integrity of the performances at that moment in time.”

Recently, Rutan finished work on Hate Eternal’s latest release, *Infernus*, as well as Black Fast’s *Terms of Surrender* and Krisiun’s *Forged in Fury*, which was one of the first bands he ever produced back in 1999. He also recorded and mixed a Warfather album with his old bandmate from Morbid Angel, Steve Tucker; mixed a prog-rock project; is tracking his own vocals for another project; and will be mixing a band from Australia called Earth Rot soon. Rutan is excited about all of his recent and upcoming projects at Mana. His enthusiasm translates into a lot of hard work and pushing his clients to do their best. Some of his clients lovingly refer to him as “Drill Sergeant.”

“I believe we all need to be pushed to achieve our greatest moments, whether internally or by an outside source,” he says. “I think most people don’t even realize their own potential, and when pushed in a positive and reassuring and reaffirming fashion, you can capture absolute brilliance. I work musicians very hard in the studio to help them achieve that greatness. I feel I’m very good at seeing one’s potential and pulling the best out of them, knowing when to push and when to hold back.” ■





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ELOP comp, tube & custom xformer pre, Baxandall EQ, FET limiter, handmade in USA: classic Manley at a breakthrough price



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Ultra-high fidelity 8-channel 192kHz interface with 8 killer pres, award-winning clock, and a host of great features



#### GEFELL UMT 70 S - VK EDITION

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# Tech // new products



## STUDIO TECHNOLOGIES 46A & 47A INTERFACES

### Lighter, Smaller and More Able I/O

The improved 46A and 47A interfaces from Studio Technologies offer improved circuitry and software in a more compact and lightweight package. The Model 46A provides two 2-channel partly-line interfaces allowing direct connection of user belt packs and related devices. The Model 46A's 4-wire inputs and outputs are directly compatible with the matrix intercom systems that are standard in live-event broadcast and production facilities. The Model 47A also provides dual 2- to 4-wire analog audio interfaces but with the addition of power and audio on both channels of both partly-line interfaces—a total of four powered PL channels. The unit is ideal for mobile and fixed television facilities that utilize a Source Assignment Panel (SAP) for PL channel routing and configuration. Both products support other specialized audio system-interfacing applications and provide two independent, full-featured 2-channel interfaces.



## PRESONUS DIGIMAX DP88 PREAMP CONVERTER

### MIDI Controllable Gain and More

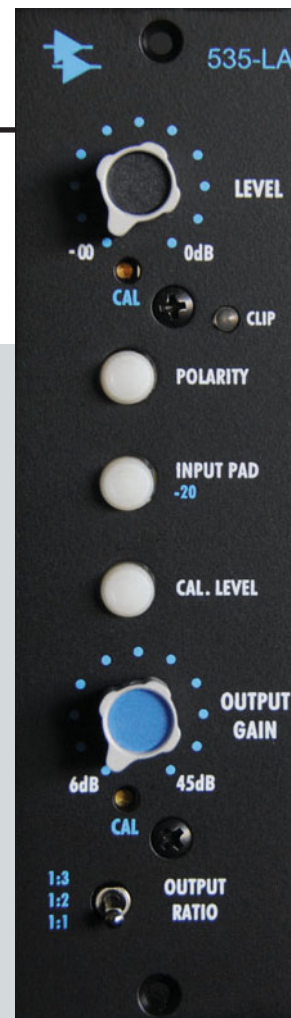
The PreSonus DigiMax DP88 8-channel microphone preamplifier and A/D/A converter (\$699) offers eight mic preamps with advanced remote control features. Other features include integration with the new Studio 192 audio interface and compatibility with third-party, ADAT Optical-equipped audio interfaces. The unit offers eight XMAX Class-A preamps and Burr-Brown A/D/A converters with 118 dB of dynamic range. The DP88 uses simple MIDI CC messages to control Level, Phantom Power and direct ADC input. MIDI Channel 1 controls Preamp 1, MIDI Channel 2 controls Preamp 2, and so on, making MIDI management easy and intuitive. Eight balanced direct outputs are provided on a DB25, as are eight balanced DAC outputs that expand your interface outputs for monitor mixes or speaker switching.



## BAE 10DCF COMPRESSOR

### Updated HPF Option

The 10DCF from BAE builds on the capabilities of BAE Audio's 10DC compressor/limiter. Features include Carnhill and Jensen transformers, all discrete circuitry and a new, inductor-based bypass filter. The HPF can be set at 50Hz, 80Hz, 160Hz and 300 Hz and is used for isolating lower frequencies from the compressor. Units can be stereo-linked. Other features include Elma stepped switches for each control, Marconi knobs, and a gas tank-style analog meter. Prices are \$1,900 for a single (no power supply), \$2,100 (with power supply), and \$4,000 for a pair with power supply.



## API 535 LA LINE AMPLIFIER

### Clean Level Control

The newest addition to the 500 Series collection, the 535 LA (\$595) is modeled after API's console-based 325 booster cards. The 535 is useful anywhere signal levels need adjusting, such as inputs from keyboards, audio playback devices, or from mic preamps or audio processing devices that do not have their own level control. Features include a balanced input, polarity switch, -20dB pad, and a three-position toggle switch allowing for different output gain levels from the transformer. Output gain range is from 6dB to 45dB. The 535 LA features API's original five-year warranty.





## SAMPLE MAGIC REFERENCING PLUG-IN

### Updated A/B Switcher

Sample Magic has updated its instant referencing AB plug-in (\$66.69), which allows users to switch between a DAW audio stream and up to nine reference tracks instantly. Upgrades include an entirely rebuilt one-click referencing engine that loads all modern and professional audio file formats; new Latch, Sync, and Manual playback modes; multiple cue and loop points per track; mono-stereo monitoring; and high-resolution output meters coupled with peak, RMS and crest monitoring scales. Other features include a redesigned Mini-AB with more options and smaller footprint, and dozens of user-flow tweaks, including RAM-saving deactivate tracks mode; drag-and-drop files; more accurate zoom; and an all-new preset system.



## SONNOX OXFORD ENVOLUTION

### Frequency-Dependent Envelope Shaping

Sonnox has released Oxford Envolution, a frequency-dependent envelope-shaping plug-in featuring comprehensive and independent control of transients and sustain, with Tilt or Focus controls to choose where in the frequency spectrum the effect is applied. Transients can be boosted to add presence and punch, or reduced to create perspective, while the sustain section can make the ambience around a recording bloom, or can be cut back for quick and precise gating. Envolution is available in Native format—AAX Native, Audio Units, and VST (\$270) and AAX DSP format (\$435).



