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Photo: Steve Jennings



## FEATURES



30 On the Cover:  
Chris Pelonis

BY TOM KENNY

36 Morrissey: 'World  
Peace Is None of Your  
Business'

BY BARBARA SCHULTZ

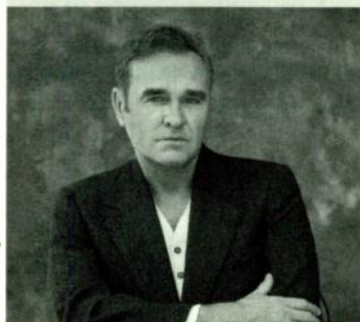


Photo: Greg Gorman

40 Crisis Management:  
Five Mixing Remedies

BY MICHAEL COOPER

48 New Studio Consoles

## MUSIC



Photo: Neil Krug

15 First Aid Kit

BY BLAIR JACKSON

18 News & Notes

20 Road Recovery

22 Classic Tracks:

"Life In A Northern Town,"  
Dream Academy

BY BLAIR JACKSON

## MIX REGIONAL: CANADA

54 News & Notes

58 Mike Fraser, Garth  
Richardson

BY WEN MAEBE

## LIVE

25 Tour Profile: Gavin  
DeGraw

BY MATT GALLAGHER

26 Imelda May

28 All Access:  
OneRepublic

BY STEVE JENNINGS



Photo: Steve Jennings

## TECH

62 Robair Report:  
The Eternal Swap Meet

64 New Products

68 Review:  
PreSonus  
StudioLive  
24.4.2AI



72 Review:  
Genelec  
Mo40 Two-Way Active  
Monitors

74 Review: LaChapell Audio  
983S Preamp

76 Review: CADLive D82  
Moving Ribbon Microphone

84 TechTalk:  
Upgrade? Is It Time Yet?  
BY KEVIN BECKA

**On the Cover:** Musician, producer, engineer,  
studio designer, manufacturer, surfer, martial arts  
expert Chris Pelonis. **Photos:** Chris Pelonis.

## DEPARTMENTS

8 from the editor


8 current

79 marketplace

81 classifieds

Mix, Volume 38, Number 8 (ISSN 0164-9957) is published monthly by NewBay Media LLC, 28 East 28th Street, 12th floor, New York, NY 10016. Periodical Postage Paid at New York, NY, and at additional mailing offices. POSTMASTER: Send address changes to Mix, PO Box 8518, Lowell, MA 01853. One-year (12 issues) subscription is \$35. Canada is \$40. All other international is \$50. Printed in the USA. Canadian Post Publications Mail agreement No. 40612608. Canada return address: BleuChip International, P.O. Box 25542, London, ON N6C 6B2.



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## From the Editor

### TALKING ABOUT PEOPLE

**T**his month's cover represents quite a departure for *Mix*, and it's pretty striking. Half a face, black and white, no console or room. One person. One profile. We are not trying to be *Esquire* or *Men's Health*, or change our mission, and next month there will be a big Harrison console in a big room at Sony Pictures Studios. But there are a few reasons we did what we did on this cover.

First, while the professional audio industry is fueled by technology, tools and techniques, it is driven by people. It's only been over the past decade that we started putting people on the cover, most often an engineer or producer paired with an artist, typically in a studio environment of some sort. Our first was way back in 1999 with George Lucas and his sound crew for *Star Wars Episode 1*. Since then we've had more than a few memorable ones, from Lenny Kravitz at his REDD console, to Jack Douglas with Steven Tyler and Joe Perry, to Tony Maserati with Jason Mraz, Alicia Keys, John Legend with Dave Tozer, and a two-page foldout of Nashville's finest at Blackbird Studios, followed a few years later by a version of L.A.'s finest gathered at Capitol Studios. People make records. It's that simple.

Second, the media industry has changed rapidly. *Mix* was a fat 200-plus page monthly magazine not that long ago, filled with product news and technical information. Today, that type of information is available with one click, on demand, from dozens of sources. While we still do include product reviews and announcements, along with techniques features and technology trends, we also aim to be a magazine that people read and look forward to. *Mix* has access to some amazing people, and we want to tell their stories, whether it's how they made a record, mixed a show, designed a sound effect, or, in this month's case, put together a widely varied and meaningful career in audio.

Which leads to the final reason for this month's cover: Chris Pelonis. He's a true Renaissance man in the modern recording world, and very few people outside of his circle know about it. He's one of those rare talents in our industry who lives a life in balance between his left brain and his right brain, able to design a world-class studio or an accurate and true monitor, while stepping up to play an incredible guitar solo or take an award-winning photograph. He is largely self-taught in everything he pursues, and he is quick to credit those he has learned from. If somebody tells him that something can't be done, he finds a way to do it. That's what drives him: making things better. He is a most talented and interesting man. He is also quick to point out that he is as flawed as anyone else.

I have known Chris for nearly 15 years now. When we started talking about featuring him on an upcoming cover, he had a vision in his head of what the cover might look like creatively. That's what you see. It's a selfie. Because Chris took it, it's not an ordinary selfie. He used a Sigma DP3 Merrill with Foveon X3 sensor, 46 megapixels, with the equivalent to a 75mm lens on a 35mm SLR. He shot from an arm's length away, incorporating white stucco and opposing light, balanced by diffuse waning sunlight through the foliage of a meditation garden in Encinitas, Calif. F2.8 through a 75 mm lens at 20 inches.

Technical and creative. In focus. At the top of his game. That's why this month's cover looks the way it does.

Thomas AD King

Tom Kenny

### Immersive Sound: From Production To Playback

On September 6, 2014, *Mix* magazine will present a special Sound for Film event at Sony Pictures Studios in Culver City, Calif., with creative and technology-centric panelists from across the spectrum of film sound, and sponsors from both the film studio and manufacturing communities.

This special one-day event, hosted by Sony Pictures Studios and including event partners the Motion Pictures Sound Editor's guild and the Cinema



creative teams; and networking opportunities.

For more information and to register, go to [mixsoundforfilm.com](http://mixsoundforfilm.com). ■

Audio Society, will include a Keynote Address in the world-renowned Cary Grant Theatre; a full day of panels on the Editing, Mixing, Technology and Business of Immersive Sound; a Film Studio Showcase in the Atmos/Auro-3D equipped William Holden Theater, with introductions by the



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Pensado Award winners and presenters gathered onstage for the ceremony's finale, with Dave Pensado (podium left) and Herb Trawick (podium right).

## 2014 Pensado Awards Winners

The inaugural Pensado Awards, created by the producers of the online video series Pensado's Place to recognize the work of producers, engineers, musicians and songwriters, was held on June 28 at the Fairmont Miramar in Santa Monica. Singer/songwriter Lisa Loeb and producer/engineers Chris Lord-Alge, Marcella Araica and Young Guru co-hosted the event. More than 600 recording industry figures were in attendance, including Martina McBride, Neil Young, Rami Jaffee, Manny Marroquin, Jack Joseph Puig and Ron Fair.

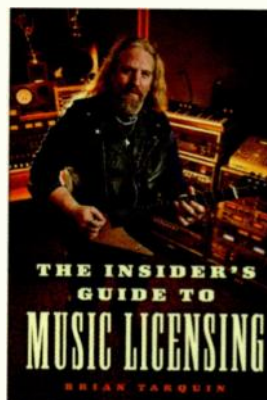
The Pensado Awards acknowledged individuals and projects with awards in 16 categories: **Game Changer Producer of the Year**—Alex da Kid; **Break Thru Songwriter**—Kendrick

Lamar for "Swimming Pools"; **Spin Doctor DJ Award**—DJ Ali and MAKJ; **Outstanding Achievement in Sound for Film, Television and Gaming**—*Saturday Night Live* and Alan Meyerson for *The Amazing Spider-Man 2* and *Call of Duty: Modern Warfare 2*; **OMG! Mix of the Year**—Tony Maserati and Manny Marroquin; **Unique Project Studio**—HeartsRevolution; **Break Thru Mixer**—Drumsonic Daniel; **Best Non-English Song**—Jeff Kung for "Suspended Memories"; **Tracking Engineer**—Ross Hogarth; **Master of Mastering**—Brad Blackwood; **Live/FOH**—John McBride; **AIR Award (Best Assistant, Intern or Runner)**—Ghosts Web of SoundCap Audio; **Outstanding Brand**—Universal Audio/UAD and Vintage King Audio; **Dave Pensado Educator Award**—John McBride; **Herb Trawick Visionary Award**—Steven Slate and Alex da Kid. Al Schmitt received the **Pensado Giant Award**, presented by Neil Young with a special video tribute from Sir Paul McCartney.

For more information, go to [pensadoawards.com](http://pensadoawards.com). ■

## The Insider's Guide to Music Licensing

Producer, engineer, guitarist and Emmy Award-winning composer Brian Tarquin has written a very informative and practical book about the business of selling music. Available from Allworth Press, *The Insider's Guide to Music Licensing* is based on Tarquin's more than 20 years of experience in licensing music to record labels, TV shows, feature films, radio promos and network promos. It explains how licensing really works: what type of royalties are expected, receiving royalties from iTunes, Rhapsody, Napster through digital distributors like IODA/The Orchard, and how they pay. Also covered are mechanical royalties from broadcast radio licenses, collecting foreign royalties, publishing administration deals, and a breakdown of sync and master licenses. Interviews with major industry players offer advice directly to musicians. ■



## 2014 Primetime Emmy Nominations

On July 10, 2014, Carson Daly and Mindy Kaling co-hosted the 2014 Primetime Emmy Nominations announcements in North Hollywood, which include three categories of Sound Editing and five categories of Sound Mixing. *Mix* magazine recognizes and congratulates all of the individual nominees in the Sound Editing and Sound Mixing categories; the full lists are available at [mixonline.com](http://mixonline.com).

The Sound Editing and Sound Mixing award winners will be announced on Saturday, August 16, at 4 p.m. Pacific Time, as part of the 2014 Primetime Creative Arts Emmy Awards ceremony at NOKIA Theatre L.A. LIVE in Los Angeles. The Primetime Creative Arts Emmy Awards, traditionally held the weekend before the live Primetime Emmys telecast, are largely dedicated to key technical disciplines and behind-the-scenes crafts essential to television production. The Primetime Creative Arts Emmy Awards will then

air on Sunday, August 24.

The 66th Primetime Emmy Awards will be telecast live on NBC on Monday, August 25, 2014, at 8 p.m. Eastern/5 p.m. Pacific, hosted by NBC's *Late Night* host Seth Myers, with Don Mischer—whose credits include Super Bowl Halftime shows, the Democratic National Convention, the Academy Awards, the Kennedy Center Honors, opening ceremonies of the Olympic Games and more—as executive producer. ■

## Shoreview Distribution's 25th Anniversary



Shoreview Distribution founder Luke Furr (left) and National Sales Manager Rory Caponigro

Shoreview Distribution, a B2B distributor of professional audio, video, lighting, display and broadcast equipment based in Foxborough, Mass., is celebrating its 25th anniversary. Founder Luke Furr attributes his company's success to its work with Sony Electronics in the U.S. as a select distributor for all its professional audio and video products. "Sony was our first client," Furr says. "We've grown our roster to include a number of major manufacturers, but maintaining our relationship with Sony for all these years is a special source of pride." ■

## CORRECTIONS

The July 2014 "Classic Tracks" story about Atlanta Rhythm Section's "So Into You" includes an erroneous reference to a Lexicon Harmonizer H910, on page 22. The Harmonizer H910 pitch-shifter is an Eventide product and a registered trademark of Eventide. Created in 1975, it was inducted into the TECnology of Fame in 2007. *Mix* regrets the error.

In the July 2014 feature "Line Arrays for Tour Sound," *Mix* included a description of Martin Audio's DD12, which is not a line array system. Instead, we would like to mention Martin Audio's three-way MLA Compact, which offers the company's Multi-cellular Loudspeaker Array (MLA) technology in a smaller, lighter version. Each enclosure measures 31x11x19.6 (WxHxD) inches and weighs 109 pounds, and is fitted with a 5-channel amplifier module incorporating Class-D circuitry, delivering a total of 2.1kW continuous and 4.2kW peak output. For more, go to [www.martin-audio.com](http://www.martin-audio.com).





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# Music

## FIRST AID KIT

By Blair Jackson **15**

## NEWS & NOTES

By Barbara Schultz **18**

## ROAD RECOVERY

By Tom Kenny **20**

## CLASSIC TRACKS:

THE DREAM ACADEMY

By Blair Jackson **22**

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## FIRST AID KIT

Haunting Americana from Sweden (and Nebraska)

By Blair Jackson

**L**ike a lot of people, my first exposure to the duo known as First Aid Kit—Swedish sisters Klara and Johanna Söderberg—came from seeing their gorgeous 2008 YouTube cover version of Fleet Foxes’ “Tiger Mountain Peasant Song.” At the time, Klara was just 15, Johanna 17; but those voices! Since their humble video introduction to the world—which has been viewed close to 4 million times—their career has taken off and they’ve become darlings of the indie folk/country scene with their sumptuous harmonies and affecting songwriting. For their past

two albums—2012’s *The Lion’s Roar* and the latest release, *Stay Gold*—the young women (now 20 and 22) have been ably assisted by the Nebraska-based producer/engineer/multi-instrumentalist Mike Mogis, best known for his long association with Conor Oberst in both Bright Eyes and the acclaimed indie “super-group” Monsters of Folk (which also includes She & Him’s M. Ward and My Morning Jacket front man Jim James).

Klara Söderberg has said that listening to Bright Eyes’ *I’m Wide Awake, It’s Morning* was an inspiration for her to get her first guitar

at age 13, and she credits Oberst for steering her toward some of his influences, from Gram Parsons and Emmylou Harris to Bob Dylan and various ’60s folkies. So you can imagine what a thrill it was for her and sister Johanna (who plays keyboards and mainly sings harmonies) to get to meet Oberst, tour with Bright Eyes, and then make two albums helmed by Mogis. Oberst co-wrote and sang on one track on *The Lion’s Roar*, and Bright Eyes’ Nate Wolcott has played keyboards on both of the Mogis-produced First Aid Kit albums, and also helped with arrangements.





Both albums were recorded and mixed in Omaha at Mogis' wondrous ARC Studios, which he notes "is behind my house. It was originally an indoor basketball court, but we turned it into two studios. The 'A' room is where I spend most of my time. It's got a vintage Neve 8068 board. The broker we bought it from said it was originally installed at Air Studios in London and then moved to Air Studios in Lyndhurst; evidently, it was originally commissioned for the room where George Martin was working. It has 48 input modules with [Neve] 1081s, but it doesn't have a monitor section. It's a great console. It was completely refurbished by Fred Hill, who's based in Nashville." Designer/acoustician Wes Lachot lowered the ceiling from more than 30 feet down to 17, still plenty big for a "live" room.

Mogis says the recording methodology for the two First Aid Kit albums he worked on was similar, though obviously the second time around—for *Stay Gold*—they were more experienced and more confident. "On the first record we did together, they didn't come in with too much in mind. They had never really been in a studio before. They had recorded everything with their dad [Benkt Söderberg, formerly of the early '80s rock band Lolita Pop] at their house. When they came here, the lead singer [Klara] was 17 years old, so she had just graduated from high school [outside of Stockholm]. I was amazed they were so easy to work with. I was afraid they'd be nervous. But most of the vocals were recorded live as we were laying down the drums—I had the girls in a room together standing side by side, and the drums in the

main tracking room, and then their dad was also playing bass in the main tracking room. About 60 to 70 percent of the vocals were from those basic tracking sessions. To this day, they're probably the best singers I've worked with."

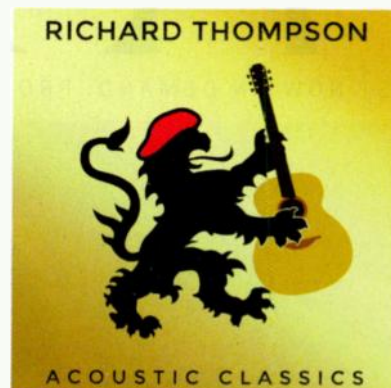
The engineer's mics of choice for the sisters on both albums was a pair of sequentially numbered Neumann M 49s. "When they started at age 13, up until right now, they've never recorded [their vocals] separately," he says. "They've always recorded together, right next to each other. I guess we did add third harmonies sometimes, but the fundamental track is always the two of them." For the new album, Mogis used a Fairchild 670 compressor on the vocals, as well as the Neve's warm-sounding mic pre's.

"[For the *Stay Gold* sessions] they came in wintertime and one was just getting over a cold, while her sister was just getting it. We had to do some basic tracks the next day, so we were not able to keep any of those live vocal tracks. We had to wait a week, but we still ended up keeping the lead vocal on the majority of *Stay Gold* from the live takes."

The basics were cut with Klara also strumming and fingerpicking acoustic guitar and Johanna playing a Nord keyboard, "stacked full of organ, Mellotron and all the sounds we use [on the albums] but usually redo later," Mogis says. Most of the acoustic guitar was also replaced later. The overdub sessions included string and woodwind parts played by local symphony musicians, and various keyboard, pedal steel, guitar and mandolin accents added by Walcott and Mogis. "We took a lot of inspiration from Townes Van Zandt's *Our Mother the Mountain*, which has a lot of woodwind and strings, played in a specific style—kind of creaky, slightly folky," Mogis notes.