## MINNETONKA SURCODE DECODER

### Dolby Digital Plus for Pro Tools

Minnetonka Audio's SurCode for Dolby Digital Plus Decoder and Encoder (\$595) is now available for Avid AAX-supported products, including Pro Tools and Media Composer. SurCode for Dolby Digital Plus Encoder allows users to create fully compliant Dolby Digital Plus E-AC-3 files from multichannel WAV or AIFF sources. When working with legacy content, SurCode for Dolby Digital Plus also provides encoding and decoding of Dolby Digital AC-3 files. SurCode for Dolby Digital Plus is also able to upmix from 5.1 to 6.1 and 7.1 formats. Cross-platform plug-ins and native versions of the software support both Mac and PC.

## SORIGIO WOODEN MINI BOOTH

### Portable and Stylish Mic Isolation

The Wooden Mini Booth (\$199) from Sorigio is designed to mount to a mic stand and provide isolation for any microphone. The unit is made from curved Birch, lined with polyurethane foam. A specially designed bracket holds it all in place and includes a headphone hanger at the bottom of the bracket.



# New Sound Reinforcement Products



## K-ARRAY KU26 SUBWOOFER AND KU44 BASS ELEMENT

### Standalone or Arrayable Boomers

The KU26 compact subwoofer is designed as a companion to the company's Lizard, Vyper and Tornado loudspeakers. It operates in a stated frequency range of 45 Hz to 300 Hz and is electronically protected. The KU26 incorporates a 6-inch neodymium transducer and a 6-inch passive radiator that's engineered for maximum linear excursion and minimum residual noise.

The KU44, an arrayable bass element, complements mid-high models with the company's proprietary Slim Array Technology to provide a full-range frequency response from a very low profile. Stated frequency range is 50 Hz to 150 Hz. The KU44 incorporates dual 4-inch neodymium transducers joined by dual 4-inch passive radiators.



## LAWO SAPPHIRE MIXING DESK

### Small and Easy Operation for Live Broadcast

Lawo's new Sapphire Compact mixing desk is a small mixing surface with either eight or 12 motorized faders. Equipped with VisTool 5.0 software for extended visualization and

control, Sapphire Control is intended for radio programming such as interactive news and call-in shows. The console sports a number of new features. Autogain is designed for multiple-mic talk shows and news programs, and can adaptively optimize the dynamic range of all active microphone preamps to provide an even mix of voices. Automix is an exclusive DSP algorithm that allows presenters to create radio shows virtually hands-free. Sapphire Compact also has a unique layering capability that enables the console to manage a live broadcast while, at the same time, performing alternate tasks such as voice tracking, phone-call editing, and light production. Prices start at \$15,000.



## D&B AUDIOTECHNIK 10D AND 30D AMPLIFIERS

### Permanent Install Loudspeaker Power

The d&b 10D and 30D installation amplifiers are designed to drive d&b loudspeakers and

fit directly into the d&b workflow. The 10D is intended to drive smaller d&b systems while the 30D amplifier contains configurations for all d&b loudspeakers. The new amplifiers are built on a new-generation d&b Digital Signal Processing platform and are tailored for installations. Each amplifier offers two 16-band equalizers with parametric, notch, shelving and asymmetric filters, as well as up to 10 seconds of delay for each of the four channels. Accessed either through Ethernet, via the Open Control Architecture protocols, or using CAN-Bus, they are controlled using the R1 Remote control software or the web remote interface.



## LECTROSONICS FB-VHF AND IFBT4-VHF

### Transmitter/Receiver for Broadcast and Stage

Lectrosonics has introduced the IFB-VHF wireless system, including the IFBT4-VHF frequency-agile compact transmitter and IFBR1a-VHF receiver. The system is designed to operate in the less-trafficked VHF broadcast band, offering 239 frequencies between 174 to 216 MHz. The IFBT4-VHF IFB transmitter is designed for use

in broadcast, motion picture, theater and stage applications where extended operating range and high-quality audio are essential. The IFBR1a-VHF receiver offers simplicity and flexibility in its operation, in a package that is intuitive for both experienced professionals and new users to operate. Prices are: IFBT4-VHF transmitter (\$1,369); IFBR1a-VHF receiver (\$865).



Continued from p. 39

aluminum ribbon's high-frequency detail while being able to record high-SPL sources with the same high output as a condenser mic.

For field recording and other mobile recording situations, the **Zoom H6 Handy Recorder** (\$499) 6-in/2-out recorder and USB audio interface strikes the right balance between professional quality and features with price. It includes XY and mid-side mic attachments, and we'll add the **SGH-6 Shotgun Mic Capsule** (\$129) for targeted distant sound pickup in the field.

Every in-the-box studio should have massive storage, so we'll grace this one with the **G-Technology G-Raid 12TB** (\$999) Thunderbolt/USB 3 hard drive. This has two discrete, removable 6TB disks with a variety of configurations to emphasize either speed or data security. With USB 3 and two Thunderbolt connections, it can drop into any studio and let you daisy-chain Thunderbolt devices.

Mics & recording sub-total: \$6,930

## ANALOG HARDWARE

We shudder to think of completely abandoning the magic touch of analog signal paths in a studio, so a couple of key pieces will allow us to inject some natural warmth into any track. Let's begin with Korg's reissue of a more compact **ARP Odyssey** (\$1,400). This duophonic reimagining of a classic analog synthesizer has USB, MIDI I/O and CV, Gate and Trig I/O connections, as well as a crucial audio input for routing sounds through the redesigned tri-filter section.



Daking 500RS Recording System

For a real, 2-channel analog powerhouse packed into an API Lunchbox, the **Daking 500RS Recording System** (\$5,470) gives you a big analog console-style 2-channel recording chain with two Mic Pre 500 preamps, two Comp 500 compressors and two EQ 500 4-band equalizers with sweepable mids. Use it at your studio, a colleague's or take it to a gig.

Analog hardware sub-total: \$6,870

## SYNTHS, PROCESSORS AND SOUNDWARE

If you're starting from scratch and want access to an enormous selection of professional-grade, production-ready sounds for composition, a subscription to **EastWest ComposerCloud Plus** (\$699/year) will suss you out immediately with 51 EastWest titles and more than 1TB of sounds. The collection skews heavily toward orchestra instruments and percussion, symphonic choirs and the like, but also includes massive drum collections, ethnic instruments, sound-design tools and wide-ranging instruments for different rock and electronic styles. The "Plus" sub-



Zoom H6 Handy Recorder

scription goes above and beyond the norm with extra instrument effects and the Diamond and Platinum editions of the composer libraries, which offer thousands of additional instruments utilizing selectable mic positions. This plan also includes a hard drive for storing all of the sounds and guarantees first access to new EastWest titles as they come out.

Let's complement ComposerCloud with some of the baddest contemporary soft synths. **Spectrasonics Omnisphere 2** (\$499) rules the roost as one of the most diverse synths in the world. This second version blew the doors off another world of synthesis options, adding wavetable and granular synthesis, more than 400 new DSP waveforms, audio file import, new filters and effects, and more. Don't forget the free iPad remote app, as well.

Two more synths will ensure you're working with some of the most common tools in electronic music—which basically encompasses, pop, hip-hop and R&B, as well. **Xfer Serum** (\$189) delivers stunning wavetable synthesis with excellent graphic editing and ability to easily import or create wavetables. And **Lennar Digital Sylenth** (\$160) became a ubiquitous virtual analog plug-in for its excellent sound and an extremely powerful, yet accessible interface and fast, flexible patch-creation.



Spectrasonics Omnisphere 2

Pro Tools and McDSP plug-ins go together like whiskey and a good buzz. And because this is the year we learn to stop worrying and love the low upfront cost of an all-you-can-eat software subscription model, we're going with the **McDSP All-Access Native Subscription** (\$295/year or \$29/month), all 20 of the company's v6 dynamics, equalization, multiband mastering and special effects, including the acclaimed new FutzBox distortion/noise effect and SA-2 Dialog Processor. McDSP will throw all of its new products into the subscription package as they emerge.

We still need some guitar effects, so we'll head to the trusted name of **Softube** and pick up both the **Amp Room Bundle** (\$329) and **Effect Bundle** (\$219). The former stacks all of Softube's great amp simulators in one place: Vintage Amp Room, Metal Amp Room and Bass Amp Room. The Effect Bundle injects unique character with a Spring Reverb, Tube Delay and Acoustic Feedback for simulated amp feedback on any sound.

Post-production duties will fall largely to **iZotope's RX Post-Production Suite** (\$1,499), a square deal for the amazing and comprehensive RX 5 Advanced Audio Editor, RX Final Mix, RX Loudness Control and the Insight metering plug-in.

Synths, Processors and Soundware sub-total: \$3,889

After all that, we're still a little bit under budget, so the extra cash can go toward another year of software subscriptions and filling up that enviable iPad Pro with the greatest music apps you can find.

**GRAND TOTAL: \$33,530**

# Tech // reviews

## STUDIO MICROPHONE STALWARTS

Versatile Models from AEA, Royer and Lauten Audio

It may seem like an odd pairing, reviewing two ribbons and a condenser, but the mics grouped here have more in common than one might think. The Royer R-122 MKII is a rethink of the company's active R-122, adding a pad and roll off. The AEA N22 is another active ribbon that is voiced in a way that gives it a condenser-like personality. Both mics have hot output so it takes away the need for the extra juice you need to gain up a passive ribbon. The Lauten Audio Eden LT-386 is a tube condenser mic with Lauten's proprietary multi-voicing technology first unveiled with the FC-387. Each mic stands on its own as a stand-up choice for a range of applications around a drum kit, guitar amp and more.

### LAUTEN EDEN LT-386

The LT-386 is a portly tube mic that ships in an impressive black metal case containing the mic fixed in a sturdy shock-mount, a power supply and 5-pin cable. The mic features a 1.23-inch dual diaphragm custom wound transformer and an EF806s vacuum tube. Controls include switches for changing the mic from Omni to Cardioid, and Figure-8 patterns, and a two-stage highpass filter that Lauten calls the Kick- and Vocal-shaper. A third, three-position switch marked F (forward), N (neutral), and G (gentle) controls the multi-voicing option—three discrete signal paths, each with a distinct personality.

As you can see in the tests we ran using our Stanford Research SR-1 audio analyzer, the voicing is most different above 2 kHz and below 20 Hz. Other tests revealed a broader low-frequency boost from 50 to 100 Hz in figure-8 pattern as compared to Omni, which because of an absence of proximity is about 6 to 8 dB lower at the bottom end of the spectrum. The point is that there are a lot of ways to voice the mic without EQ, using the pattern and F/G/N switches.

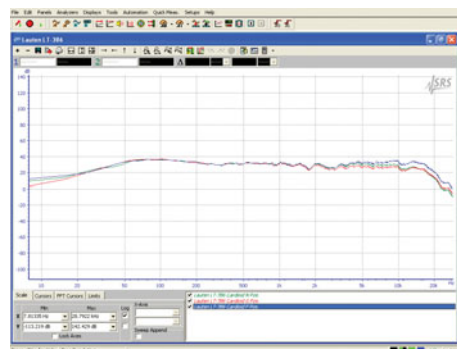
I used the mic on a male vocal in the F position to see how forward, "forward" was. However, upon clicking out the mic, I discovered it to be out of polarity. After changing mic cables, preamps and patch cables, it was determined that something in the mic itself was



Lauten Eden LT-386

### PRODUCT SUMMARY

**COMPANY:** Lauten Audio  
**PRODUCT:** Eden LT-386  
**WEBSITE:** [www.lautenaudio.com](http://www.lautenaudio.com)  
**PRICE:** \$2,499  
**PROS:** Versatile features. Excellent off-axis rejection in cardioid pattern.  
**CONS:** Review mics were both wired out of polarity. No pad.



The Eden exhibited varying changes above 2k depending on the F/G/N switch setting.

awry. I had two for the review, so I put up the second mic with the same results. After bringing this to Lauten's attention, they discovered that some of their supplies in this production run had been wired out of polarity at the factory. This is by no means a deal breaker, but if you purchase a mic with this problem, contact Lauten and the company will send you a replacement the following day.

For this male vocalist, I found that F was too bright for my taste, and even N was more forward than I like in a vocal mic. An overly bright mic tends to bring out sibilance that can be difficult to deal with later on when the track is more compressed, and perhaps EQ'd to fit better in the track. For this vocalist on this day, G worked best. The mic had a very hot output, which is a good thing. It means you're not adding a lot of gain, and noise at the preamp stage when setting the perfect level for your DAW.

Next I used the mic around a drum kit on various sessions. For every application around a kit or loud percussion, the mic called



# Your search for a new microphone ends here.



## COLES 4038

One of the most revered and widely used ribbon mics of all time...