Far from being "creaky," *Stay Gold*—First Aid Kit's major-label debut (Columbia)—is smooth as honey and glistens brightly, even with the down-home feel in some of the vocals and its occasionally dark introspection. "They're barely into their 20s and they're so talented," Mogis says. "They have almost unlimited potential because they can do anything. They love all styles of music and they absorb whatever's around them and put it through their filters and their sensibilities, and out comes something special and unique." ■

## RICHARD THOMPSON: HOME ALONE FOR 'ACOUSTIC CLASSICS'



**R**ichard Thompson's latest album, *Acoustic Classics*, is an unexpected gift to his many devoted fans—solo acoustic versions of 14 of his finest songs, spanning his work with ex-wife Linda (six songs), to his productive years with producer Mitchell Froom, and beyond. The exceptional singer and guitarist brings new spirit and the wisdom of experience to tunes ranging from "Dimming of the Day" and "Wall of Death" to "1952 Vincent Black Lightning" and "When the Spell Is Broken."

Thompson recorded the album himself at his Southern California home using just three mics—a Telefunken AR51 (into a UA 610 preamp) for his lead vocal, and a pair of Neumann KM 184s in a coincident pair (into a UA 4-710d preamp) for the guitar. The recording chain also included a MOTU 828 MkII Firewire interface and a Mac Pro Tower running Digital Performer 7. Thompson delivered the performances to the album's mixer and mastering engineer, Simon Tassano, on a thumb drive. Tassano has worked with Thompson as his FOH engineer and in other capacities for over three decades. "We both agreed it should be as close to a 'live' performance as possible," Tassano says.

The mix was done at Tassano's Rumville Music studio in Austin, "pretty much all 'in the box,' but I do use a TL Audio Fat Track for summing, returning to my DAW via a Black Lion Sparrow A-D. I use that as my master clock, too. I mastered this project here, too."

Reverbs were minimal and tastefully employed. "I use a suitable room from Altiverb, and the EMT plate from the UAD 2 plug-ins. I have a couple of UAD 2 cards in my Mac Dual Quad core. I also used a little delay from the Sound Toys Echoboy plug-in here and there on the vocal."—By Blair Jackson



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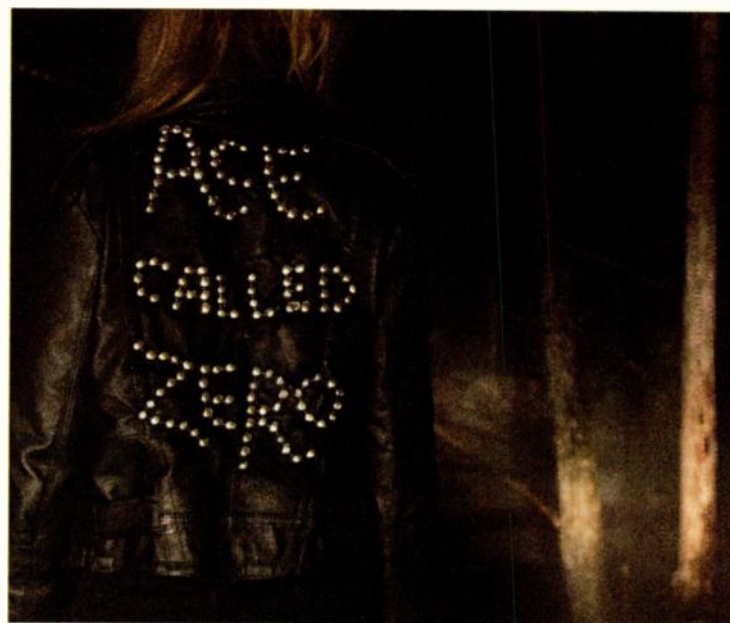


## HEAVEN'S JAIL'S 'ACE CALLED ZERO'

Engineer/producer Ben Greenberg says he enjoys working in "proper studios," but he's equally fond of the way he recorded alt-rock band Heaven's Jail earlier this year: They rented a house in upstate New York, where Greenberg set up his mobile rig, and they all camped out and tracked music for a week. "I bring my half-inch, 8-track tape machine, a Pro Tools setup, an RME interface with eight ins and outs. I have an API lunchbox with some API pre's and an AML (Audio Maintenance Limited) Neve 1073. And we make a studio," he says.

Greenberg recorded to his Teac 38 tape machine, which he says he's used for easily half of his projects since he bought it at age 17. "We were tracking basics to tape and then dumping into the computer. We overdubbed on top of that just into the computer, but most everything was done live and we just added little touches here and there."

He brought just enough mics to record the band live as a trio, and then overdubbed vocals and any of those "little touches." "On guitars, we used one of my [Cascade Microphones] Fat Heads. I have to say, those things are underrated," Greenberg says. "They're inexpensive ribbon mics. Most



cheap ribbons sound terrible, but I love the way those things sound. Obviously, nothing sounds like a Coles, but you get so much low end and really nice high-end articulation. I like to use those on guitar amps for sure; we used one on the kick as well."—Barbara Schultz

## COOL SPIN MACMANUS BROTHERS: ELEPHANT IN THE ROOM



As I write this, the MacManus Brothers are playing onstage at Kew Gardens, London, opening for their brother, Elvis Costello, and fans who scored tickets to see Costello solo are lucky and then

some. Younger siblings Ronan and Ruairi have a marvelous new batch of original songs to share, Everlys-style. Their harmonies are sweet and gritty; the arrangements are guitar-centric, layered but very rhythmic and solo-free: This is all about the songs and the singers. Every vocal performance on *Elephant in the Room* is full of heart, from tender songs like the ballad of family life "SpiderMan and DangerMouse," to jangly rockers like "Nothing Matters When You're Young." After a couple of listens, I'm still not sure what the Elephant in the Room is, but that doesn't seem to be necessary to be smitten by the music.—Barbara Schultz

## JESSICA HERNANDEZ & THE DELTAS AT SONIC RANCH



Producer Milo Froideval spent a month in Detroit, working on pre-production with Jessica Hernandez & The Deltas before bringing the band to residential Sonic Ranch Studios (El Paso, Texas) to make their new album, *Secret Evil*. "It takes time to figure out the sounds because Jessica likes a lot of things: folk music, mountain records, Detroit influences, old surf rock," says Froideval.

The band tracked to a Studer A827 analog tape machine in the facility's Adobe Studio, where the control room is fitted with a vintage Neve 8088 console. "I love to do albums there," Froideval says. "You get bright-sounding drums. It's a really relaxed studio, and it has a natural [reverb chamber] beside it. Open the doors of the [chamber], and you have warm, natural reverb on all the instruments."

Froideval and Sonic Ranch staff engineer Manuel Calderon recorded the band piece by piece in the Adobe Studio's single large tracking room, where they built a makeshift booth for Hernandez to cut her vocals. "We set up panels and a little roof," Froideval says. "She mainly sang into a Telefunken 47 and we used the [31102] preamp in the console and a Tube-Tech CL 1B compressor. In parallel, we had an RCA 77; that went through the Neve and a UREI 1176 as well. We blended those two to get a big sound."—Barbara Schultz





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#### Specifications

**Polar pattern** Cardioid

**Frequency response** 20 – 20,000 Hz

**Open circuit sensitivity** –25 dB (56.2 mV) re 1V at 1 Pa\*

**Maximum input sound level** 142 dB SPL, 1 kHz at 1% T.H.D.

**Signal-to-noise ratio**<sup>†</sup> 89 dB, 1 kHz at 1 Pa\*

**Noise**<sup>†</sup> 5 dB SPL

**Impedance** 50 ohms

**Dynamic range (typical)** 137 dB, 1 kHz at Max SPL

Specifications are subject to change without notice

\* 1 Pascal = 10 dynes/cm<sup>2</sup> = 10 microbars = 94 dB SPL

<sup>†</sup> Typical, A weighted, using Audio Precision System One

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# Classic Tracks

By Blair Jackson



## **"LIFE IN A NORTHERN TOWN"** Dream Academy

**E**very once in a while a song comes totally out of left field, far away from the mainstream, and for some inexplicable reason becomes a huge hit. One such tune was the 1985 Top 10 smash "Life in a Northern Town," by an unknown new English band called Dream Academy. It's such a pretty, pastoral song. The instrumentation is dominated by ringing acoustic guitar, oboes, alternately swooning and insistent strings, various keyboards, and booming and cracking percussion. Nick Laird-Clowes' pleasing, unmistakably British lead vocal is gently plaintive, and his fragmentary and impressionistic lyrics have a wistful, even nostalgic, ring to them, with their references to a Salvation Army band, Sinatra, Kennedy and The Beatles. Smartly placed sound effects—wind, screaming girls at a Beatles show—give it a Pink Floydian touch. But it's the irresistibly upbeat African-sounding chorus—Hey-a ma-ma-ma, etc.—that really sells the song. How can someone not sing along to that? Lots of folks did, throughout America and around the world. An appealingly artsy MTV video helped, too.

Thirty years after co-writing the song with one of his two partners in The Dream Academy, keyboardist Gilbert Gabriel (the third was Kate St. John, who played the double-reeds), Laird-Clowes is still happy to talk about his band's halcyon days. Real Gone Music's superb, just-released two-disc Dream Academy retrospective called *The Morning Lasted All Day* (a line from "Life in a Northern Town") kicks off with this month's Classic Track and includes a fine selection of cuts from the three D.A. albums that came out on Warner Bros. between 1985 and 1990, as well as a handful of B-sides, one-offs and unreleased tracks. Laird-Clowes remastered the project with Steve McLaughlin and also wrote the extensive liner notes.

Laird-Clowes and Gabriel first played together in the final incarnation of a post-punk band that the former fronted called The Act in the early '80s. Gabriel came on board as a keyboardist and impressed Laird-Clowes with his expansive musical knowledge and his facility with the then-new ARP Solina String-Ensemble synth. "We shared rooms when we were touring and he played me, Erik Satie and Ravel, and then he played me and Steve Reich; it was fantastic! There was a whole world of music I hadn't understood," Laird-Clowes says. "I thought, 'I've been copying people, and I don't want to do that. I sound like Tom Petty or Elvis Costello.' So Gilbert and I spent about year—nine months of that before we met Kate—just trying to find our own sound."

The seed of "Life in a Northern Town" was planted in the living room of the house where Gabriel was living in Southgate, north London. "He and I had toast and tea," Laird-Clowes remembers, "and we talked about this idea of writing something with an African chorus. I don't know why—this is a few years before [Paul Simon's] *Graceland*. We sat on the ground, and instead of him playing the electronic keyboard, I had my guitar and he had his, which I think only had three nylon strings on it. And we started blocking out these chords. I think he was encouraging me to play these arpeggios—'Maybe more like this'—and I suddenly felt like I was in the world of Nick Drake [a moody British singer-songwriter who took his own life in 1974 and remains revered by many musicians]. Anyway, we hit this idea of an African chorus and probably worked on it for an hour or so, and then worked on some other songs.

"I went home to my flat in West London," Laird-Clowes continues, "and I listened to some of the things we'd done on my little cassette machine. I started playing with it, and words started to come, but I couldn't remember the chorus. We'd done something too complicated. So I just started going 'Hey-a ma-ma-ma...' and that was that. I think I wrote two of the verses, and I wrote the other verse the next morning and went back to Gilbert's. Very soon in this process, I met Kate for the first time and asked if she would come and rehearse with us, and we went together out to Southgate and we played that song for the first time, and it suddenly all took shape." Soon, St. John also brought by some of her friends from the classical world to augment the group's developing sound.



The group's new manager, Tarquin Gotch, liked "Life in a Northern Town" so much he sent them over to the basement studio of Warner Bros. UK engineer George Nicholson to get it down on tape. "We went to George's little house in Notting Hill and made a demo of it," Laird-Clowes says. "I was playing guitar, Kate was playing cor anglais [English horn, in the oboe family], Gilbert was playing the Solina string synth, and George had the drum machine. Originally, it had an instrumental section in the middle, but that made it too long so we cut it out. We had no bass on it. In fact, when we finally recorded it, everyone said, 'This will never be a hit in America because it hasn't got bass on it.'"

Next, Gotch bankrolled a fuller demo version that he and the trio hoped would land them a deal. "We went into the best budget-priced studio we could go to, which was Jerry Boys' Livingstone Studios in Wood Green, and I took the drummer from my previous band, The Act—Derek Adams—and Kate's flat-mate, June Lawrence, and they all came in and sang with us. George made us block out the harmonies in stereo. We got the song down pretty good, did a rough mix of it, and that was it."

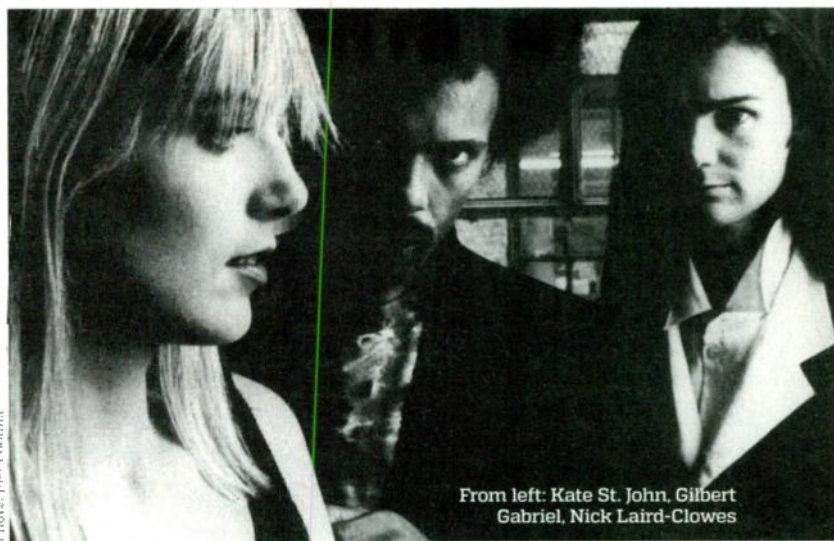
On the strength of that well-developed demo, and eight or 10 less fleshed-out recordings of other tunes Laird-Clowes and Gabriel had written for a prospective Dream Academy album and recorded in inexpensive studios, they managed to land a deal with Warner Bros. The first task at hand was "to go back in with David Gilmour and overdub over the top of 'Life in a Northern Town.'"

Laird-Clowes had known the Pink Floyd guitarist since the late '70s and even hired his brother, Mark Gilmour, to be the lead guitarist in The Act. "I played the song for David and he said, 'I think it's the best thing you've ever done,' and he came up with a couple of little ideas." Later, when Warner Bros. suggested bringing in Gilmour as a producer on the album, "I asked David and he said, 'Absolutely; that's great. But I'm not sitting in the studio with you for four months. You do that, then bring it to me and I'll go through the things I think need changing and if you like it...' But he was incredibly supportive and always said, 'You've got to follow what you believe in,' which I took to heart."

"A lot of what we did on that song [on the Livingstone Studios demo] stayed pretty much intact. We got the backing vocals, the guitars were mostly there, 85 percent of the keyboards and probably all the cor anglais and oboe. I redid the lead vocal later, and did some other back vocals later, as well."

Gilmour had his own studio in an outbuilding on his enormous estate in Henley known as Hook End Manor, an hour west of London, in Oxfordshire. "It was nothing special," says engineer Andrew Jackson of Gilmour's studio. "It was in a barn. There was a huge playing area, which was great, but the control room wasn't anything that good. It had a Soundcraft board, which was decidedly a midline desk. And it wasn't really meant as a proper production room, but rather something he could mess around in. I remember it had UREI 813s as monitors, which were kind of strange, and the control room was not acoustically treated. It was just kind of shoved in a small room. There were a few bits of outboard gear, but again, nothing special."

Jackson had worked with Gilmour on some latter-day Pink Floyd and various solo projects and was enlisted to work on the Dream Academy album. "When I arrived, David and Nick were working on 'Life in a Northern Town,' trying to mix it," he says during a break from working on Pink Floyd's next album. "I found out afterward that was about at-



From left: Kate St. John, Gilbert Gabriel, Nick Laird-Clowes

tempt number five or six. David had done some work trying to get it better, like with the Rototoms [so prominent on the track]. There was a mix that had been done at some point where they were fantastic [Nicholson's ¼-inch Livingstone demo], but no one had ever managed to get them the same. So [David] literally took the entire mix and cut those little bits out and flew them in by hand. It was almost like a really early version of sampling, but it was done cutting tape and laboriously putting in each one."

Laird-Clowes cut a new lead vocal at Hook End using one of Gilmour's Neumann U 87 mics, and also re-did some of the guitar. "We recorded over the mix again and again," Laird-Clowes says. "Every time I got something I thought was better, like a guitar line, I went in and put something over it." Though he says he wrote the song on a Guild acoustic, the guitar on the recording "is probably one of David's Ovations. I think the prevailing wisdom was to use these new guitars that supposedly sounded better."

Gilmour was also helpful when it came to layering in the sound effects that appear in the song. "I'd always wanted to do that, and David was really good at showing me how you could make soundscapes—you didn't just put in a sound effect, you made them up out of four or five different tracks of things; you made little sound worlds, like the winds on that song."

Some of the power of "Life in a Northern Town" comes from the creative employment of different reverbs, particularly on the percussion. Jackson's memory is "we had an EMT plate and a Quantec, one of those early digital boxes. You listen to a Quantec now and you think, 'God, that's grainy,' but at the time they were pretty good." Jackson used UREI compressors, "and there was a Klark-Teknik delay line that had three taps on it. I tended to put that in front of the plate, and have a wet-dry mix as well, so there was the plate, and then the plate a bit delayed, a bit delayed and a bit delayed. You had multiple impressions of the same plate, which would stretch out the front of it more and make it more grandiose-sounding. I believe we also had a [Eventide] 910 Harmonizer."

Jackson says the song was mixed "in little sections," with him, Gilmour and Laird-Clowes each manning a different stretch of the Soundcraft console. "You'd learn your moves and then do two or three takes of the section. You'd cut the best one out, add it to however far you'd gotten, and work your way through the song like that until you were finished."