## MOJAVE MA-300

Multi-pattern tube LDC promising warm, full-bodied sound reproduction



## AEA N8

Phantom-powered ribbon mic featuring AEA's signature Big Ribbon technology



## PEARLMAN TM-250

Classic design & masterful hand-built quality; a sound to behold



## TELEFUNKEN M82

A fresh new take on the kick drum mic, suitable for a multitude of sources



for an external pad. If I could add one feature here, it would be an integral pad because the output is very hot. When used as an outside kick mic in cardioid mode, once again the G setting was perfect. It offered plenty of low end without boom and complemented the AKG D 112 placed inside the drum. Off-axis rejection in the cardioid pattern was excellent. Another notable application was on toms. Once again cardioid pattern in Gentle mode was just perfect for this kit, and the solid rejection at the back kept the cymbals out of my tom tracks.

I used the mic on various hand percussion instruments. Brightening up the top was easy with the F switch, but for most applications I liked how the mic sounded when it was in Gentle mode. To my ears, this sounded most natural and gave me just what I was looking for. The fit and finish of the Eden LT-386 is very well done. This mic is large and heavy, but the supplied mount is up to the task. At \$2,499, this mic is at the top of many budgets, but if you're looking for a versatile tube mic that has a range of sounds, this might be your baby.

#### ROYER R-122 MKII

Royer invented the active ribbon category, and the R-122 MKII is a new look at one of their best. The MKII has that Royer presence in the midrange and low range, plus the addition of a 15dB pad and 90Hz roll-off switch. As you'd expect from Royer, and a mic in this price range, the build is nearly military. It uses a 2.5-micron, 99.9-percent pure aluminum ribbon and a balanced, discrete amplifier using very low-noise FETs. Just like the rest of Royer's mics, the response is a bit brighter if you turn the mic around, using the normally off-axis side as the front. Of course, this means you must flip the polarity, but that's all you need to do if taking advantage of this positional personality trait.



Royer R-122 MKII

#### PRODUCT SUMMARY

**COMPANY:** Royer Labs

**PRODUCT:** R-122 MKII

**WEBSITE:** [www.royerlabs.com](http://www.royerlabs.com)

**PRICE:** \$1,850

**PROS:** Quality pad allows for playing with a preamp's gain personality.

**CONS:** Price may be out of reach for some.

I like Royer R-121s as drum overheads, and the R-122 MKII did an exemplary job in this application. A good ribbon will render cymbals naturally and even, for when you have to brighten them to compensate for the mic's natural roll off at the top end. Although I had the switch available, I didn't need it as the mic handled the level very well. The sound of the kit was well represented with excellent tom and snare hits, and the cymbals sounded, well, like cymbals—not overly brash or strident.

On a loud combo amp on a rock track, the pad came in very handy. It gave me the headroom I needed within the mic and sounded great. Again, on a trumpet, placed about 2 feet away from the player, the R-122 MKII was in its element. No EQ was needed, as the trumpet sounded natural alongside the trombone player, who was in the same room and miked with a Neumann U67. Both mics were gained using classic Neve 1073 preamps. The side rejection of the Royer was a benefit in keeping the bone out of the trumpet track, as most ribbons are more directional than cardioid mics, with high isolation at the sides due to the figure-8 pattern.

I never did find an application where I needed the low-end roll-off, but it was nice to know it was there. Often with a ribbon I'll have to resort to an inexpensive in-line pad or roll-off of questionable

quality. It was reassuring to know if I needed the help; it was going to sound great no matter where I set the switches.

I did use the pad on the MKII to experiment with the gain on the preamp. When using an API or SSL preamp, the sweet spot can be higher than you'd use with an active ribbon mic. In cases like these, I could switch on the pad, gas up my preamp, and still have plenty of headroom left. This also meant I wasn't into the noisy range of the gain stage as I would be with a passive

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ribbon. It's a subtle thing, and certainly a boutique feature, but that's what sometimes makes a good recording great. All in all, the Royer R-122 MKII was as I would expect: a great-sounding ribbon built to the Nines in true Royer fashion, this time with a couple of great extras.

### AEA N22

AEA has not been known for mics costing below \$1,000; in fact, the company's rock star A440 is priced above \$5k. But with its new active N22 NUVO, AEA quality design and performance has trickled down below \$900. The N22 features 141 dB of signal handling across its 2.35-inch Big Ribbon. It features a robust integral windscreen that protects the element and gives you peace of mind in near-blustery applications. There are no bells and whistles here, just a solid, active ribbon mic with plenty of output gain in a slim design that's easy to place. It comes in a plastic, foam-lined case with the simple stand mount and mic inside.

As mentioned above, ribbon mics sound great on cymbals and percussion and the N22 did as well. In this case, the mics were placed equidistant from the snare drum, measured with a mic cable. This technique phase aligns and pockets the snare in the stereo picture. Because of the extended top, little EQ was needed. In our bench test, the mic proved fairly flat from 50 Hz to 10 kHz, which is not what you're used to hearing in a ribbon. I put it next to a Royer R-121 on a Fender Deluxe combo amp to hear the differences, and the pair was impressively complementary. The R-121 had a more-throaty midrange, as I'd expect from a Royer, while the N22 handled the high SPL without breaking a sweat and brought out the beautiful high-midrange that make a guitar amp sing in the mix.

On hand percussion, tambourine, shakers and wind chimes, the N22 sounded natural, particularly in the top end where those instruments can build up and seem brash. The AEA sounded very good on acoustic guitar, with the bottom end pointing toward the sound hole and paired with a KM84 at the 12th fret. Normally I'll use a U 67, 251 or something with some more low end to go against a brighter mic at the top, but the N22 performed admirably here and for a lot less \$\$\$\$. On acoustic piano, the pair sounded good when paired with an AKG D19 at the third sound hole from the back. The mics were placed about a foot from the strings above the



AEA N22 NUVO

## PRODUCT SUMMARY

**COMPANY:** AEA

**PRODUCT:** N22

**WEBSITE:** [www.ribbonmics.com](http://www.ribbonmics.com)

**PRICE:** \$899

**PROS:** Extended top end. Great sounding over a range of applications.

**CONS:** You'll want two.

hammers, and about three feet apart.

After a while, I found myself trusting this mic across a range of applications. It sounded superb placed on a bass cabinet and as a pair of room mics for a drum kit. This kind of performance makes the N22 a no-brainer buy for a beginner or journeyman engineer who's looking for a versatile mic that can stand alone, or work with others in the locker on a range of applications like acoustic guitar,

tar, guitar amps, upright bass and more. The only downside is that you'll want two once you hear them in stereo. ■

*Kevin Becka is Mix's technical editor.*

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## SYNCHRO ARTS REVOICE PRO

Advanced Tuning, Doubling, Editing, Alignment for Your DAW

**S**ynchro Arts is a UK-based company with software products that focus on advanced manipulation of audio. Their products include VocAlign for aligning music and dialog, and Titan for conforming multichannel production audio to EDLs, synchronizing Pro Tools sessions to picture edits, and much more. Revoice Pro Version 3.1 is the company's latest effort, and it seems to be on a rocket ship trajectory. The jump between V. 3 and V. 3.1 was quick and substantial, and there are more and newer features on tap for release soon.

The toolset in Revoice Pro is unique and impressive (see Fig. 1). It brings VocAlign to the group, offering new features and a slick new algorithm that aligns to pitch traces when energy alone is flat and doesn't do the trick. Other features include advanced tuning, an incredible doubler that creates mono or stereo doubles from a single track, and a great editor that allows you to move audio just like you would in your DAW. One of the editor's strengths is that if there are pocket tweaks you want to perform outside of alignment, you can do it without having to go back to the DAW and re-importing.

### IN AND OUT

But before we get into the tools that make Revoice Pro unique, let's talk about one of its best features: how it ports audio in and out from your DAW. In this case, I was using Pro Tools, but the software works with a large list of DAWs and software, including Logic Pro, Cubase, Studio One, FL Studio, Nuendo, Sonar and others. While Revoice Pro is a stand-alone application, it comes with a group of plug-ins allowing it to communicate to the DAW.

It all starts with the Revoice Pro Monitor plug-in that lives on a stereo aux track in Pro Tools, allowing you to monitor what's going on inside of Revoice Pro session. This, however, doesn't mean you're married to your DAW for monitoring; once you have tracks inside a Revoice Pro session, the software can work on its own. If you bounce a two-mix of your session into the software, you can have everything—your separated tracks, plus a reference to your mix, all without using your DAW. This way you can make all your changes, then Spot the files back later. This would be great for editing on a MacBook Air or some other platform where a large Pro Tools session run from an external drive would tax

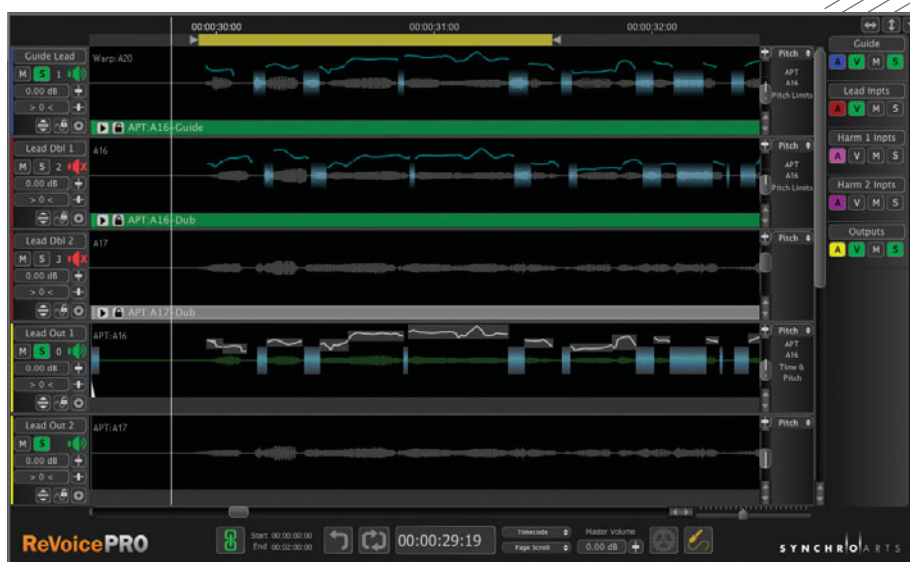


Fig. 1: The GUI for Revoice Pro is easily adjusted for individual preferences via the handy Group functions.

the system. With some simple prep and import into Revoice Pro, you could take this all on a plane with some headphones and get the files back to the session on a bigger system later.

The three remaining plug-ins are in the AudioSuite format and include Quick APT (Audio Performance Transfer), Pro Doubler and Pro Link. The Pro Link plug-in sends selected audio out to Revoice Pro for general editing and back again via Capture and Spot buttons. Pro Doubler does the same, but addresses the Doubler algorithm. The coolest is the Quick APT. Once you have a preset established inside Revoice Pro, it jets selected audio out and back again as fast as the processor can handle it. You never have to leave Pro Tools or even look at Revoice Pro; just have it open.

### ALIGNMENT AND MORE

VocAlign is an impressive tool. It uses a Guide and Dub architecture born out of the post-production world. Guide would be the ideal for the performance, and the Dub is the track you wish to align to the Guide. I've used this many times in the past and it is impressive, but not as im-

### TRY THIS

Once you have multiple processes going in a Revoice Pro session, create separate groups for all your Guide, Dub and Process tracks. This way you can quickly jump between views of groups, or easily solo or mute the groups in your session.



pressive as it now sits in Revoice Pro. There are myriad tweaks you can perform, including timing tolerance set in milliseconds, protection of transients set as a percentage, four flexibility adjustments, plus global pitch and level alignment that also has many tweaks. Up to 26 of these versions can be saved as a preset, then quickly A/B-toggled using the letter “q” as a shortcut or via a pulldown menu.

When you choose to move a slider or change an option, it is instantly updated in the Output track that carries the “fixed” version. Even if you have a solidly aligned and tuned double, for instance, you can move a piece of audio in the Guide and the Output track will change to reflect your move. If you try and change the Output track, the software reminds you that you need to make any changes to the original so everything can be updated. This feature keeps you from having multiple versions floating around. It’s brilliant.

The Doubler offers many sonic possibilities. Once you create the process, you can choose from a list of 14 presets, or let it go to default and then alter, save and compare your possibilities. Settings include Average Delay (in positive and negative numbers), Frequency and Depth of modulation, Randomness (percentage), Formant shift, Vibrato, and Range of pitch detection. If you’re creating a stereo double, you can move these parameters around per channel, creating infinite possibilities. Any tweaks you make are immediately updated to the Output track, giving it a real-time plug-in feel, with no DSP hit.

Any of the separate pitch events can be grouped and moved freely without affecting pitch or timing. The interface makes it easy to see these words, breaths included, and move them to a better pocket or to change the arrangement. Because the pitch view lays directly over the audio, as you’d view it in your DAW, it makes it a more useable editing experience that is lacking in other platforms. One thing on my wish list here is to be able to set a tempo and access a grid to which you could freely move, nudge or snap your audio.