"It's really a collage," Laird-Clowes concludes. "We put an awful lot on and took an awful lot off, but it was a real vision. It has depth. I got exactly what I wanted, and I didn't give up until I got it that way." ■





A few of the many studios Chris Pelonis has designed, from top: Archon, Cider Mountain Tracking, Jeff Bridges personal, On the Path, and Sony Computer Entertainment, San Mateo, Calif

guy who was very eager to learn and to be in the studio as much as possible," says Michael McDonald. "He was one of the first guys I knew who made his own record, released it on his own label, and worked it on radio. He didn't seem to let any boundaries stand in his way. He's one of the few people I know who has personal experience in nearly every facet of the music business. And he's good at what whatever he does—a good songwriter, a great guitar player, and a great producer, too, with a very distinct and unique style of producing. He sees the genius in simplicity. He breaks things down to the simplest form and then works with that. In the '70s we would mike everything that made a sound, mics up our nostrils in the studio. Chris always saw that those records were great, but not because they had all those mics, but that they had a few placed right to capture the sound."

As we went to press, Pelonis was finishing the last mixes on a Jeff Bridges and the Abiders live record, recorded on the road over the past two years. He's there on lead guitar, he's the musical director of the band, and he's the engineer.

#### STUDIO DESIGN

It wasn't a giant leap from being a musician and artist to his current livelihood as studio designer and speaker manufacturer. He had a problem he needed to solve, and it was in his own studio. By the early 1980s he saw the changes coming in the audio industry with computers and processing power and lower-cost, professional gear. He just hadn't considered the room. He got a space, bought an early Akai 12-track, set up some speakers, and found that it sounded dreadful.

"I spent five years of building and tearing down my own space, 15-hour days," he recalls. "I finally realized that the low frequency was causing all the trouble and was the most difficult thing to address. So I hyper-focused on that and spent years prototyping and building these low-frequency devices and understanding how low end acts in a small room—where it typically causes problems and will accumulate. I finally came up with something that seemed to clean it up, and everybody wanted me to build them for their studios. I was making records but not

making money at that time.

"So I took these absorbers to have them tested in an accredited lab," he continues. "The guy told me that it wouldn't do anything in the low frequencies, and asked if I was sure I wanted to spend the 2,500 bucks. Again, something I wasn't supposed to be able to do. When I came back, he got wide-eyed and said it was not like anything he had seen. It took all the lows out. That became this thing called The Edge, which I eventually patented and trademarked and sold for years. But all I really wanted to do was build a few and carry on with my recording."

Helping out a few friends turned into consulting on studio fixes, and today he's more than 600 studios in to his design career; he never even knew he was a designer until he was nominated for his first TEC Award and found there were others out there. He learned CAD on his own, 3-D rendering, and today he builds virtual models for clients and contractors. Although not licensed, he taught himself architecture, electronics and other disciplines necessary for acoustical design. His overriding philosophy is to listen to clients, to spend time with them, and to give them what they want, while helping to guide them to what he thinks they might need. Often they aren't the same thing.

Over the past 30 years, Pelonis has designed personal studios for individual artists, commercial facilities, mastering suites, film stages and more than 75 rooms for Sony PlayStation Studios, all over the world. He's fixed back walls for friends and he's designed home theaters and listening spaces. He's made a noisy but popular bar-brunch spot in Encinitas sound good, so people can still talk yet feel the energy. He knows acoustics and how sound waves behave in a space.

#### SPEAKERS

*"If anybody talks to me for even 15 minutes, they will hear me talk about Chris Pelonis' speakers."*  
—David Crosby.

For the entire time Pelonis has been designing studios, he has also been acutely focused on the interconnection between room and speaker. He started working in studios in the 1970s, with mains that were big-sounding but far from accurate. The studios of the 1980s, then, were populated by near-fields, from a hi-fi version out of Mitsubishi, to the ubiquitous Yamaha NS-10s, to Auratones. When Tannoy came out with its 10-inch Super Gold, later with a modi-



fied crossover by Doug Sax and Steve Hazelton at The Mastering Lab, he started paying more attention.

"They were on the right track with the phase response of the tweeter and woofer being centered in the same position," he says today. "As you get off-axis, the high frequencies and low frequencies arrive at basically the same time and you don't get the phase anomalies. It's very tricky to get the tweeter and woofer to marry when they are living together. When you have a true dual-concentric—which is different than a co-ax, which basically has a tweeter hanging inside a woofer—the woofer and tweeter become one, and the woofer actually becomes a continuation of the waveguide of the tweeter. Tannoy was doing that, and I started working with them to build a main monitor."

The relationship with Tannoy led from Pelonis Signature Series mains on down to a 15-inch, then 12-inch, then a 10-inch model, which he designed specifically for Sony PlayStation. Artist/producer Jimmy Messina, a friend and colleague in the Santa Barbara area, was rebuilding his home studio when Pelonis brought over an early version of his PSS 112, the 12-inch. Messina still mixes on them today. In fact, he's one of the people who helped drive Pelonis to develop his newest version, the Model 42, a 4-inch powered monitor that he builds and markets on his own. Messina, it seems, wanted a more plug-and-play portable version of what he had with the 12s.

"When Chris was building these 4-inchers in his garage, we went back and forth from his place to my studio, and finally he got them done," Messina recalls. "He brought the final prototype over and I thought, 'Oh my God, they sound like the big speakers I have right here.' Chris said, 'That's the idea. You can go back and forth and not really have any issues.' That's where I relate to Chris. He's very creative on the right side of his brain, and then he can put all the pieces together. He's also a producer and an engineer, and that resonates with me."

It's one thing to develop a line of speakers with a big company, quite another to do a new model on your own. That was never his intent, to be a manufacturer. The prototype he had built would have had to retail at \$3,000 a pair for him to even approach breaking even. He knew nobody would buy them at that price, with so many lower-cost alternatives out there. He partnered with an OEM manufacturer and was exacting in his details and demands to get the final package close to the prototype. He abandoned the MOSFET amp for Class-D, though he kept power outside the cabinet because he doesn't think sensitive electronics should be housed in a vibrating magnetic enclosure, and he finds it more convenient to have a nearby power station and run speaker wire, whether for installation or for portability.

He was near maniacal in his testing of every single piece in the chain—amp, processor, convert-

ers, crossover, power, the ins and outs. He drove the engineering team crazy with his A-B switching. They go up to 35k Hz and down to 70 Hz. "People want to slam them, but you don't need to mix that loud," Pelonis says. "They almost work like a pair of headphones; you can take them anywhere. Not a lot of sub lows but there is a perfectly matched sub, the Model 42LF MKII." Today a pair retails for \$1,299. At a normal cost-to-price ratio, he should charge a lot more.

"You hear a Pelonis speaker and it's just very true," Bridges adds. "When you are listening to music, especially music you are making, you want to hear a very accurate sound. You don't want it to be colored and sound sweet on one system and not sweet on another. You want it to be as accurate a reproduction of what you're making as can be. It turns out he makes these incredible speakers."



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Jeff Bridges, captured backstage somewhere in Northern California, in 1/1200th of a second, by Pelonis, seen in the mirror taking the photo.

Photo: Chris Pelonis

He's been involved in martial arts since he was 12 years old, studying consistently for 25 years, with an emphasis on Kung Fu San Soo, where he took it beyond the combat training and found the inner patterns to train mind, body and soul, and to attain focus. He reached the discipline's highest level, and he learned that there are no shortcuts to getting good at something like kung fu, guitar or studio design.

Lately, photography has re-entered his life, and he's pursuing the art and technology as doggedly as he has every-

thing else. He shot film and had his own dark room as a teenager, but became disillusioned with early digital cameras. Then on a trip to Japan for Sony a few years back he began reading about Foveon sensors, owned by a company called Sigma, which made cameras.

"I bought a Sigma camera while I was there, and I went around Japan

#### THE OTHER STUFF

Chris Pelonis is not unique in any one singular audio talent. There are great musicians, vocalists, engineers, songwriters, producers, studio designers and speaker makers out there. It's more about how he brings them all together, and how he integrates the same ethic in his personal life.

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~ **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*



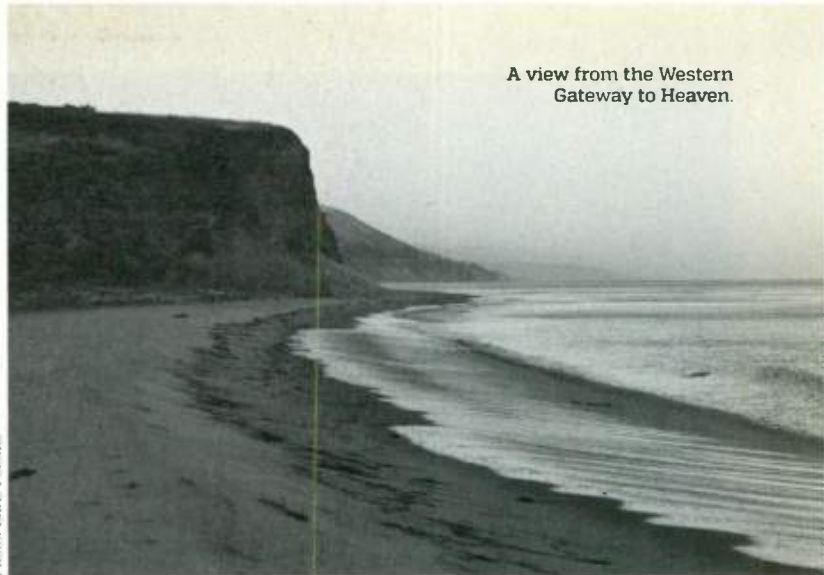


Photo: Chris Pelonis

and started taking pictures," he says. "I thought, 'God, this looks like film! This was a very early version of it, but there was a film-style character that was satisfying. The Foveon sensor basically exfoliates the same way as film. It does a true color separation so there are three colors per pixel instead of one. That made sense to me. I got excited about shooting again. Photography came alive again, just like music did when digital recording got to a certain point."

"Just like with speakers, I want that truism," he says. "The cameras I have now can capture that, but there is also an ability to be abstract and artistic and creative and obscure."

He's a man of faith, and he talks freely of his Christianity without proselytizing. He attributes his bent to help those less fortunate to that faith and his family. "There's a grace and an aesthetic that runs through Chris' work and his life, whether it be making music, designing studios or surfing," says his neighbor and dear friend Jackson Browne. "There is a fine-tuning, and a balance, that I marvel at and can only hope might instruct me."

He is many things, but to truly understand who Chris Pelonis is, it helps to visit his home and family and friends at Hollister Ranch, a small but tightknit community on a 14,500-acre working cattle ranch west of Santa Barbara. That's where he finds his center, on his own ranch with 10 horses, chickens, goats, dogs, cats, an occasional mountain lion, and his loving family of wife, Kim, and children Christian and Jesse.

"This is the most amazing community I've experienced," he concludes.

"It's very eclectic, there's a lot of controversy. It's diverse, with a lot of people with a lot of different ideas. But there's a camaraderie here that I haven't found anywhere else. And I seem to fit here. The Chumash Indians call it the Western Gateway to Heaven, and if you look at Point Conception as sort of this angry male energy coming from the north in the winter, and then on the south side you have the calm—where those two meet is further west than anywhere in California. It's those two meeting as a birth, coming together, creating a life, which is what conception means. There's a lot of stuff happening here that you can't necessarily see, but I get a lot from it. My feelings, my thoughts. So much happens when I'm here." ■

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~ Daniel Adair Drummer - Nickelback.

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~ John Rzeznik

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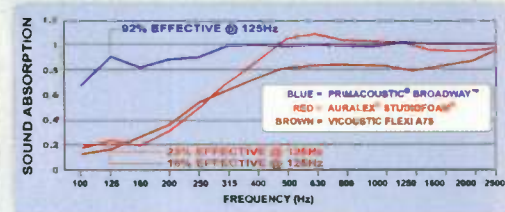
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~ Keb' Mo' - Grammy winner, roots-legend.

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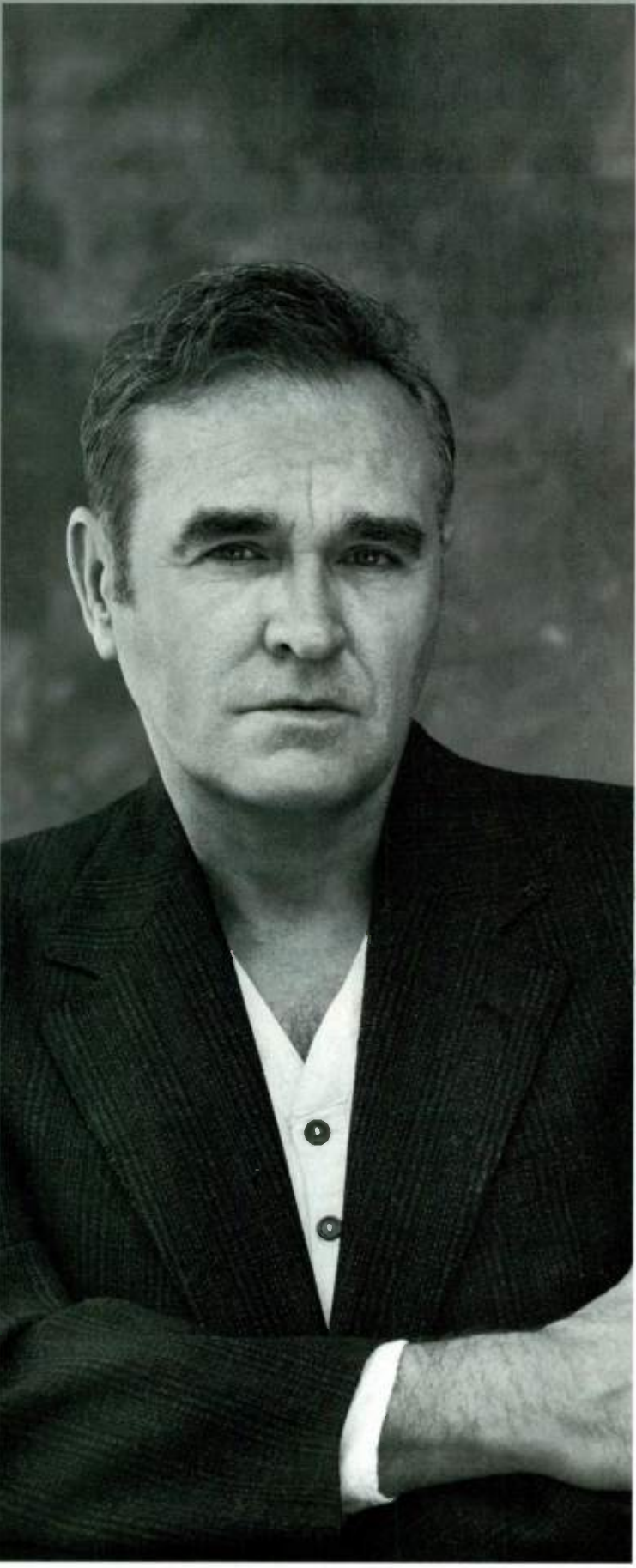
"Not only does my room sound amazing, it's also really beautiful!!!" ~ John Rzeznik - Goo Goo Dolls.



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# MORRISSEY'S FLAIR FOR THE DRAMATIC

*World Peace Is None of Your Business*

BY BARBARA SCHULTZ

When producer Joe Chiccarelli describes the Morrissey album he produced last winter as “musical theater,” he doesn’t mean it in the *Showboat* way. It’s a record full of original stories, with dramatic productions that frame the iconic artist’s creations in theatrical settings.

Many of the 18 tracks begin with some kind of strange and powerful intro—some longer than others—and they’re more or less related to the overall sound and feel of the arrangement. The title track, for example, opens with low bass tones and world music-style drum beats and percussion. The beats carry on into the track, but the song soon breaks open into big, swelling guitar riffs and keyboards, and of course Morrissey’s magnificent, throaty, unmistakable voice.


Chiccarelli produced Morrissey and his touring band in the idyllic La Fabrique studio in St. Remy, a lovely town in southern France. “I was a little nervous, because when you transplant eight or nine guys to a foreign country with all their gear, sleeping in the same place, you don’t know if it will work out,” Chiccarelli says. “But this place is gorgeous, and the studio is world-class. They fell in love with the place, especially Morrissey. He even loved to go look at the frogs in the pond.”

Before heading to France, Chiccarelli had asked Morrissey to provide demos of the songs they’d be working on, but by the time they all arrived at La Fabrique, the producer understood that arrangements and lyrics would really come together in the studio.

“The funny thing is, I insisted on those demos, and he said, ‘Absolutely,’ and sent me 26 of them,” Chiccarelli recalls. “But there were no vocals. It was a surprise to me, but this is the way he always works. Sometimes the people he writes with put demos together, and then for the ones that inspire him, he’ll come up with melodies and lyrics to put on top. But you never ever know what that is until you go into the studio.

“The other unusual thing is, often he’ll do tricky things in terms of songwriting,” Chiccarelli continues. “If you go back and listen to





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Engineer Maxime Le Guil and producer Joe Chiccarelli in La Fabrique Studio.

Smiths songs or his solo records, you'll see he will do things like sing what is the chorus melody—one time he'll sing it over the chorus, but another time he may sing it over the bridge of the song or over a verse, and that transforms it into a whole new section. That means you can't mess with his song structure much, because he's treating it in a different way."

Producer and band, and engineer Maxime Le Guil, developed a process of approaching the songs, nurturing keeper elements from the demos, while developing full arrangements: "First, Morrissey would sing two or three takes to the demo, or maybe with the band," Chiccarelli explains. "These would be very raw—just an indication of where the song needed to go in terms of dynamics and rhythm—but often they would be strong and inspirational; it would all be there in those performances. At least half of the vocals on the album ended up being those guide vocals. We certainly re-sang a number of them, or improved on them, or comped between the guide vocal takes and new takes, but many of those raw vocals got used because they captured the spirit of the song."

After laying down those guide takes, Morrissey would give Chiccarelli some guidance as far as where the band should take the song. "Sometimes it would be as simple as, 'It needs to be big and grand,' or, 'This spot needs to be violent and ugly, but this spot needs to be more open,'" the producer explains. "Then he'd go away for a few hours while we worked on the arrangement and the parts, and when he came back after lunch, he would hear what we had and respond to it: 'I love that, but this part needs to be more aggressive,' or, 'It's too safe.' He pushed me and the band in great ways."

"Joe would then do another 10 to 15 takes with the band, focusing on specific sections of the song and working on the musicians' parts," Le Guil adds. "Then he would take about two hours to do a composite of the whole band between all the takes and make a rough mix for Morrissey to approve."

On "World Peace Is None of Our Business," for example, they started with a demo, but it didn't have the world-beat intro or any of the detail that eventually added up to the majestic wall-of-sound opus the song became. "The entire changeup and feel from the sort of Phil Spector-ish verses to the T-Rex guitar solo—that all evolved in the recording, and Moz was great at directing how he wanted the intro pieces to be and the emotion and color of it. His sense of the big picture is fantastic, as is the band's ability to interpret that sense—especially Matt [Walker], the drummer's ability to take Moz's

thoughts and turn them into rhythms," says Chiccarelli.

"I don't think there's anything on that particular track from the demo that remained in the final," he recalls. "There are songs on the album like 'Staircase' and 'Earth Is the Loneliest Planet' where a couple of elements from the demos might have been retained in the final version, but for the most part, 'World Peace' was created from the ground up."

Le Guil tracked everything—since anything might be a keeper—to Pro Tools (24 /96, Lynx converters). The studio includes several recording spaces with varied acoustics, but most of the band tracks were captured in the main tracking room, called The Arcade, which Chiccarelli describes as "a unique plastered room full of bookcases. It's live but not overly wet and ambient." Morrissey's vocals were mainly tracked in a drum iso room. Still, the natural tone of other spaces came in handy.

"The building is a 200-year-old mill, but the actual property goes back to Roman times," Chiccarelli says. "There's all this beautiful stone in one open area, where we recorded the big parade drum

and percussion instruments [for "World Peace..."]. A lot of the intros and all the wild reverb you hear on the record is real, natural reverb. There's a stone stairwell adjacent to the tracking room that's three stories; some background vocals were done there, as well as tambourines, other crazy percussion."

"There are lots of very different acoustic spaces, from dry to very live, and Joe took advantage of them," Le Guil observes.

The control room features a Neve 88R conole and plenty of outboard gear, and the mic locker includes classic Neumanns and models from David Bock. Chiccarelli and Le Guil brought in some pieces, as well: Neve and API modules, and a Blue Bottle mic that became one of three go-to mics for Morrissey's vocals.

"Some songs were to a new Telefunken USA U47, a lot of songs were to the Blue Bottle, and some were to an old Neumann U 47," Chiccarelli says. "The preamp was always either a Neve 1073 or a Neve 1081; the limiter was a Tube-Tech CL1B, and then there was also a Tube-Tech EQ as well."

"The chain we used depended on what range he was singing in. Sometimes I'd need something a little thicker or warmer, in which case the older Neumann was a little chestier-sounding. When I needed something a little more exciting on the top end, the Telefunken delivered that. The Blue Bottle microphone was interesting in that it has a lot of presence to it, and it seems to project itself through the track in a really nice way. It's a very forward-sounding microphone."

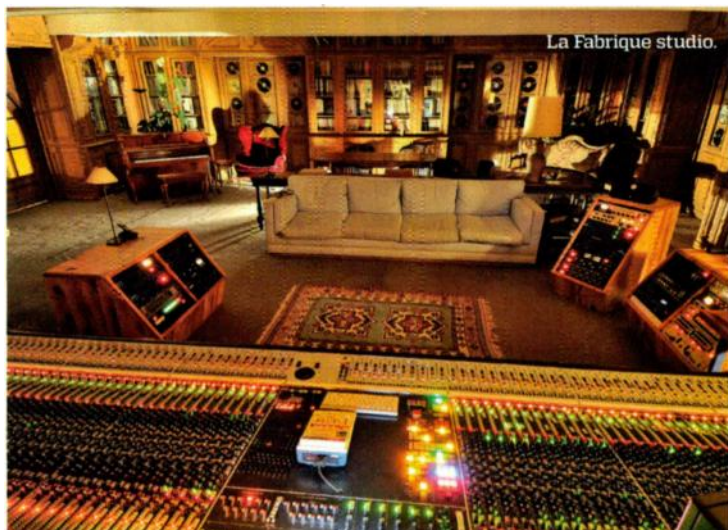
"As far as the reverb on the vocal, the interesting thing there was, at La Fabrique they had an EMT gold foil plate, an EMT 240, which was never one of my favorite reverbs, but somehow on Morrissey's vocal it sounded perfect. There was something just bright and alive about it that worked well with his voice."

On instrument tracks, Chiccarelli and Le Guil went the extra mile to set each track apart, to make it special within its own "theatrical" setting:

"Jesse [Tobias, guitarist] is especially great at coming up with unique guitar colors, so we used a lot of pedals, stompboxes, and mixed and matched things in a lot of weird ways with overly distorted sounds, as well as using the acoustic spaces," Chiccarelli says.

Le Guil captured electric guitars with a Royer R-121 and Shure SM57 (phase-coincident) into vintage API 312 pre's and bused into an API 550A EQ and UREI 1176 RevF compressor. "This is Joe's trick to capturing gui-





"The skill set that you use in the recording studio is different from live, but what these players brought to the project in terms of intensity and excitement, and that over-the-top dramatic quality to their playing, made them fantastic collaborators. They are his family. They are his band, and they understand him and understand what he wants. Some have been with him for years, some are relatively very new, but they were all really committed to him and to his vision."

Chiccarelli mixed the record mainly back on his home turf, at Sunset Sound in L.A. "We started cleaning things up, but when Capitol let us know what our deadline was to meet the iTunes delivery date, I realized it was quite impossible," Chiccarelli says. "So, the mixing got pretty crazy. I had four engineers in four studios going at the same time: Maxime in Paris, I was mixing at Sunset Sound and Ken Sluiter and Csaba Petocz mixing in rooms at The Capitol Tower."

"I was fortunate they were available. They are true professionals and there were no egos. I was lucky they worked long hours to get the job done and delivered great mixes. The last five days were pretty overwhelming for everybody especially Morrissey. It was pretty intense with files coming in from all over the globe at all hours. Then trying to get Morrissey and the label to approve mixes. Then uploading them to mastering in time, but we got it done." ■

*Contributing editor Barbara Schultz is also the managing editor of Electronic Musician and Keyboard magazines.*

tars," the engineer says. "It gives you a very rock, in-your-face sound, which he also got in the past on the Jack White records, for example. Yet it's very respectful of the tone of the guitarist."

"It's interesting: I work a lot with studio musicians, and they're used to making records all day long, whereas this band is a live touring band, and some of them don't have a lot of studio experience," Chiccarelli says.



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# Crisis Management in Mixing

## QUICK REMEDIES FOR SHABBY-SOUNDING TRACKS

BY MICHAEL COOPER

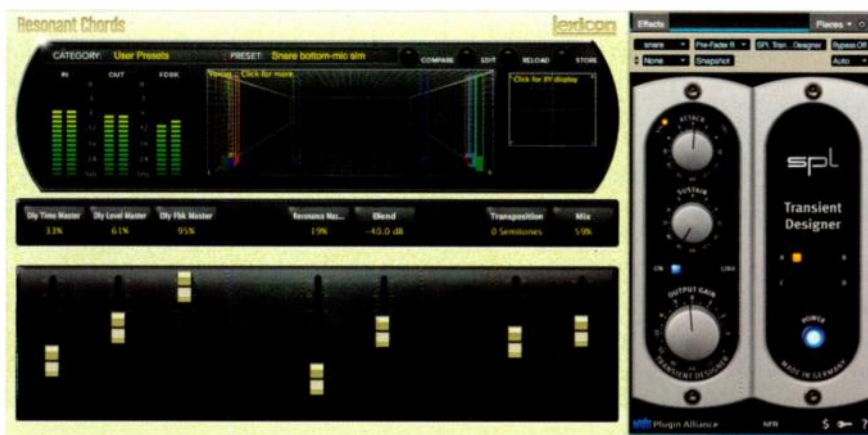


Fig. 1: Lexicon Resonant Chords and SPL Transient Designer plug-ins together process a top-miked snare drum track to simulate the sound of an additional bottom mic.

*The process of mixing can be broadly divided into two primary challenges: whipping individual tracks into shape and achieving a proper overall balance when blending those tracks together.*

Regarding that last bit, no processor will automatically put the bottom end in proper perspective to the rest of the spectrum or sit the lead vocal perfectly in the mix. Those tweaks are balancing acts that require cultivated ears, experience and an accurate mix room and monitoring chain.

Polishing individual tracks is a lot more straightforward, though some dogs take a lot more grooming than others. Thankfully, modern plug-ins can perform miraculous makeovers on even the ugliest of tracks. Here are a few ready solutions to five particularly intractable problems you'll inevitably face at the mix position, whether working on a major-label release, racing to meet a broadcast deadline, or polishing a song-demo project on a shoestring budget.

### THE MISSING SNARE MIC

**Problem:** When bringing up the fader for the snare drum track, it's immediately obvious the drum was captured only with a top mic. You can barely hear the snare's rattle, and the drum sounds like a bongo. How can you add the missing sizzle?

**Solution:** One way is to route the output of a white-noise generator to a new track, slap a gate on the track's insert and bus the snare track via a send to the gate's external sidechain input. Every time a snare drum hit exceeds the gate's threshold, a burst of white noise

will be triggered—a good proxy for rattling snares. Problem is, quieter rolls and grace notes won't trigger the gate and will still sound like they were played on a bongo. It's a moot point, though, as you don't have a white-noise generator on hand.

Another solution is to "re-snare" the snare drum track. Send the track to an active monitor placed in your tracking room. Aim the monitor skyward, directly underneath a snare drum. Mike up the drum's snares, and route the preamplified mic signal to a new, record-ready track. Hit Record and play the pre-recorded drum track from start to finish. Every time the snare drum is played, the speaker will excite the live drum's snares, adding back the missing bottom-mic signal.

What if you don't have a snare drum on hand? You could always layer or replace the snare drum track with samples. But it would take some time to get grace notes and rolls to trigger properly and eliminate false triggering from mic bleed.

The fastest and easiest solution is to synthesize the missing snare rattles by instantiating on a track insert the Lexicon Resonant Chords plug-in, followed by the SPL Transient Designer plug-in in the next insert (see Fig. 1). Once you've programmed and stored the custom presets I'll describe for the two plug-ins—do this before you need them—it will take only seconds to recall their composite effect and convincingly simulate the sound of a bottom-miked snare.

The Resonant Chords algorithm makes up to eight delay voices resonate on specific musical notes when excited by a percussive input signal—in this case, your snare track. The upshot is to make Resonant Chords generate, using very short delay times, a discordant cluster of eight detuned notes spanning as a group around two semitones. The attack portion of the densely packed tonal cluster will imitate the musically unrelated harmonics snares produce when excited. But because the generated tones will ring so long as to create a bizarre-sounding reverb, you'll use Transient Designer after Resonant Chords to severely cut the tones' sustain and match the tighter envelope snares typically produce.

Lexicon provides an outstanding factory preset to give you a head start in creating the effect: Kettle Room 5 (stored in the Odd Spaces category). Edit the preset thus: Increase the resonance value for L Voice 4 to 19%, and bump up the resonance values for the other seven voices to 13%. In the Resonance control section, hike



the Resonance Master value to at least 19% and lower the Blend control to -40.0 to give the resonating tones more prominence. In the plug-in's Master control section, lower the Mix control to 59% to include a healthy amount of dry signal at the output.

Open Transient Designer in the immediately following insert, and plunge the plug-in's sustain control to its lowest possible setting to dramatically shorten Resonant Chord's effect envelope. If the effect still sounds too loose or ambient, lower the Delay Time Master in Resonant Chords' Master control section. Store the settings for both plug-ins, and you'll be able to recall them whenever you need to add a virtual bottom snare mic—in seconds!

### THE ICY AMP SIM

**Problem:** The electric guitar track was recorded through a guitar-amp simulator, and the pick strikes sound like glass breaking. The DI'd source track was erased, so you can't re-amp the track—you're stuck with the sim. You try EQ'ing the track using a low-pass filter to melt the icy attack, but that just dulls the overall sound without fixing the problem. How can you warm up this brittle-sounding track?

**Solution:** When amp sims bite, the problem is usually due to the guitar's attack sounding glassy. The rest of the envelope may sound fine. The solution in this case is to de-ess the track. A de-esser works more transparently than static EQ because it acts dynamically, or only when high-frequency transients sound too prominent.

The Waves DeEsser plug-in and iZotope Alloy 2's De-Esser module both do an excellent job warming up nasty-sounding amp-sim tracks. In Waves DeEsser, select a highpass filter for the plug-in's internal sidechain and set the HPF's corner frequency to about 5500 Hz (see Fig. 2). Toggle the Audio button to the Split setting so that DeEsser will process in splitband mode. With this setup, DeEsser will compress only the high frequencies above the inherent cutoff for a typical analog guitar cabinet; the amp sim's spectra below 5500 Hz will not be processed. The final touch is to lower DeEsser's threshold slider to the point where sharp string attacks trigger gain reduction but the guitar's airy sustain does not. Around 4 to 6 dB of gain reduction on peaks should give your guitar track a smooth tone with a rounded attack and fully preserved presence.

### THE PAPER-THIN FLOOR

**Problem:** The floor tom's track has no bottom end to speak of. The tracking engineer, in his infinite wisdom, tried to eliminate kick-drum bleed in the tom's mic by rolling off low frequencies below 120 Hz with an HPF. Your challenge as mix engineer is to

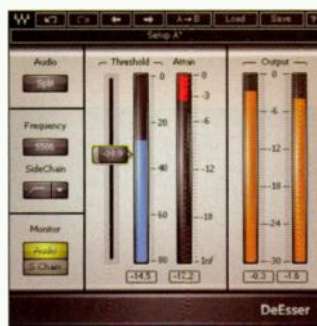


Fig. 2: Waves DeEsser warms up an icy-sounding electric guitar track.

rescue the thin-sounding floor tom track and make it sound huge again. But you can't boost a bottom end that no longer exists. What to do?

**Solution:** Obviously, you could replace or layer the tom track with samples that have more heft. But a quicker solution is to synthesize the lost bottom end using the Waves LoAir plug-in (see Fig. 3).

LoAir filters audio with a lowpass filter before sending the signal to a subharmonics generator, adding spectra an octave lower. The plug-in splits the dry signal into two copies and sends one copy to its LPF, the corner frequency for which you set using the plug-in's Range control. The level of the unprocessed dry signal is adjusted using the plug-in's Direct con-



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control, whereas the filtered (post-LPF) signal's level is set using the Lo control. A mult of the LPF's output is routed, in a parallel path, to a subharmonics generator, the output level for which you adjust using the LoAir control. The takeaway is that the Range control delineates the upper-frequency limit for audio routed to both the Lo and LoAir controls. Although there's some spectral overlap in the Lo and LoAir signal paths, the LoAir control outputs audio with far greater bass extension

To rescue the emaciated floor tom track, instantiate LoAir on one of its inserts. Set the plug-in's Range control to 120 Hz to demarcate the upper limit of the bottom end you wish to restore (spectra the tracking engineer threw away). Adjust the Lo and LoAir controls to set the respective levels of bass and sub-bass reinforcement, sculpting the bottom end to taste.

For technical reasons I don't have space to explain, you may find you need to raise the Lo control higher than the LoAir knob to prevent a hole in the mid-bass response. Keep in mind that raising either control above its 0dB mark will progressively add saturation and produce a more aggressive sound; to bring the bottom end into good balance with the unprocessed mids and highs—without unduly increasing saturation—you may need to lower the Direct control a tad. Once you've



Fig. 3: Missing bottom end on a floor tom track is restored using Waves LoAir.

mastered using LoAir, it should only take a minute or two to restore missing bottom end on any drum track.

### THE ERRATIC DEMO SINGER

**Problem:** A music publisher has handed you a basket of song demos to mix. The publisher's budget is razor-thin, so you have to work quickly. Unfortunately, on one song the lead singer's timbre and dynamics are all over the map. The tone is way too bass-y on verses and

strident on choruses, and the levels swing wildly throughout the entire track. How can you rush through this mix when the money track needs so many fixes?

**Solution:** Luckily, there's a quick fix. Use the Pro Audio DSP Dynamic Spectrum Mapper V2 plug-in (DSM) to rein in the singer's timbre and dynamics simultaneously (see Fig. 4). DSM automatically splits its FFT-based processing across at least 16 frequency bands, so you won't have to spend precious time adjusting crossovers. Processing in all the bands is governed by one set of controls for ratio, knee, attack time, decay (release) time and makeup gain, speeding your workflow further. And because DSM's processing is more transparent than a true compressor's would yield, you don't have to worry about using a sledgehammer on your out-of-control track.