## TUNE IT UP

The tuning function is excellent, with a look that is more Melodyne than Auto-Tune (see Fig. 2). I use all the current tuning software, and this is on par with the best. There is a note value on the left side of the track, and you can freely move the tuning trace away from the audio—this is liberating, like having an extra vertical workspace. Each pitch is

## PRODUCT SUMMARY

**COMPANY:** Synchro Arts

**PRODUCT:** Revoice Pro Version 3.1

**WEBSITE:** Synchro Arts.com

**PRICE:** \$599 new; \$180 upgrade from Revoice Pro V.1 or 2

**PROS:** Excellent tuning, doubling and alignment functions.

**CONS:** No tempo grid or key selections in the GUI.

separated and can be moved or auto-corrected on a percentage basis. There is not a way to choose a key for the session; that would be a powerful addition to the feature list.

Editing within the GUI is a breeze. For example, you can freely manipulate the dynamic range of vibrato and pitch drift by clicking at the top or bottom of the pitch and moving it up or down. There are some handy shortcuts for the Selector, Cutter, Join, Smooth Join, Pencil and Correct Pitch tools for quick jumps between functions. You can also add Warp Points that will be familiar to Elastic Audio users. Carefully placing these points around a pitch event allows you to time stretch or compress your audio to taste.

press your audio to taste.

To try and sum up Revoice Pro in a couple of pages is tough. I haven’t even talked about the advanced automation functions that let you globally move and randomize numerous parameters, or the handy group function. What I like most is how it accomplishes the transfer of audio in and out of Pro Tools. I also like that it is not a plug-in. When you make the changes, you can pop them back to the DAW for anyone to hear down the line, whether they have Revoice Pro or not.

During the review, I missed the ability to choose a key, individual note opt-in/out, and the ability to access a tempo grid. I brought this up to the guys at Synchro Arts, and they told me about a new version in beta that addressed those very things. It’s nice to see such a rapid pace of development and care taken with this product.

What makes a good product great, especially when it has the ability to make something sound un-musical, is the ability to be subtle in a sophisticated

way. Revoice Pro offers all this and more. If you want to hear the results for yourself, listen to the audio examples I’ve posted online to audition the alignment and tuning functions. The best part is that I made the changes in the examples quickly and easily, and I’m not yet an expert user.

I try not to gush about products in a review, but there’s no way to hold myself back here. Revoice Pro is an essential tool for audio production. Try it now. It’s a one-stop alignment, tuning, doubling and editing companion tool for your DAW that saves time, sounds excellent and is rapidly improving itself. It is a solid investment for audio workflow that will take your content to the highest possible level, and you have to love that. ■

*Kevin Becka is Mix’s technical editor.*



Fig. 2: The tuning process breaks individual pitches into easily manipulated and separate sections.

## SOUND DEVICES 688 MIXER/RECORDER WITH SL-6

12 Inputs, 16 Tracks, Wireless Receiver Control

**T**he Sound Devices 688 is a portable audio mixer/recorder that is a natural and logical next step in the product line. For owners of Sound Devices gear, the menu appearance and navigation about the unit is similar to the 664. It features 12 total inputs, including six mic/line (XLR) with phantom power, a highpass filter, input limiter and pan and six line-level inputs on TA3 connectors. The total of 12 analog inputs is plenty to handle most of the workload I experience here in Nashville, and adding the mini-fader option for tracks 7-12 makes it easier to use than the 664.

Routing is sophisticated and flexible, and the DSP-based MixAssist function supports up to 12 channels. All common sample rates are supported (192 kHz on six tracks) with monophonic or polyphonic BWA files recorded to SD or CompactFlash cards. Other features include solid switches, faders, recessed controls and other inputs and outputs that will be familiar to all users of Sound Devices products.

For this review I had the optional SL-6, which adds several important features and takes the 688 up a notch from being just the next new mixer from Sound Devices. The unit uses Super Slot technology, a modification of UniSlot—the pin slot arrangement location mixers see mounted on camera backs, also known as camera hops. Sound Devices collaborated with several wireless manufacturers to enable the SL-6 to be used with a variety of receivers, provided they are wired for Super Slot. Companies having products onboard with the SL-6 include Lectrosonics, Sennheiser, Audio Ltd., and Wisyscom.

### WIRELESS CONTROL

While my Lectrosonics 411s and SRB receivers would hardwire in just fine to the 688, I needed compatible receivers to use the SL-6. After reaching out to Lectrosonics, three Super Slot receivers arrived shortly after. A download of the manuals and a few YouTube videos later, the “build-out” began. I attached the SL-6 to the 688 using a few easily identified screws. The units “talk” to each other through a short ribbon cable attached via matching rubber ports, one on each unit.

I installed the Super Slot receivers into the SL-6 easily. I made sure the SRB receivers were properly sealed with supplied gaskets into the SL-6. I did not want any moisture or dust getting into the SuperSlot. When assembled, the SL-6 powers both the 688 and the SL-6. After I had reached this step, my kit was fully functional with six receivers and, except for headphones, not a cable in the bag—no BDS, no XLR



The 688 Mixer/Recorder offers 16-track, polyphonic or monophonic broadcast WAV file recording.

jumpers, nothing. It is pretty cool when you see it for the first time.

The weight comparison between 688/SL and my current kit comprising three 411s with a Sound Devices 664 were within a pound. So for virtually the same weight, I doubled the number of receivers carried. One NP-1 battery inserted into SL-6 port powers both units. There is also a DC input on the other side of the SL-6; as a backup power source, I attached an NP-1 battery cup. This DC input will also power both units. Also, there are four DC battery outs and a built in BDS if you need to add more receivers. A USB charging port will make you look like a star when you charge the director's phone from your kit. Concerning power consumption, the 688/SL-6 is on target for what it is driving. Granted, batteries ran down slightly faster, but not anything dramatic.

The capabilities of the 688/SL-6 fit my project style very well. I used the unit with several different cameras and timecode requirements. I can report that either generating or receiving timecode, the 688 performed very well. (This has been my experience with the 664, as well). There are certain features of the unit that, once set, I just don't regularly use (such as comms and returns), simply because the features are not needed on the types of jobs I do. Recording, camera hops, wireless monitoring, transcription recording—all the work-horse functions necessary for my projects are without incident.

### MIXASSIST AND ROUTING

One of the new features on the 688 is MixAssist. It automatically attenuates the level of inputs that are not open and helps maintain consistent background sound levels regardless of the number of open microphones. This is a handy feature with multiple talkers (think reality or a panel discussion), or an overall loud sound environment with multiple mics (think concert venue or factory). MixAssist is



## PRODUCT SUMMARY

**COMPANY:** Sound Devices

**PRODUCT:** 688 Mixer/Recorder;  
SL-6 Powering and Wiring System

**WEBSITE:** sounddevices.com

**PRICE:** \$5,749 688 Mixer/Recorder; \$1,495  
SL-6 Powering and Wiring System

**PROS:** SL-6 integration enhances  
workflow and quickens set up.  
MixAssist is a valuable feature.

**CONS:** SL-6 upgrade requires purchasing  
costly SuperSlot-compatible receivers.

Post fade only to L/R buses, meaning your Record tracks remain unaffected if needed by the post-production team. I found MixAssist particularly useful on two jobs.