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Instantiate DSM on an insert for the lead vocal track. Listen to the song and, when the singer's timbre sounds the most balanced, click and release the plug-in's Capture button to create a so-called threshold spectrum. Represented by a static yellow curved line in the GUI's X-Y display, the threshold spectrum is the instantaneous frequency response you captured—and the timbre you'd like the vocal track to more or less have throughout the song. As you play back the singer's track, you'll also see a blue curved line moving around in the X-Y display. The blue line represents the vocalist's changing frequency response from moment to moment. Any time a portion of the blue line rises above the yellow one, DSM will compress the vocal in the corresponding frequency bands to move the track's timbre closer to that represented by the yellow line.

The threshold spectrum might not be the absolutely ideal vocal timbre you want for the song, but you can edit the yellow line's shape to make it so, using the parametric threshold controls at the bottom of DSM's



Fig. 4: Pro Audio DSP's Dynamic Spectrum Mapper V2 plug-in simultaneously reins in a singer's erratic tone and levels.

GUI. Lower the line below 1 kHz to put a firmer lid on the boomy and muddy verses. Also lower it around 5 kHz to more heavily compress highs during the louder and brighter choruses. Raising the line at 12 kHz will preserve detail and air throughout the track. Set DSM's ratio to 100:1. Don't worry—DSM stays transparent no matter how hard you hit it. Jack up the makeup gain to compensate for the ultra-heavy compression. Activate DSM's mastering-grade limiter to bridle any peaks that might get past the compressor. The vocal's tone and dynamics will now sound incredibly balanced and controlled throughout the entire song—and it will have only taken you five minutes and one plug-in to accomplish.

#### THE HEAVY BREATHER

Problem: You're engineering the final mix for a video project. The mix has to be delivered by mid-afternoon, in time for broadcast on PBS that evening. On one of the dialog tracks, the speaker's breathing is annoyingly loud in the gaps between each and every one of their sen-



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tences. Some breath noises are much louder than others—you can tell that a noise gate on the track would be prone to chatter. You don't have time to manually erase each breath noise, but they must be subdued, if not completely eliminated, and the clock is ticking.

**Solution:** Either of two plug-ins will tame the wheezing in a heartbeat. Waves DeBreath and iZotope Breath Control can automatically attenuate the breath noises to a consistent level you specify (or mute silence). Unlike a gate, Breath Control doesn't use threshold-based processing. Instead, the plug-in analyzes the harmonic structure of inputted audio to determine which portions are breath noises and need to be processed—no matter their level.

Slap Breath Control on an insert for the dialog track and activate the plug-in's Target-mode button for the most natural-sounding results (see Fig. 5). Raise the Sensitivity slider until the orange-colored meter to its left begins to show signal. A waveform display at the top of the GUI gives you visual confirmation that attenuation is occurring in the track's time-

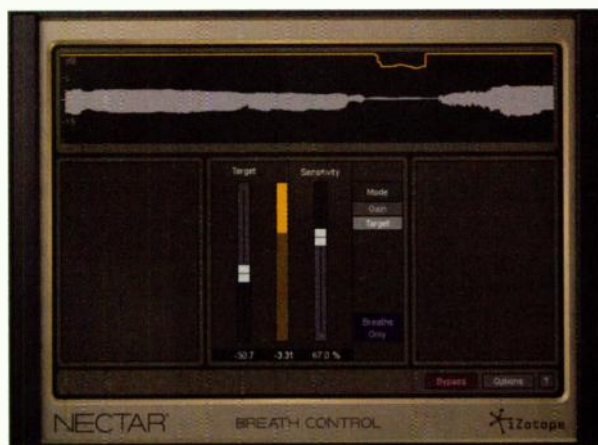


Fig. 5: iZotope Breath Control tames breath noises on a dialog track.

line where it should: An orange gain-reduction trace at the top of the display will dip lower in the gaps between the waveforms representing dialog. Drag the Target slider to the level you want all detected breaths to be reduced to.

Activate the Breaths Only button to hear in isolation the audio being attenuated; if you hear any hint of dialog in Breaths Only mode, lower the Sensitivity slider until you hear only breathing. Once your settings are optimized, deactivate Breaths Only mode. Then bounce the dialog through Breath Control to a new track in real time while listening, to confirm the processing is transparent from track

start to end. Relax, because Breath Control is remarkably discriminating (and way more reliable than a noise gate in this application). Set it and forget it! ■

Mix contributing editor Michael Cooper is a recording, mix, mastering and post-production engineer and the owner of Michael Cooper Recording in Sisters, Oregon.

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BY THE MIX EDITORS

Although the large console has taken a smaller role in studio production, the mid-sized mixer with EQ, inserts, monitor control, talkback and more is still a mainstay. This last year saw The Box from API, SSL Matrix 2, Harrison 950MX and the Toft Trident 88 make their debut. There's also been a rise in hybrid live designs for the middle-class, designed to pull double duty for event production and follow-up post or mixing. And finally, we found a few specialty designs, as manufacturers look to fill the myriad ways engineers and producers work today.

### THE TRADITION



API's The Box analog console is a smaller-format console with the same circuitry, performance and API sound as the company's larger-format Vision, Legacy Plus and 1608 consoles. The Box offers two input channels with mic/instrument/line preamp, HP filter and integral 550A EQ; two input channels with mic/instrument/line preamp, HP filter and 500 slot; two compressors assignable to input channels or program bus with stereo link; 16 summing channels (20 channels during mix); stereo program bus with master fader, insert, and external input; one stereo and two mono auxiliary sends/buses; stereo cue send/bus and headphone system; PFL, AFL and solo-in-place solo modes with stereo solo bus; a full-featured monitor section that supports two stereo monitor systems; a talkback system; and comprehensive rear panel connections with balanced inputs and outputs, and an integrated power supply.

er-format Vision, Legacy Plus and 1608 consoles. The Box offers two input channels with mic/instrument/line preamp, HP filter and integral 550A EQ; two input channels with mic/instrument/line preamp, HP filter and 500 slot; two compressors assignable to input channels or program bus with stereo link; 16 summing channels (20 channels during mix); stereo program bus with master fader, insert, and external input; one stereo and two mono auxiliary sends/buses; stereo cue send/bus and headphone system; PFL, AFL and solo-in-place solo modes with stereo solo bus; a full-featured monitor section that supports two stereo monitor systems; a talkback system; and comprehensive rear panel connections with balanced inputs and outputs, and an integrated power supply.



The Harrison 950mx console (priced per configuration) was specifically designed to minimize common ergonomic issues found when using DAW/outboard setups. The two-tiered front bolster is wide and deep enough for a keyboard and mouse, and the flat top is ideal for monitor(s) and/or small speakers. The frame comes in standard 12, 16, and 24-module versions, where mono mic/line inputs or stereo line inputs can be purchased in groups of four. Each module features an insert switch, 3-band EQ, panner, polarity reverse switch, line selector, preamp gain, 4 aux sends, solo switch and 100mm fader. Other features include four-LED input meters, stereo mix bus compressor, oscillator, talkback mic, headphone jack and more.

PMI Audio's Toft Trident 88 8-bus console features a fully discrete Class-A design mic pre with the option to add Lundahl transformers to any number of channels. Its Fully Modular Design



means that all channels, faders and connections are individually removable for servicing. The preamp has a full bypass post-fader insert point for any external preamp or API 500 Series rack. The console has a 4-band fully sweepable Trident EQ at its core. Every channel has a full EQ and a Tilt EQ (two inputs per channel, each with EQ) on the Monitor section, with the ability to switch the full EQ from the input path to the monitor path. The Master section features eight Aux Masters each with Solo. There main speaker outs and two separate ALT Monitors,

each with level control and on/off switches. Trident 88 connections are all via 1/4-inch balanced TRS jacks and XLR combo jacks.

The Solid State Logic Matrix 2 builds on the SSL Matrix console as a genuinely hybrid production platform, combining SSL analog summing,



streamlined integration of analog outboard mic pre's and processing

(via its software controlled analog patch system) and advanced DAW control surface. Hardware device inserts can now be loaded directly from the console hardware controls with an intuitive interface that facilitates loading individual processors, A/B comparison of different processors and building processor chains. Matrix 2 adds a Fader Linking system to facilitate stereo or 5.1 channel control or subgroup-style mixing. The A-FADA summing system used in Duality, AWS and the new SSL Sigma rack has been introduced to enable the analog faders of Matrix 2 to be driven by automation data from a user's DAW. A 5.1 output card is included as standard in all units.

### HYBRID CONSOLES

Hybrid consoles saw the strongest growth due to blurred lines between live and studio production.



Alesis' Multi-Mix 16 USB FX is a 16-channel mixer with built-in DSP effects and a foot-switch bypass control that has eight XLR inputs with

gain trim, switchable highpass filters, and 48-volt phantom power. It offers 1/4-inch line level inputs on all 16 channels, a high-impedance in-



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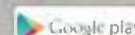
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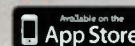
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put on channel 2, and a Tape RCA stereo input. Channels 1-8 feature 3-band EQ (with sweepable parametric midrange control on channels 1 through 4), while channels 8-16 have 2-band EQ. The console also contains an aux out and stereo returns, as well as insert jacks on channels 1-4. The USB recording interface (16-bit, 44.1/48kHz bidirectional stereo) for Mac and PC requires no software drivers. Main and headphone outputs have independent level controls, and the mixer includes Cubase LE software.

**Allen & Heath's Qu-24** is a 30-in/24-out digital mixer with touchscreen, 25 motor faders and AnalogiQ recallable preamps. Qu-24's 24 AnalogiQ total recall preamps feature



zero crossing detection and an advanced padless 1dB step gain stage, closely allied to the DSP for optimal gain accuracy and audio transparency. The analog signal is captured by low-latency 24-bit A/D converters matched to 24-bit D/A converters. The 800x480-pixel touchscreen and its dedicated data encoder provide access to all settings. The SuperStrip layout offers one function per physical control and is complemented by an onscreen Touch Channel for intuitive access to full processing parameters. Processing for mono and stereo inputs includes trim, polarity, HPF, gate, insert, 4-band PEQ, compressor and delay.

**Mackie VLZ4 Series** mixers include eight models, ranging from 4 to 32 channels, and



feature boutique-quality Onyx mic preamps for a 60dB gain range, as well as the Mackie M-80 Op Amp for even less noise and more headroom. The 32-channel **3204VLZ4** is a 4-bus mixer featuring 28 Onyx mic preamps; improved RF rejection; 28 line inputs with dedicated inserts; level, pan, solo and overload/mute LEDs on each channel; 3-band EQ with sweepable midrange; 18 dB/octave 100Hz low-cut filter on mic input channels; six aux sends with inserts, pre/post fader and in-

ternal/external FX send options; two stereo returns and four group outs with inserts; 60mm faders; high-resolution 12-segment stereo meters; and more.

The **Midas M32** digital console for live and studio applications presents 40 simul-



taneous input channels, 32 Midas microphone preamplifiers and 25 mix

buses. AES50 networking allows up to 96 inputs and 96 outputs, and an open architecture allows for future 96kHz operation. It also includes 192kHz ADC and DAC converters. Backing the analog input section are Cirrus Logic multichannel 192 kHz-capable A/D converters with a stated 114dB dynamic range. Multiple alloys have been employed throughout to guarantee maximum component efficiency and an improved performance-weight ratio.

**Peavey Electronics PV Series** non-powered mixers include the PV 6, PV 6 BT, PV 10 BT and PV 14 BT consoles, all built with



studio and live applications in mind. PV Series mixing consoles feature reference-quality mic preamps with .0007% total harmonic

distortion, direct outputs for recording, stereo channels, Bluetooth capability, digital effects, streaming USB out, 48-volt phantom power, dual selectable control room outputs, compression, a 3-band EQ per channel with bypass, channel mute buttons, signal clip indicators, and a stereo master LED meter bridge. Along with DAW interface connectivity, the on-board selectable guitar preamp adjusts the EQ and preamp specifically for guitar.

The 24-channel **PreSonus StudioLive 24.4.2AI** mixing console has 20 dedicated



mix buses, and feature Burr-Brown AD/DA converters and new DSP architecture based on the 64-bit Stu-



dio One audio engine. The mixers offer an onboard FireWire s800 interface; a tightly integrated software suite for Mac, Windows, and iOS; and direct Wi-Fi and LAN communication. See this month's review for more.



Harman's **Soundcraft Si Performer 1**, one of three models in the company's Si Performer Series, features two Option Card slots available for ViSi Connect Expansion cards, 80 inputs to mix, Soundcraft's patented Fa-

derGlow and Channel Displays for instant mix status, plus the DMX interface and control in a single 19-inch rackmount console. The Si Performer's two Option Card slots enable users to connect stageboxes, while providing the ability to connect to audio networks like Dante, BLU Link, and CobraNet. The Option Card slots also allow for use with personal monitoring systems like the dbx PMC Personal Monitor Controller via BLU Link. Fully parametric 4-band EQ is standard on all input channels, and BSS graphic EQs on all bus outputs. The Si Performer 1 also features eight VCA groups and eight mute groups for easier control over Si Performer 1's 80 inputs and 35 buses.



Each console in the **Soundcraft Si Expression** range is identical in its feature set, differing only in the number of faders and local mic amps. Each has four line inputs, four internal stereo FX returns, AES in, and a 64x64 expansion slot offering more than enough scope to use every one of the 66 input processing channels. Every input-processing channel has dedicated processing for highpass filter, input delay, gate, compressor and 4-band EQ. Each bus mix features a compressor, 4-band EQ, BSS graphic EQ and delay always available all of the time. Output connectivity is comprehensive with all models featuring 16 balanced line outputs, headphone monitor out, AES out and the 64x64 option slot.

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The 10 models in the Yamaha MG Series mixers incorporate technologies developed for high-end professional mixers, including studio-quality preamps, powerful DSP and rugged, reliable construction. All come with Yamaha discrete Class-A D-PRE preamps,



featuring multiple circuitry elements designed to provide more power, deliver lower impedance and supply a wide frequency range. New XU models offer digital connectivity and software including Steinberg Cubase AI. The MG mixers also feature 3-band channel EQ and highpass filters; models with more than 10 inputs are equipped with newly upgraded 1-knob compressors that add optimized compression to a wide variety of input sources with the touch of a single control.

## SPECIALTY CONSOLES



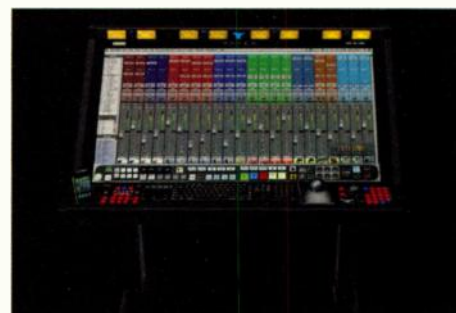
Avid's S3L boasts the ability to record the band, then take the console back to the hotel room for mixing after the show. It incorporates Avid's Eucon protocol, allowing for work with any number of DAWs. The 16-fader control surface weighs 14 pounds and has 10-segment meters, four analog inputs (2 XLR mic/line, 2 TRS line), four analog outputs (2 XLR line, 2 TRS line), two Gigabit Ethernet AVB ports and two USB 2 ports. The two-rackspace, HDX-powered, floating-point DSP-based engine contains 64 input channels with full processing; onboard 4-band parametric EQ on every input and output channel; 24 aux buses (LCR, plus 8 mono matrices and 8 VCAs); onboard dynamics; 32-bit floating point processing; plug-in support based on AAX DSP; and direct Pro Tools support with no interface required. The basic system 4-rackspace Stage

16 I/O Box comes with 16 XLR mic inputs with preamps and 8 XLR outs, along with 4 channels of AES3 input/output.



The Roland Systems Group M-200i is a compact 32-channel digital console offering iPad control. The M-200i features 17 mo-

torized faders, 8 Aux, 4 Matrix, 8 DCAs and 24 inputs and 14 outputs on the console itself (expandable up to 64x54 via the REAC port and Roland Digital Snake technology). The iPad application enables remote control of all key features, including preamp control, pan, highpass filters and PEQ and GEQ control. It also includes the ability to store and recall scenes, adjust compressors and gates, sends on faders and effect editing. The wireless network is created by plugging a router into the LAN port on the M-200i or by plugging the Roland Wireless Connect adapter (WNA1100-RL) into a USB port.



The Slate Pro Audio Raven MTX is a 46-inch touchscreen display featuring the Raven Mixer, a powerful multitouch mixer that can control all major DAWs, and a flexible and user-customizable, multifunction Toolbar. The Raven also incorporates a full-featured analog monitoring section with multiple speaker outs and input sources, smartphone connectivity, USB, multiple headphone send and cue options, and more. The analog section of the Raven has 100% digitally controlled analog circuits. The monitor section has four speaker outputs, multiple source inputs, built-in laptop reference speakers, 8-channel cue outputs for custom headphone mixes, a 7.1 module, and convenient console-top USB ports. It also includes iPhone 4 and 5-ready Raven iDock



and multiple talkback mic options, including Raven's automatic hands-free mode.

**Softube Console 1** is a tightly integrated hardware/software system that can be used with any major DAW to deliver the analog sound of Softube's plug-ins in combination with using physical knobs and buttons. Inserting the Console 1 plug-in on any or all mixer channels of a DAW routes the sound from the DAW into the Console 1 mixer and back; users then press a track selector button on the Console 1 hardware and start adjusting the knobs. Each function on the channel strip has a corresponding knob or button on the hardware. The Console 1 package includes Softube's model of the Solid State Logic SL 4000 E analog console. Softube also included its Transient Shaper and a model of the harmonics, distortion and non-linearities obtained from overdriving the 4000 E, which can be used to add analog distortion across the entire mix.



stereo buses, eight fader monitor section and room for a Cinema display, making it a unique home and front end for your DAW. WunderBarSE offers 8 mono channels with pan pots, plus your choice of 12 to 48 stereo channels via DB-25 connections, all fully routable to the master section of the full Wunderbar console. The Master Section includes a Control Room Monitor for monitoring six stereo sources, including buses. Mono, Dim, Mute, and Solo Clear on large illuminated switches. The internal routing of subgroups to the stereo bus eliminates external patching, sparing monitor faders. The 8-fader monitor section includes solo, pan, and placement into any of the buses. Other features include P&G 100mm Conductive Plastic Faders, thick hardwood end-cheeks, and full leather armrest.

Other specialty units like the **Yamaha Steinberg NU-AGE** specialize in one select area. This Nuendo-specific desk is aimed at post-production engineers.



A joint collaboration between Yamaha and Steinberg, NU-AGE adds Dante for networkable systems, along with Nuendo DAW software. The Yamaha control surface features a combination of fader and main control units, and NUAGE's modular architecture and network audio interface enable broad system flexibility. Three types of high-end audio interfaces are available, used individually or in combination for up to 128 channels. NUAGE I/O also features advanced JetPLL jitter reduction technology for extremely low jitter and superior AD/DA resolution. ■

Some specialty DIY consoles like the **Tree Audio Roots** give the user a solid base of preamps and some monitor control, plus the ability to build out the console with 500 Series units. On The Roots 8- and 16-channel 2-bus mixing consoles, input channels use a vacuum tube-based signal path for mic, line or direct inputs, and provide EQ and limiter on every input channel. There are four slots for 500 Series modules and vacuum tube regulated supply for all tube input modules. The Input module features meter, meter select (input, gain reduction, output), pan, stereo-bus switch, low-frequency and high-frequency EQ, gain reduction pot (limiter) and limiter switch.

The **Wunder Audio WunderBarSE** defines its own category: It's a high-end summing bus featuring three distinctly flavored

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# MIX REGIONAL: CANADA

## REVOLUTION RECORDING, TORONTO

Revolution Recording has ordered a Neve Genesys G96—with 48 1073 mic pre-amps, 24 1084 equalizers, 24 88RS EQs, full dynamics, full recall, DAW control, and Encore automation—to be installed in Studio C this fall.

"After looking at the various options, the Genesys was the obvious choice," says managing partner Joe Dunphy. "We really needed a desk that is input-compatible with our other rooms while still having a small footprint. We also need recall, automation and surround monitoring. Studio C has a high client turnover; we can be recording a band one day and then mixing a commercial the next. And the Neve name, of course, speaks for itself."

A number of artists have visited Revolution recently, including, in Studio A: rock band Danko Jones, with Eric Ratz producing and engineering; singer-songwriter/musician/composer/activist Buffy Sainte-Marie, with Michael Wojewoda



Engineer Eric Ratz (standing) with Danko Jones

producing and engineering; rock band Big Wreck, with Ian Thornley and Ratz producing (Ratz also engineered); Tokyo Police Club worked on *Forcefield*, with Doug Boehm producing and engineering; indie rock band The Dears, with 6333699 Canada Inc. producing and Dave Schiffman engineering; and pop/rock singer-songwriter Matthew Barber worked on *Big Romance*, with Gary Louris producing and James McKenty engineering. Studio B saw soul/goth-rock singer-songwriter Cold Specks working on *Neuroplasticity*, with Jim Anderson producing and engineering.

## Mechanicland Studios, Montreal

Mechanicland has undergone some renovations recently, including the installation of a 5.1 surround system for post and film/TV work. The studio has also upgraded its console from a Euphonix CS/3000 to an Avid Icon 32-channel D-Control alongside a modified Neve 8014. A new Pro Tools HDX system has also been installed running the latest Pro Tools 11 software.

Founded in 2006 by owner Eliot Mechanic, Mechanicland focused primarily as a production and publishing house in the Montreal North district. In 2011, the studio opened its doors as a commercial studio. Set in a historic church, the studio offers musicians and engineers an opportunity to work in a live room with exceptional acoustics, striking architectural features, and natural light. Mechanicland also has a unique collection of vintage gear. Omar Raafat, founder of Mix Studios, manages the facility.

Recent session work includes country artist Renée Martel, who worked on her album *La fille de son père*, with Toby Gendron engineering and producing; hybrid pop/classical group Plumes worked on *Plumes Ensemble*, with Saam Hashemi engineering; instrumental rock band Appalaches

worked on a debut album, with Jean-Bruno Pinard and Nicolas Roberge engineering; actor/musician Mario Saint-Amand recorded *22 Caline de Blues*, with Gendron engineering; and jazz artist Neisy Wilson worked with engineers Pdraig Buttner-Schnirer and Raafat and producer Stefano Galante.



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## STUDIO 451, MONTREAL

Videogame developer Ubisoft worked on material in Studio A with producer Dave Gossage and engineer Padraig B. Schnirer...Jazz vocalist/Juno Award-winner Sonia Johnson was in Studio A, with Paul Johnston producing and engineering...Jazz guitarist/Juno Award winner Mike Rud was in Studio A, with Johnston producing and engineering...Singer-songwriter Shakira was in Studio A with engineers A. Avon and E. Romer (Shakira self-produced)...Author Mitch Joel worked on an audio book in Studio B, with Hachette N.Y. producing and Romer engineering.



L to R: Matt Snell, Mike Smith, Bruce Griffin, Barry Lubotta

## PHASE ONE STUDIOS, TORONTO

Naomi Adler worked on her debut album for Marshmellow Records, with executive producer Barry Lubotta, producer Bruce Griffin, engineer Mike Smith and second engineer Matt Snell...World-beat haute-rock band Young Empires were in Studio A with producer Steve Kozmeniuk and engineer Jeff Pelletier...Singer/actress Victoria Duffield was in Studio A with producer Ron Lopata and engineer Jeff Pelletier...Alt-rockers Moist were in Studio A with producer/engineer Paul Northfield and second engineer Dajaun Martineau.



## THE WAREHOUSE, VANCOUVER

Hard rockers AC/DC were in Studios 1, 2 and 4 tracking and mixing with producer Brendan O'Brien and engineer Mike Fraser...Rock band Black Veil Brides were in Studio 2 tracking with producer Bob Rock and engineer Eric Helmkamp...Singer-songwriter Van Morrison was in Studio 2 mixing with Rock producing and Helmkamp engineering...Singer-songwriter Jesse Labelle was mixing in Studio 1 with producer Gavin Brown and engineer Randy Staub.



Assistant Trevor Anderson, Justin Bieber and engineer Douglas Romanow.

## NOBLE STREET STUDIOS, TORONTO

Justin Bieber was in Studios A and B with engineer Doug Romanow...Rockers Three Days Grace were in Studios A and B with producer Gavin Brown and engineer Lenny De Rose...Hard-rock band the Trews, along with musician Serena Ryder, were in Studios A and B with Brown producing and De Rose engineering...Vocal quartet The Tenors were in Studios A and B with engineer George Seara...Rock band Metric was in Studio A with Brown producing and De Rose engineering...Singer-songwriter Nick Carter was in Studio B with Seara engineering.



## BLUE LIGHT STUDIOS, VANCOUVER

Alt hip-hop band Swollen Members worked on the track "Brand New Day" with producer Rob The Viking and engineer Kaj Falch-Nielsen...Indie-pop/folk band Forest and the Sea worked on an EP with Jean-Paul Maurice producing and engineering, and Joey Nassir assisting...Folk/roots/rock artist D.G. Adams recorded and mixed the album *Vajra* with producer/engineer Falch-Nielsen...Electronic singer Aloma Steele worked with Varien and SirensCeol on "Moonlight," and with Culture Code on "Dreamer," with Varien and SirensCeol producing and Falch-Nielsen engineering.



## MONARCH STUDIOS, VANCOUVER

Rough folk artist Adrian Glynn recorded "The Girl I Could Never Have," with Tom Dobrzanski and Zachary Gray producing and Dobrzanski engineering...Indie folk band Red Haven worked on an upcoming EP, with Dobrzanski producing and engineering...Indie-rockers The Zolas worked on an upcoming album, with Dobrzanski and Gray producing and Dobrzanski engineering.



## FADER MOUNTAIN SOUND, VANCOUVER

Rock band One Bad Son was in tracking a new album recently, with producer Eric Ratz...Producer/engineer Scott Terman was tracking the rock band Gay Nineties' forthcoming album...Chin Injeti was tracking choir vocals for rapper Aloe Blacc's "I'm the Man" from the album, *Lift Your Spirit*...Ben Kaplan mixed Buffy Clyro's album *Similarities*...Garage-rock duo The Pack A.D. recorded and produced two B-Sides for their latest release, *Do Not Engage*, with producer/engineer Daniel Byrne...

Chris Holmes was in tracking drums with Nick D'Virgilio (Genesis, Cirque Du Soleil).

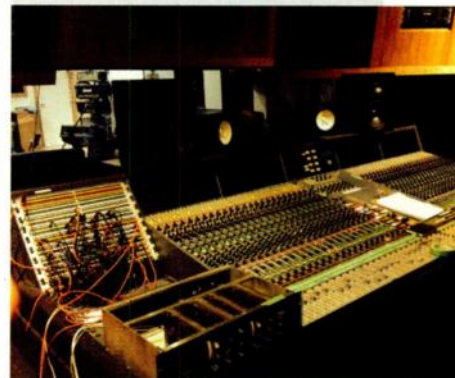


## BLUE BEAR SOUND, OTTAWA

Rock band Sleepwalk Plaza recently worked on new material with producer Trieste...Indie rockers Second Sight are mixing their new album...Romanian indie artist Razvan Albu worked on new material...Country artist Kira Isabella was in the studio with producer Jerry Lane...Author Dr. Yoni Freedhoff recorded his full-length audio book *The Diet Fix: Why Diets Fail*...Research Psychologist and Professor at Carleton University Dr. Tim Pychyl recorded his audio book *Solving the Procrastination Puzzle*.

Control Room

## Greenhouse Studios, Vancouver



Neve VRL 48 in Studio A Control Room

Studio A recently installed and refurbished a Neve VRL 48, and also integrated an Ampex 16/24 track 2-inch machine to complement the Pro Tools HD48/48 rig. Additionally, the studio has added a new grand piano (a Rhodes Mark V), a '70s-era Ludwig drum set and a Marshall JCM800 amp to its vintage Neve and API units in Studio A.

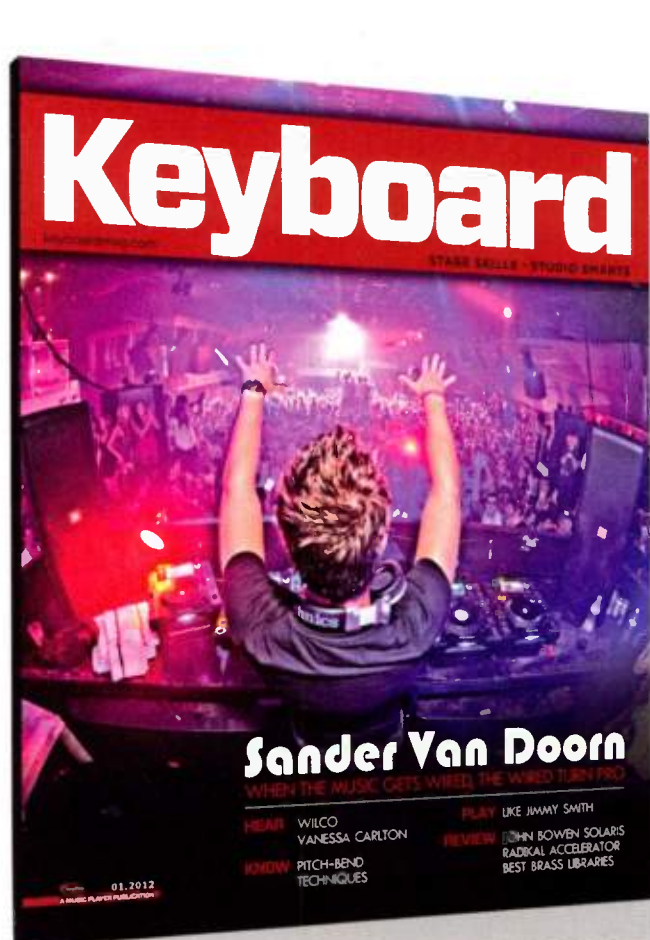
The Mounties—a Canadian supergroup made up of Ryan Dahle (Limblifter, Age of Electric), Steve Bays (Hot Hot Heat) and rock singer-songwriter Hawksley Workman—recorded their debut album in Studio A. The album was produced by the band and engineered by Chris "Hollywood" Holmes.

In other artist news, electropop singer-songwriter Lights recorded her new album with producer Drew Pearson; the New Pornographers recorded tracks for their latest album, with Howard Redekopp engineering and producing; and producer/engineer Matt Roach recorded the newest Revenger album in Studio A.



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# CANADIAN CRED: GARTH RICHARDSON & MIKE FRASER

BY WES MAEBE



**W**ith nearly eight decades of experience between them—including seminal projects for Rage Against the Machine, Red Hot Chili Peppers, Metallica, Van Halen, Aerosmith, AC/DC and Biffy Clyro, as well as a number of Juno Awards—Garth “GGGarth” Richardson and Mike “The Frazee” Fraser are two of Canada’s finest, most well-respected producer/engineers. This month, *Mix* sat down with them to talk careers, the magic of music creation and a few go-to recording and mixing techniques.

## Let's start with how you got started.

**Richardson:** I started hanging around my father [producer Jack Richardson] in the studio at the age of 5. He was doing a session with Bobby Curtola for Coca-Cola at a studio called Hallmark in Toronto. This was my first time being allowed in a session. I soon found out what the talkback button was, and, when he was out on the floor, I would keep hitting it, and...well, let's just say, never get Jack mad. Never have I seen a man run so fast to come up and tan my backside! I hid in the tape vault. The engineer felt so bad, he gave me my first reel of tape. That's probably when I first got the recording bug. At age 14, I became the janitor at Nimbus 9 Studios. I would sleep at school all day, go and clean up the pee and puke in the bathrooms, and then sit in on sessions all night long.

My first gig as a second engineer was on Bob Seger's *Night Moves*. My father was asked to do four songs with Bob, but he only had two. They did a cover song for the third. After the tracking, Jack sent the band home and started to mix. Later, Jack fetched Bob to hear the mix and heard him playing this song “Night Moves,” and Jack said to Bob, “This is a hit.” Bob

said he hated it. I happened to be there, and I got to set up the room and watch them record this song as a second engineer. I was hooked.

When I told Jack I wanted to produce records, he said he needed to have a sit-down with me. I was waiting for this long talk on how to make it in the music-production biz. He put his hand on my shoulder and said, “Son, good songs sell, bad ones don't.” I said, “That's it?” He said, “Yeah,” and walked out of the room. It's still true to this day, and I tell that to artists all the time.

**Fraser:** I was in a garage band while I was in school. It was pretty obvious right away I wasn't going to make a career from that, so after a couple years of driving trucks and heavy equipment, I decided to look into the music business as a career again. I managed to get a janitor job at a local Vancouver studio called Little Mountain Sound. At that time, it was mostly a jingle house. After doing my janitor duties, I would help set up the day's sessions and assist the in-house engineer—Roger Monk.

At the time, Bob Rock was a budding engineer there, and in the evening he would record local punk bands. So naturally I asked if he'd like some help. My typical day ran from 5 p.m. to 2 a.m. I had a sleeping bag stashed at the studio and would crash in the loading bay or whatever empty room was available. Bob soon after teamed up with Bruce Fairbairn, and I ended up being Bob's full-time assistant.

**Mike. For me, your most famous work is with bands like AC/DC, Aerosmith, Van Halen, Slipknot, Thunder, Rush and Metallica. How do you go about creating such a dense and massive sound and yet manage to keep everything clear and loud?**

**Fraser:** I think it's back to the basics of keeping things simple. Listen to the instrument you're about to record, and determine what it is you're trying to get out of it. Find the sweet spot of where that sound is coming from, and stick a mic there. That's all there is to it. Yes, of course there are a lot more subtleties to recording, but if you don't even get that basic idea right, you're making things too difficult.

**Garth. Some of the work you are most known for—Rage Against the Machine, Red Hot Chili Peppers and Biffy Clyro—can come across as pretty heavy but still with a big commercial sound.**

**Richardson:** I try to make each band sound like themselves. This again goes back to making sure everyone is playing the right parts and making sure the sound in front of the mic is always great. I don't want the same painting in every room.

**Some people like to start from the drums up, others like to throw up all the faders and sculpt away from there. How do you start a mix?**



Mike Fraser



**Fraser:** I like to do a combination of that. I usually throw up the faders and see where the song wants to go and try to get a picture of what the artist and producer were going for. Then I strip it all down and start from the drums up. Depending on the genre of music, I like to get the vocal in there pretty early on and build around that as well.

**Richardson:** Mixing engineers were called balancing engineers in the old days. Before the dawn of Pro Tools, engineers would record a session such that you only had to set your faders at zero and the session would be properly balanced. Then you only had to adjust some faders slightly. These days, with all the tracks and plug-ins, you'll see faders all over the place on the mixing console. It's the Wild West out there. Too many people reach for plug-ins and EQs just because they are there. If it were possible to put 60 plug-ins on a track, people would do it!