Here in Nashville, crews are frequently in backstage areas getting interviews while there is a performance going on somewhere nearby. For this job, the crew was backstage in a large dressing room interviewing three songwriters about the hit they wrote while a performance was going on in the 500-seat venue. MixAssist kept the musical “din” to a manageable level, and whenever one of the three spoke, their mic cut through cleanly.

The SL-6 has two dynamic features. One is the ability to route receivers to inputs quickly. This is especially helpful when adding additional analog receivers. Located in the Input Setting screen, an easy-to-navigate grid menu lets you move the SuperSlot receivers to Channels 7-12, opening up analog inputs 1-6 for the additional receivers. Naturally, you have to add cables at this point. (And the built-in BDS—the DC Outs—work well.) And, if you find yourself in an under-the-gun situation where you have to add or route things differently, to be able to move things around with minimum cable handling time can be a life saver.

### ANTENNAS AND TRANSMITTERS

Besides being a BDS and XLR cable-free bag, the antenna distribution keeps the antenna garden to the minimum. Without the SL-6 and SuperSlot receivers, the mixer bag would have six antennas sticking out for three Lectrosonics dual-channel receivers. SL-6 antenna count: two antennas for six receivers. This is much cleaner, and the reception is better as the antenna are more separated than operated side by side in the bag.

Lectrosonics was kind enough to send

along two new LT Transmitters to round out the Super Slot receivers. Paired up with the four other types of Lectrosonics transmitters I carry, I was using five different types of Lectro transmitters. I’m happy to report that they all worked fine with the SuperSlot receivers, and played well among themselves, too. I particularly like the new LT Transmitters. It seems easier to move around the menu than models past. And I like the fact they are multi-block transmitters—truly much more flexible than single-block transmitters of the past.

### WONDERFUL WORKFLOW

One thing about the 688/CL-6 input controller: There is not one feature in the kit that a client will pay for. It’s not like you’ve added a specialty mic to the inventory. Most clients care that it is recorded with quality and that everything syncs. They don’t care that MixAssist made your recording easier. It doesn’t register that you can move frequencies or route to different inputs much easier and quicker than before. But it matters to the mixer when those few minutes of extreme pressure occur when RF issues come up, or when EQ needs to be added to the existing bag or the countless other things that occur in our world.

The unseen feature that the unit gives the mixer is confidence. Knowing that you can make changes rapidly, carefully monitor the system and have options makes a difference when it gets hairy. The other feature mixers may discover: time—less time in the white-knuckle zone for sure. And no wires and six receivers in line means you spend far less time getting ready for your next gig.

Perhaps the biggest drawback I see is the cost factor in making the changeover to SuperSlot receivers. Some manufacturers will modify existing units to SuperSlot, but this still may be cost-prohibitive to some. I think pairing the SuperSlot receiver with multi-block transmitters would be the most flexible in both cost and operation. Like many mixers, I have made a financial commitment with analog gear that works perfectly fine for virtually everything I run across. However, the flexibility of SuperSlot is very enticing, especially if you are considering an equipment upgrade or a new purchase. ■

*Production veteran Ron DiCianni’s work includes projects with recording artists, news stories, Internet and entertainment programming.*

**R-122 MKII**

**ROYER**

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Low Cut Filter**

“Although the R121 is classed as Royer’s flagship microphone, I think the R122 MkII is actually the better option...”  
**Sound On Sound**

“This is possibly the most versatile microphone I’ve ever encountered. If you can only own one ribbon mic, I say it’s got to be the R-122 MKII.”  
**Pro Audio Review**

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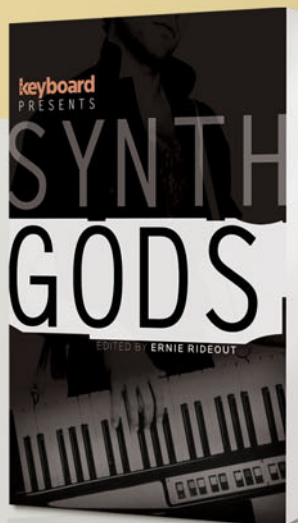
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# Add razor-sharp technology to your MOTU studio

Run Digital Performer 9 and cutting-edge plug-ins on the Retina iMac with the very latest studio gear

## Apple Retina iMac

### Innovation from edge to cutting edge

An incredible amount of engineering was required to bring the Retina display to the iMac family. Witness a design that's just 5 mm at its edge — yet entirely capable of making everything around you fade into the distance. This ensures that nothing gets between you and your favorite content. Seamless and beautiful, iMac with Retina display is an elegant addition to your MOTU studio, representing a depth of technology at the height of design.



## MOTU Stage-B16

### Stage box. Interface. Mixer.

Stage-B16's sixteen studio-grade mic inputs are equally well suited for both stage and studio. Place it up to 100 meters from your console or computer using an affordable, standard Ethernet cable. Use the Stage-B16 as a rack-mount mixer and control your entire mix from your iPad. As a stage box, mixer or audio interface, the Stage-B16 delivers superb sound.



## Eventide Anthology X

### The best Eventide effects in one bundle

Seventeen mixing, mastering and multi-effect plug-ins based on 40 years of Eventide studio mainstays like the H910, H949, H3000 Factory, Band Delay, and Omnipressor. Includes future classics like UltraChannel, UltraReverb, Quadravox and Octavox. A true must-have for any size studio.



# MOTU





## Zynaptiq UNMIX::DRUMS

### Boost or attenuate drums in mixed music

UNMIX::DRUMS is the world's first audio plugin that lets you attenuate or boost drums in mixed music, in real-time. Using advanced source signal separation technology, boost drums by +18 dB or practically remove them completely, either on a full mix or on a drum bus. Shape and enhance the impact of your drums like never before. UNMIX::DRUMS opens up exciting new options for mastering, music production, sample-based music creation, mash-ups, remixes and DJ sets.

## Shure KSM44A

### Multi-Pattern Dual Diaphragm Microphone

The KSM44A is the premier choice for the highest level of professional studio and stage performance. Its refined and sophisticated design features externally biased, dual 1-inch diaphragms, extensive internal pop filtering and Prethos® Advanced Preamplifier Technology for a ground-breaking threshold minimum of self-noise.