#### **How do you get a distinct, clean, powerful bottom end?**

**Fraser:** Bass for me is almost a bit like a vocal in that the approach you take very much depends on the style of music. There can be clean, up-front-sounding bass tracks, or more super fuzzed-out basses that sit back in the track, and everything in between. The bass bottom end needs to match and complement your kick drum, as well as stay out of the way of the lower guitar range. Compression can help a lot, but again, too much can suck dynamics out of the performance, so you need to be careful and dial the compression in for exactly what you're looking for. The Fairchild 660 and 670s are awesome for this.

**Richardson:** This goes back to how a speaker works. The bottom end—the kick, bass and the bottom end of the guitars and any keys that are playing in that range—must all be in tune and hitting at the same time. This way, the speaker moves the way it should. Everything is pushing and pulling at the same time. Phase is a big thing, too. That phase button on every console is your best friend. Moving mics on a bass cab back and forth in front of a speaker can make a world of difference, too. We use the Little Labs Phase box a lot. That is a must-have in your engineer toolbox.

Another thing that we do regularly is test cables. Cables sound better going one way than the other. Plug in your cable on your bass, and then switch it the other way and you will hear a difference. One way will always give you better bottom end. People tell me I'm smoking crack when I say this, but then I show them, and it blows them away.

#### **I remember seeing a picture of Mike with some mad vintage military-style limiter. What can you tell me about that beast?**

**Fraser:** That beast is my RCA BA-6A compressor. I believe it is a '50s-era radio station compressor. When I worked with Jimmy Page on the Coverdale-Page record, he had brought a bunch of them in, and I fell in love.

Jimmy was saying that *Led Zeppelin III* was mostly recorded through the BA-6As, so I had to get a pair. They work great on just about anything, from room mics to guitar solos. They are a bit of a one-trick pony, as you can only adjust the input and output levels.

**Garth, I understand you set up a full-blown P.A. system in the live room to record the self-titled Rage Against the Machine album.**

**Richardson:** Working on the Rage record was a blast and a lot of hard work. This was before Pro Tools was being used. I went to see them live and was blown away by how great they were. As a producer, I did not want to just take them into a studio, make them wear headphones, and then say "rolling." I wanted to make it like a live show. I had rented a Meyer P.A. system and set it up with Brad [Wilk, drums] behind it. Tim [Commerford, bass] and Tom's [Morello, guitars] amps were in the back rooms at Sound City. Zack [de la Rocha, vocals] used a Shure 58 for his vocal. I had the whole band blasting back through the P.A. while they were playing.

We tracked most of the record live and did a few fixes along the way. On the song "Settle for Nothing," Tom wanted to redo his solo. If you listen carefully to this song on the record, because we recorded it live, you can hear the old solo bleeding through the drum mics. It sounds like a tape echo. We got lucky.

#### **What are some of your current projects?**

**Fraser:** I've just finished doing a new AC/DC record with Brendan O'Brien producing. It's the same team we had on the Black Ice record. We had a lot of fun doing it, though Malcolm [Young, rhythm guitarist for the band, who is currently on leave due to ill health] was missed terribly.

I'm heading off to Poland for the month of August to record with a band called Chemia. In September, I'm in London mixing for my long-time buddy's band, Thunder.

**Richardson:** My next project is a band from Finland called The Von Hertzen Brothers. I am currently working with a few bands: Ninja Spy, The Washboard Union and Wolfborne. Bob Ezrin just mixed a record for me: the band Gloryhound coming soon on eOne. I'm also starting work with a band called The Lazys, from Down Under. They sound like Guns 'N Roses meets AC/DC.

#### **I saved the hard question for last: What project are you most proud of and why?**

**Richardson:** The Rage record because it changed the world, and it had a voice for the youth; all three Biffy Clyro records because they are so musical and smart, and they are the best bunch of guys—I turned them into hockey fans, too!; and Mudvayne LD-50 because it is one of the best-sounding records I have done in that style. Best bass sound ever, in my mind.

**Fraser:** I don't honestly know if I have a favorite project. Most of them I have very fond memories of, with some great laughs and stories. I feel very lucky to have worked with so many talented and awesome people over the course of my career, and I feel truly blessed. I still wake up in the morning and pinch myself to make sure it's not a dream.

Visit [mixonline.com](http://mixonline.com) for the full, extended interviews. ■

*Wes Maebe is a London-based engineer/producer/musician.*

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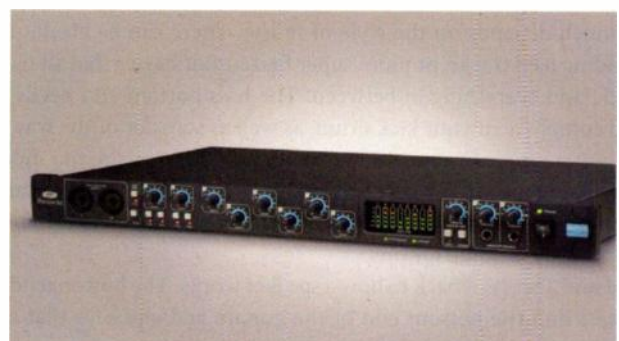
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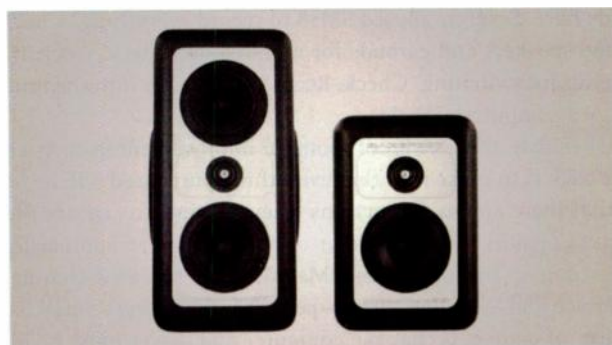
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# RobairReport

## THE ETERNAL SWAP MEET



By Gino Robair

**D**o the products we use for music production ever become obsolete if they still work?

It seemed portentous that the day Mark Vail's new book, *The Synthesizer* (Oxford University Press), arrived in the mail I would be asked to host "Setting Up a Second-Hand Studio" at the Recording Academy's Producers & Engineer's Wing swap meet here in my own Bay Area chapter. In the larger scheme of things, both the book and the event reflect our ongoing balancing act of trying to do the best work we can with as little distraction (e.g., upgrades) as possible, while searching for inspiration and ways to stay fresh (e.g., investigating new technologies). What better way to revisit the issue than to hunt for treasures in someone else's junk and, perhaps, to stare at a little bit of gear porn?

Not to be confused with Vail's classic *Vintage Synthesizers* (Backbeat Books), which tells the stories of historically important products, *The Synthesizer* is meant to be a broad introduction to the topic of electronic musical instruments. Here, he covers everything up to the latest in soft synths and hardware modules, while describing the variety of ways in which sound is generated and processed.

What resonated with me almost immediately was that some of the most obscure and seemingly outdated instruments—the theremin and the Ondioline, for example—are still being used to create music, on high-level productions in many cases. In the instrument world, at least, anything can be artistically valid under the right circumstances.

In a recent issue dedicated to vintage gear, *Electronic Musician* ran a feature on chip music, which described how musicians are snapping up old computers (Amiga 1000, Atari ST, Commodore 64) and portable game players (Nintendo Game Boy, Atari 2600) and exploiting their low-res sounds to create new music, often writing custom software in the process.

Admittedly, the characteristic timbres of a Yamaha DX7 may sound dated, but the synth has a unique and important sound, historically speaking. And for many people linear FM synthesis remains viable. Two decades ago, interactive-computer pioneer Tim Perkis wrote his own code to control the TX81Z, another Yamaha FM synth, at a very deep level using a MIDI fader box. Despite trying all the software emulations of FM synthesis currently available (including ones modeled on Yamaha-style instruments), he still prefers the original hardware piece for its sound quality and flexibility.

So it's not just about the fetishism of collectors and hoarders that keeps the classics alive, although that aspect does persist in both the instrumental and engineering scene.

### CAVEAT EMPTOR

Among the attendees of the P&E swap meet, which was co-sponsored by the San Francisco section of the AES, were GrammyU members, young musicians and engineers interested in starting or expanding their personal studio on a budget. The pros, which included musicians, composers and engineers, swapped stories while poking through a range of unwanted gear—TT patch bays, high-end converters, hard-disk multi-track recorders, digital interfaces, and a myriad of cables.

That's where my spiel regarding Setting Up a Second-Hand Studio comes in: How does a person navigate the second-hand market and build a useful studio without simply accumulating someone else's junk? Typically, the knowledgeable recording engineer attacks the problem in an orderly fashion by researching what he or she needs for each stage in the signal chain—from input transducers through converters and recording/playback devices to output transducers. That helps keep the misguided purchases (and hopefully the impulse buys) to a minimum while mitigating the accumulation of crap.

Musicians, on the other hand, don't usually have such a linear view. Their first studio is often pieced together from whatever gear they already have. Severely abused SM58 to record everything? Check. Home-stereo speakers and earbuds for monitoring? Check. Ancient Marantz receiver for switching? Check. Recording directly into the mini-jack input of a computer? Check.

Obviously, there's a lot of room for improvement in such a situation. The trick is to make sure that everything purchased will be hassle-free so that there are no distractions when it's time to capture the creative spark. Consider these two polar-opposite, low-cost approaches: Should one scoop up the bargain of a Mac G3 with, say, an 8-channel Digi001 interface and SCSI hard drive—perfect for tracking a small band? (The caveat, of course, is that the computer and drives must be in working order for this to be worth trucking home, or else be prepared to track down the parts needed to make everything operational.) Or does one simply purchase a portable digital recorder? (They're cheap and plentiful, offering multichannel input configurations with up-to-date resolution and interface options.)

It seems odd within the pages of *Mix* to even suggest acquiring 15-year-old technology that is neither top quality nor valuable in a collectible sense, or to recommend a prosumer device. But the truth is, no matter what gear you have, the talent in front of the mic and the skill behind the recorder remain the most important parts of the equation, and they never become obsolete. ■



Continued from p. 20

Pink Floyd-The Wall, and it's all done by the kids."

"We are not about launching careers in the entertainment industry," Bowen adds. "We work in partnership with healthcare providers to help these kids transition to whatever it is they end up doing. We mix in life skills, developing communication, learning how to receive help, how to confront something you don't like, showing up on time and respecting your peers. Putting on a concert is a process, with a beginning, middle and end, and it has worth and it has value. Many of these kids have been told forever that they have no value."

Over the years, the program has expanded to include painting, design, dance, drama, video and, of course, recording, made possible through the contributions of Road Recovery board member James Walsh, co-owner of Threshold Recording Studios NYC, who offered the organization studio time, rehearsal space and a small set of offices in the same building as his studio, one block from Port Authority, with easy access for kids coming to twice-a-week program sessions.

"One of our mantras is Being Present," says Bowen, "which is one of the greatest things you can give a kid. In addition to showing up, it's important to invest the time and be consistent. The response from our industry, when artists and engineers and musicians come in to talk to them, has been just fantastic. Some of these kids have been through incredible traumas, and here comes a guy with tattoos and a guitar who tells his story of how he made it. Then the kid might write a song about it, and it moves people and affects an audience. What was once a deep dark secret

can be turned into a force. That's where the magic comes, and you just stand in awe of it."

The list of people who have come to engage with Road Recovery kids ranges from A-list artists to twice-fired roadies. All have something to offer through their individual experience. Stephanie Hansen, vice president and general manager at Masque Sound in New Jersey, says she had heard of the organization when she saw a Road Recovery benefit concert featuring Slash in 2011 on the marquee at Nokia (Best Buy) Theatre in midtown Manhattan. She explored further, and in December of last year plunged in full force.

"I began going to Road Recovery outreach events in schools, medical facilities and out in the world," says Hansen, herself 15 years sober. "I got to know Jack and Gene, and could tell they were coming from an honest and genuine place. They're passionate about the work they do, but they need resources to do that. So after attending a number of events, I started talking to them about making a charitable donation, which of course is tax-deductible for our business and at the same time it helps them reach more kids. Writing a check when you are running a successful business is not a difficult thing to do, and I think more people should do it.

"I've been blessed with tremendous success as a result of being sober," she adds. "The recovery model is very much about giving back. I've done it personally in terms of sponsoring young women in sobriety. To take it to another place professionally is just as satisfying. And maybe I can encourage other people in our industry, sober or not, to get involved with an organization like Road Recovery. We all have something of value to share." ■



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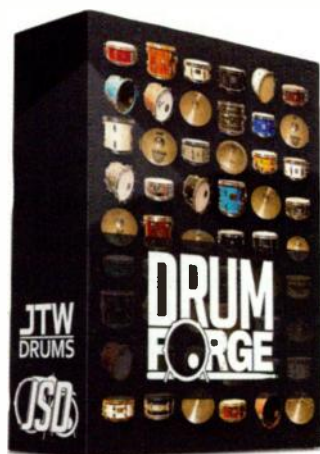
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# Tech // new products



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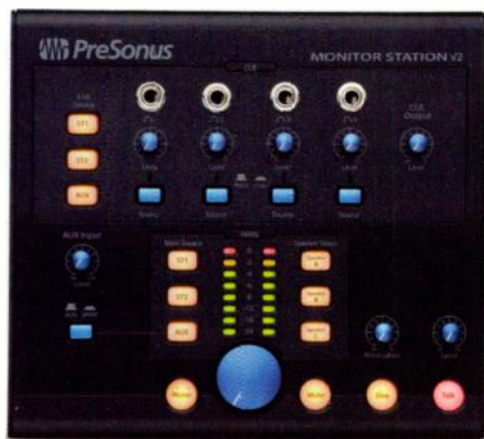
## UNIVERSAL AUDIO THERMIONIC CULTURE VULTURE PLUG-IN



### UAD-2 Modeled Tube Distortion Tool

Promising to subtly color or utterly destroy existing tracks, buses or a full mix, the Culture Vulture plug-in (\$299) is now available on

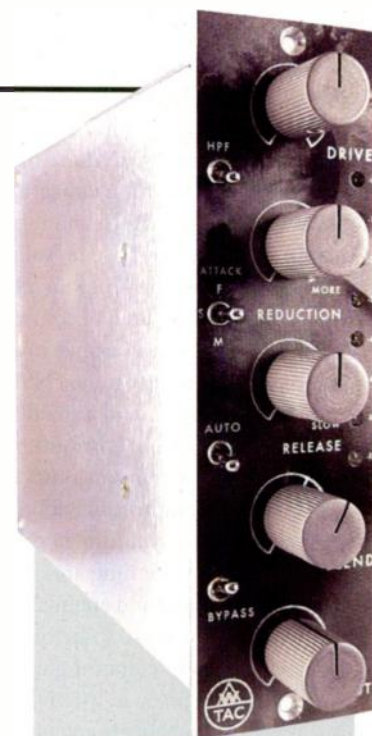
any UAD-2 hardware. Features include overdrive (0 or +20 dB), continuous drive from 1 to 11, and a bias control that continuously varies current, adjusting voltage to the cathode, and is displayed on the millimeter, 1 to 11. The distortion type is variable between Triode, strong 2nd, P1: Pentode, strong 3rd, or P2, which is more drastic distortion at high bias. Other features include a 3-position filter (off, 6 kHz, 9 kHz at 12 dB per octave) and output continuously variable from 1 to 11. There are a range of presets written by notable engineers like Tony Maserati, Eric "ET" Thormgren, Rik Simpson, Chris Coody and others.



## PRESONUS MONITOR STATION V2

### Affordable Studio Monitor Control

The PreSonus Monitor Station V2 (\$299.95) offers selection of up to three speakers with individual gain control via trim pots on the rear. There are also four headphone outputs with level control, an onboard talkback mic with gain control, main mute, dim and mono buttons, and cue level control. The headphone outs can be sourced from the main mix or cue, and the cue source can be selected between ST1, ST2 and the auxiliary input. The unit's I/O includes main and cue TRS outs (left and right), three TRS speaker outs, RCA aux inputs (left and right), RCA S/PDIF input and two TRS stereo inputs.



## AWTAC CHANNEL COMPRESSOR

### 500 Series FET Squasher

AwTAC's 500 Series FET Channel Compressor (\$1,099) features transformer-balanced I/O and a unique drive pot that sets the level of the FET-controlled amp into the compressor's circuit. Other features include a HPF Switch that engages a 6dB/octave highpass filter to the side chain at 375 Hz, GR control, three-position attack switch, Fast (1.5 ms), Medium (15 ms) and Slow (40 ms), and an Auto switch that engages an auto release circuit. Other features include a blend pot for parallel compression, makeup gain control and a true bypass, which also works with the rack off so there's no need to unpatch the unit. Metering is via an 8-segment peak detecting LED; the meter is always on, even with the unit in bypass.



# New Sound Reinforcement Products

## DIGICO D2-RACK

### Compact Connectivity

The D2-Rack from DiGiCo (price TBA) offers a compact, efficient and affordable rack solution for connection at either 48 kHz or 96 kHz with no I/O reduction. It comes in two I/O versions: The first features 48 mic inputs, 16 line outputs and two blank output slots allowing an additional 16 outputs in the owner's desired format (analog, AES and Aviom). The second offers 24 mic inputs, 24 AES inputs, 16 line outputs and two blank outputs, again permitting an additional 16 outputs in one of three formats. The D2-Rack is currently available for use with SD8 and SD9 systems.



## VUE AUDIO-TECHNIK AL-4-SB

### Flyable Isoobaric Subwoofer

The new al-4-sb Flyable Isoobaric Subwoofer (\$2,995) from VUE Audiotechnik features rigging options for suspension above or behind al-4 line arrays in a variety of configurations. VUE also offers a flyable end-fire grid that allows quick assembly of sophisticated al-4-sb end fire arrays for improved directionality and reduced low-frequency energy onstage.