## Mackie Reach 720W Portable PA System

This portable PA delivers impeccable sound to your entire audience, thanks to advanced ARC (Amplified Radial Curve) array technology and onboard 6-channel digital mixer, controlled with your iOS and Android device. Stream backing tracks and break music from your Bluetooth-equipped device.

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## Field of Streams



By Kevin Becka

**W**hen it comes to tuning your product news, music, sports, and more, streaming is king. Static websites as we've grown to know them are losing ground to the stream every day. Yale University professor of computer sciences David Gelernter saw this decades ago. He calls it a "time-based wordstream"—a quickly, and regularly refreshed collection of content where you can "watch a single, customized fashion show across sites." This mode of delivery is how consumers now and in the future will connect to the Web, but I want to talk about my technology and info streams.

For example, purchasing tech products this way takes Web commerce to the next level, and audio manufacturers are on board. EastWest's ComposerCloud, Slate Digital's Everything Bundle, and Avid's new purchasing models all embody a new delivery method. If you buy-in, new sounds, plug-ins and software updates all come directly to you ready for download—it's a tech stream.

This brand of passive, focused shopping is the new new. And it's not just software. Tony Cariddi from Avid told me he's on board with harrys.com, which delivers his razor blades on a subscription basis with substantial savings. If you've seen my picture, you know that shaving is big in my life, so after I run out of my current run of Gillette multiblades, I'm down with the harrys.com tributary of the stream.

But what about those who are shopping your studio, service, or products? How can you better feed your tech and info stream? For the average audio pro, how we promote ourselves, our studios, our music, our band, and our skills is only as fresh as our content—our stream. Like you need another job, right? You do if you want to be successful. It needn't kill your "free" time. Some companies for hire will keep your data moving through all the pertinent outlets, but you still need fresh content to push.

While producing content for *Mix* and doling knowledge to students in my teaching gig, I need to stay current with the latest audio techniques, concepts, products, music and other info. To see what's hot, I look to those who do an excellent job creating data. My content heroes include the team at Pensado's Place, the subject of *Mix*'s January cover. Dave and Herb have taken a simple concept and blown it up worldwide. The interviews are as educational and interesting as they are diverse, featuring an incredible roster of talent. Into The Lair gives you a look inside Dave's head and how he delivers great-sounding mixes in his day gig.

Another great service is Puremix.net, which features tutorial videos, interviews and other great content on a subscription basis.

The site is driven by New York-based engineer Fab Dupont and other high-end audio pros offering insights into mastering, tracking, mixing, producing and more.

How I feed my info stream has changed over the years. I've been producing digital content for *Mix* as part of my gig since 2003. Most of the time I have the luxury of having a film company do the heavy lifting. We've done webinars for Focusrite, Avid, Lynx Studio and Shure, among others, plus *Mix*'s video-based Seminars on Demand and Recording The Band series. In the past dozen years, I've had to step up my delivery chops in ways I never imagined. My Nashville gig is a startup, meaning everyone wears five hats. One of my new gigs is video editing. I started cutting video in iMovie and quickly moved up to Final Cut Pro, where the audio editing is better.

Next I looked for a way to step up my video-capture ability—enter the DJI Osmo. This handheld, gimbal-mounted camera is impressive. DJI is a drone company. Deep River Studios, featured on the cover of *Mix*'s December 2015 issue, used a DJI drone to take sweeping overhead shots of its complex, using it to market its business. The Osmo is new tech all the way. It's light, handheld and can produce stable video up to 4k resolution. It stores the video on board using a Micro SD card and uses your phone running the DJI GO app as the reference monitor. The phone can be mounted on the Osmo handle, or separated. I've done some great overhead shots at Blackbird by flying the camera, then controlling it via the Osmo's Wi-Fi network.

The first week I had the camera, I showed it to Trey Ziegler, a photographer working with one of the bands at Blackbird Studio working with my students. As soon as I took it out of the case, he was into it. He asked if he could borrow it for the shoot and is using the content for the band's social media and music videos. Next I showed Scott Hernbeck, general manager at Clair Global Nashville, who borrowed the camera over the holidays. He wanted to see how good it was at capturing content for its website, and was wowed.

I specifically purchased Osmo for a new series of videos I'm creating for Hal Leonard and Pensado's Aspire series just announced at Winter NAMM. I can write training content all day long, but video was my weak link. Osmo makes me look like Vilmos Zsigmond—well, almost. It's quick, easy to set up and tear down, highly portable and can integrate wireless or wired audio directly into the camera. All this for about \$650—a worthy investment.

For pushing info in 2016, I'm thinking more Periscope, targeted app, Vine and YouTube, and less Wordpress, Chrome and website. Look for it. ■





"The JDX captures my sound with previously unobtainable control and clarity, offering our soundman a direct injection of sonic rage! Radial gear rules."

~ Kerry King  
(Slayer)



"The Radial Headload is the heart of my guitar system. The voicing of the direct signal is so natural I often prefer it over a mic. I own all the other major speaker emulators but the Headload is THE ONE!"

~ Michael Thompson  
(LA session guitarist - David Foster, Babyface, Seal, Michael Buble)



"I've been using the Radial SGI and JDXs for a while now... Talked about them bitches in several guitar mags too! SGI is mandatory. Best thing ever for bigger stages and big pedal boards. It's Da pro chit"

~ Scott Holiday  
(Rival Sons)



"My Headbones give me easy access to all of my amps and I only have to carry two cabinets. Radial gives me the transparent tone I love and the reliability I need."

~ Tommy Johnston  
(The Doobie Brothers)



"Spent years trying to combine all of my favorite tones on stage without carrying a ton of amps and cabs... the Headbone helps me get there. I only wish I had it years ago... I love my Headbone!!"

~ Mark Tremonti  
(Creed, Alter Bridge)



"My annoying inability to compromise has lead me to some odd places in music, and fortunately, has also lead me to the ultimate no-compromise tonal solutions from Radial."

~ Devin Townsend  
(Guitarist-songwriter-producer)



"The JDX accurately emulates the sound of a perfectly-placed mic without any of the downsides. The tones that come out of this thing are clean, articulate, and easy for any engineer to work with!"

~ David Sanchez  
(Havoc)



"The JDX is the best tool for live performance! My guitar sound is really clear and HEAVY! Radial Rules!!!"

~ Alan Wallace  
(Eminence)

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## JDX48™ Reactor amplifier DI:

Captures your amp and cab tone consistently night after night. No more worries about mic placement, poor acoustics or bleed from drums and bass.



## Headload Prodigy™:

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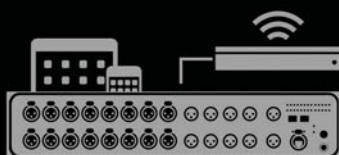
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