The al-4-sb is equally adept in portable applications. Integrated rigging allows quick assembly of ground-stacked arrays, while a 20mm socket accommodates up to four al-4 acoustic elements on a pole with the optional U-bracket. At the heart of the al-4-sb are two precision-engineered, long-excursion 15-inch transducers that feature neodymium magnets and large 4-inch (100mm) diameter voice coils for high power handling and reduced power compression.



## CAD 1600 SERIES UHF WIRELESS

### Versatile, Affordable

The new 1600 UHF Series system from CAD (\$399) provides 100-channel frequency agile UHF operation for maximum operating range. It also features CAD ScanLink technology to precisely scan, select and link to the optimum channel in any RF environment, and True Diversity operation to minimize multipath interference, along with CADLock Automatic Tone Encoded Squelch, which eliminates unauthorized transmissions in the signal path. The WX1610 Bodypack System features the Equitek E19 miniature condenser ear-worn mic, a Cardioid Lavalier and guitar cable. The TX1600 handheld and TX1610 bodypack transmitters have SoftTouch multi-function On-Off/Mute/Low Battery/ScanLink status switches with multi-color LED indicators. The WX1600 receiver is housed in a durable metal chassis with 1/4-inch and XLR outputs for additional flexibility. System specs include a frequency response of 40 Hz to 15 kHz, and dynamic range greater than 105 dB.


## HARMAN DBX AFS2 FEEDBACK SUPPRESSION PROCESSOR

### 24 Filters, LCD Display and Setup Wizard

Designed to completely eliminate feedback from a P.A. system, the dbx AFS2 (\$499) features a completely redesigned Advanced Feedback Suppression module and a large LCD display. Successor to the AFS224, the AFS2 provides is simple to use thanks to its one-button Wizard function that automates key setup parameters and walks the user through the configuration process. The AFS2 offers a full LCD display and 24 LED meters per channel for setup and monitoring. The dedicated processor in the AFS2 provides up to 24 programmable filters per channel with filter Qs up to 1/80 of an octave. This level of extreme precision, previously available only in high-end processors, enables the AFS2 to zero in on the exact frequencies needed to attenuate feedback. The AFS2 offers application-specific filter types including Speech and Music Low, Medium and High.





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# Tech // reviews

## PRESONUS STUDIO LIVE 24.4.2AI MIXING CONSOLE

New Features, Solid Sonics and Wireless RC



**T**he first generation of PreSonus' StudioLive mixing consoles combined generous analog I/O featuring PreSonus' XMAX microphone preamps, a FireWire DAW interface, plenty of DSP, and "Fat Channel" surface control for easy operation. The StudioLive Active Integration (AI) Series offers all that and more, adding wired and WiFi remote control, FireWire 800, USB 2 and Ethernet connectivity, and optional Dante networking. This is along with the use of OMAP L238 processors, which double the number of internal effects buses, allow comparison between two sets of EQ and dynamics settings, and provide enhanced audio quality. PreSonus sent Mix the StudioLive 24.4.2AI, and we used it onstage and in the studio.

### THE LAYOUT

The StudioLive 24.4.2AI's architecture features 24 inputs, four subgroups and a main stereo bus. The console boasts 10 aux sends and four internal effects buses. Auxes can be linked in pairs, which

proved very convenient for creating stereo ear mixes. Rear panel I/O includes a balanced XLR mic input, TRS line in, and TRS insert connector (tip = send, ring = return) per channel; the aux sends (TRS); balanced XLR and TRS main outs (with trim control), balanced TRS subgroup and control room outs, XLR mono output and RCA "tape" I/O to accommodate consumer gear. Three DB-25 connectors carry analog direct outputs per channel in sets of eight. A factory-installed card with two FireWire 800 ports can be swapped with cards providing Dante audio networking, Thunderbolt or AVB. An S/PDIF output defaults to the main L/R output but may be reassigned to carry any output bus.

The StudioLive 24.4.2AI's control surface is well planned and easy to use. Each input has a trim pot, phantom power switch, and 100mm fader. The faders are not motorized so you'll need to manually "null" them when recalling a scene from memory—an inconvenience relieved by a "fader locate" function (no doubt that motorized faders would have contributed to a significant price increase).

PreSonus' Fat Channel provides access to channel settings, putting every channel parameter on the surface without paging, making the 24.4.2AI a quick study (note that the smaller 16.4.2AI sacrifices a few channel controls to reduce its footprint). Two parameters that are inaccessible from the 24.4.2AI's surface are a set of keys that instantly recall six scene memories and Mute Groups (both are present on the 32-channel version). Of course you can still store and recall any scene using the scene library.

The StudioLive 24.4.2AI has 40 FireWire sends and 26 FireWire returns. Typical configuration would be one send per channel plus eight stereo sends that

### TRY THIS

PreSonus Universal Control AI software makes it easy to create variations of a mixer scene. First create a scene, title it and save it. The scene title will show up in UC-AI in the Browser Window under Device Memory. Select the scene, hit the up arrow and the scene will be copied to the computer's hard drive. You can then drag the scene back down to multiple locations in the Device Memory menu. Rename the copies and then make the minor changes required to each copy. This enables you to create dozens of variations of the main scene within minutes.



can be assigned to any of the mix buses, including the main mix, aux sends, subgroup outs or effect sends. This arrangement enables direct recording into a DAW without need for a menu. In fact, PreSonus' Capture 2 DAW software (included) automatically routes channel-to-track, and will pick up channel names if you have entered them. A switch on every channel swaps the analog input with a digital FireWire return from your DAW.

PreSonus' execution on this is elegant and clear. If the digital switch is lit, signal comes from the DAW. If the switch is not lit, signal comes from the channel's mic or line input. The ability to instantly replace the analog input with the digital return simplifies zero-latency monitoring during overdubbing: monitor the analog input during recording and switch to the digital return for playback. The last two FireWire returns are intended as a 2-track return. The latest firmware revision (S124 as of this writing) enables the FireWire sends to be post effects, so you can record with processing.

## CONTROL AND PROCESSING

Setup and control over the 24.4.2AI is greatly enhanced through PreSonus' Universal Control AI software, which addresses every console parameter from a Mac, PC or (using StudioLive Remote AI) iPad. The 24.4.2AI ships with a wireless USB adapter; PreSonus recommends a few routers including the D-Link's DIR-655 to ensure reliable wireless communications.

UC-AI can really increase the speed of your workflow—especially when creating snapshots for a show (see the "Try This" sidebar). Universal Control AI does not provide access to permissions for remote devices, thus maintaining network security. Permissions are granted only at the console surface so you won't have any iPhone hackers adjusting someone else's monitor mix.

The 24.4.2AI's onboard processing is extensive, with HPF, expander/gate, compressor, limiter, 4-band EQ and polarity reverse on each channel. All EQ bands are parametric with dedicated controls for gain, frequency, bandwidth and on/off—plus there's a master EQ on/off, all of which make using it a pleasure. The high and low bands can be switched to shelf (which I generally preferred over peak/dip), but the parametric function was very useful for notching out problem frequencies, pulling out (for example) a bit of harshness in a female vocal with a few dB cut in the range of 3.8 kHz. Something I liked about the low band of the EQ in particular is that you can crank the gain without causing a kick drum or electric bass to become muddy.

I had a lot of fun with the compressor, which features auto and soft knee options, and can be set for gentle massaging of levels or absolute crushing. The fact that these functions are available on the subgroups made it easy to dial in the New York compression trick on drums, or simply group drum channels and add a bit of overall compression to sit them consistently in the mix. Gates were very effective in controlling leakage in drum mics, and any gate can be keyed from any other channel—not something you'd need every day, but handy nonetheless. Channels may be linked for stereo, but be aware that fader levels do not link unless you're mixing remotely from SL Remote-AI or VSL-AI.

Four internal effects are configured as two reverbs and two delays. A

## PRODUCT SUMMARY

**COMPANY:** PreSonus Audio Electronics  
**PRODUCT:** StudioLive 24.4.2AI  
**WEBSITE:** [www.presonus.com](http://www.presonus.com)  
**PRICE:** \$3,995 MSRP  
**PROS:** Excellent, stable OS. Onboard SMAART analysis. Comprehensive analog and digital I/O.  
**CONS:** No analog insert I/O on the Main L/R bus. Fader levels do not track when channels are paired in stereo. Manual faders.

variety of algorithms are provided including ambient, rooms, halls and plates, mono and ping-pong delays, etc. All of these are useful but I found myself going back to the Small Room and Warm Hall for snare drum and the Filter Delay for lead vocal and guitar solos. The Small Room is a very convincing, subtle simulation that worked well when I wanted to put an instrument in a room without adding a flurry of reflections. The parameters are somewhat limited, but some of what you'd expect are offered including decay time, pre-delay and early reflections. Effect settings may be named, stored and recalled, as can Fat Channels, scenes

and graphic EQ (GEQ) settings. Channel EQ settings can't be stored to a library but Universal Control AI allows EQ, compression and gate settings to be dragged from one channel and dropped into another—absolutely awesome. I used this feature often for setting up multiple tom channels.

My first time out on a club date with the 24.4.2AI I mixed monitors from front-of-house (something I have no great love for doing). Since there's a graphic EQ on every aux output, there was no need to carry an outboard EQ rack, and using powered wedges made connecting the monitors clean, fast and simple. The graphic EQs made it easy to ring monitors, though I did need an assistant onstage. The next time out I brought a router and set up a network for an iPad and several iPhones. The iPad enabled me to remotely control the graphic EQs while I stood onstage ringing out the monitors. Once the monitors were EQ'd and the band had soundchecked levels for their mixes, I configured limited network permissions for three musicians to run their own wedge mixes via iPhone and QMix (free via the App Store). Each had access to overall level for the stereo mix and their own vocal microphone—enough to give them some control without the burden of creating an entire mix, and relieving me of the distraction of managing multiple monitor mixes during show time. It worked out very well.

What I did not expect but later discovered is that all of the aux sends (including the FX sends) feature the same processing as the input channels: 4-band EQ, compression, HPF, etc. This made it easy to compress, EQ or limit a wedge or in-ear mix without getting bogged down in routing. Adding compression to an in-ear mix simply required that I select the aux send and set the compressor parameters; ditto for mixing any of the effects into the aux sends—which is mandatory for in-ear mixes. All I had to do to get reverb or delay into an in-ear mix was dial it in, and because there were four independent effects, I could dedicate two for the house mix and two for the monitor mixes.

## IN THE MIX

Once I was familiar with the 24.4.2AI's layout, dialing in a mix was easy. A set of metering switches enables the desk's channel meters to show input, output or gain reduction per channel, or aux master levels. Assigning the meters to Input sidestepped the need to PFL each channel one by one to view levels while adjusting the trim control—so setting gain was quick. Plus, input level and gain reduction for the selected channel is always visible via meters dedicated to that purpose. The Fat Channel clearly shows if a channel is assigned to the L/R bus or subgroups, so there's no guessing on output assignments. Initially I thought that pressing Select on an aux send





would bring control of an aux send to the channel rotary encoders, but it is the Mix button on each send that does so (a trip to the manual cleared my confusion). I found some of the screening on the mixer's front panel difficult to read under certain conditions. A 12-volt socket is provided for a gooseneck work lamp, but I found it easier to use a small desk lamp.

All StudioLive AI consoles incorporate Rational Acoustics' SMAART, which can be really helpful when dealing with monitor feedback. If you open the graphic EQ on an aux output and run SMAART RTA or Spectrograph, the analysis appears behind the faders of the graphic EQ—allowing you to easily see a problem frequency, grab the corresponding EQ

slider and make a correction. It's very clever and very effective.

If the 24.4.2AI's feature set stopped right there, it would offer a lot of bang for the buck. The fact that the console can be used as an audio interface makes it all the more a workhorse. Simply by connecting my MacBook via FireWire I was able to turn a rehearsal into a multitrack recording session. Opening Capture 2 displays a button stating "Record Now," and when you click it, the session enters record with the FireWire sends pre-routed channel-per-track. It's that easy.

In the studio, the StudioLive's mic pre's were clean, quiet and had a pleasant character. Granted, they're not Neve 1073s, but you're not paying that kinda cash either. I tracked drums, acoustic guitar and vocals through the StudioLive with excellent results—kick drum (with a Sennheiser e602 II) was deep and solid while still capturing the snap of the beater on the head. Lead vocal recordings benefited from the desk's ability to route the FireWire send post-effects, enabling me to add a bit of compression and HPF while recording. The desk interfaced nicely with Digital Performer and Pro Tools, allowing me to switch between DAWs without a hitch. [Editor's note: the StudioLive AI package also includes a license for PreSonus' Studio One Artist 2 production software.]

#### A MAJOR PLAYER

Back in my days of doing sound for local club bands, I carried a 12-space road rack that broke my back every time I packed it into my Toyota Corolla. It contained a tenth of the processing built into the PreSonus StudioLive 24.4.2AI and didn't sound anywhere near as good. Imagine if I had a StudioLive AI back then. Imagine my reaction to that one club owner who always made me put the house mix position on the side of the stage because he didn't want to give up dance floor space. Now it'd be a no-brainer: I'd take a StudioLive 24.4.2AI, put it in the coat closet (where no one could spill a beer on it), and run the show from an iPad. And my back would be a lot healthier. Great job, PreSonus! ■

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

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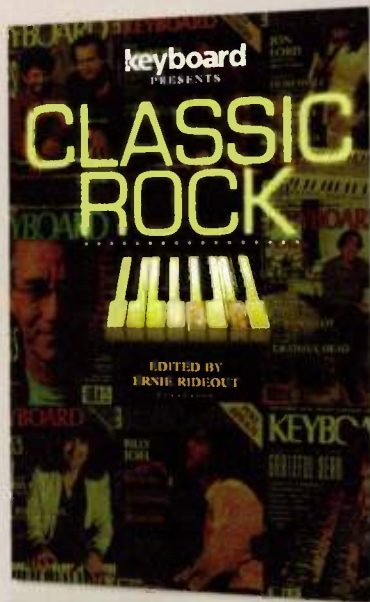
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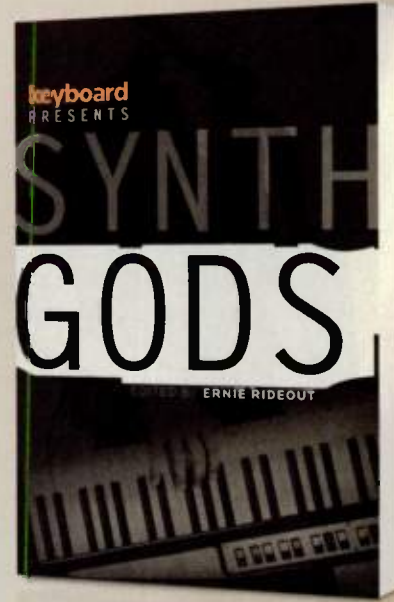
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## GENELEC M040 ACTIVE MONITORS

Entry-Level Speaker for Music Creators



Genelec M040 reference monitors are powered by Class-D amplification and have a metal dome tweeter.

**G**enelec speakers, manufactured since 1978, are as common today in professional recording environments as the venerable Yamaha NS-10s were in the 1980s. Various models have become staples for recording, editing and mixing, but for some budgets these transducers are just out of reach. By introducing the M-Series (M030 and M040), Finland-based Genelec brings a more-affordable design to project studio owners.

### A NEW CATEGORY

Genelec is marketing the M-Series as a “Music-Creation” device. You won’t find it on the company’s Website under Pro Monitoring; the M-Series monitors have their own category. Touted as being environmentally friendly, the M-Series boasts a Natu-

ral Composite Enclosure. Fully recyclable, Genelec states the construction comprises an injection molded, natural fiber composite material. The edges are rounded, to reduce edge diffraction, and the box is not perfectly squared: the sides, top and back have a slight arc to them, no doubt to diminish the edge diffraction characteristic of hard-edged speaker enclosures, as well as minimize internal resonance and standing waves.

The bottom of the speaker has integral rails that run from front to back, bringing the enclosure off of its selected perch, thereby reducing acoustic coupling with the bridge, stand, desk, etc. The bass ports, known as the Laminar Integrated Ports, are also designed into these legs, or rails, making placement critical for linear bass response. I found big differences in response depending on what I sat the speaker on, and the bass reproduction is smooth, if not slightly anemic, when pushing high SPLs. Some musicians will likely add a subwoofer for high-SPL low end.

The tweeter rests in the Direct Control Waveguide, which provides time-alignment with the woofer and a wide dispersion of the top end. These designs, working together, provide an extremely wide sweet spot. The imaging is extraordinary. I used them in several locations—free space, on the bridge, against a wall—and found the

imaging and instrument placement exceptional, in both the horizontal and vertical axes, with a well-defined sound stage.

### START ME UP

The M040s are powered by Class-D amplification, which makes for a much lighter and cooler-running system—easy to pack and take on location recordings. The 6.5-inch woofer gets 80 watts, with 50 watts heading to

### TRY THIS

Have your hearing checked! How will you know what you are really hearing unless you know your main references: the biometric transducers on the side of your melon. I know some engineers that “don’t want to know,” but this is a critical part of the mixing chain. This will give you an idea of what you are really hearing. Everybody hears differently, and some Grammy Award-winning engineers have less than perfect hearing; they simply know how to work around their limitations to get great results. The more information you have, the better off you are when tracking, editing, and mixing.



## PRODUCT SUMMARY

**COMPANY:** Genelec

**PRODUCT:** M040 monitor

**WEBSITE:** www.genelec.com

**PRICE:** \$995 each

**PROS:** Light, easy to take on location. Environmentally friendly. Beautiful imaging. Exceptional midrange separation. "Un-hyped" bass response.

**CONS:** Limited EQ and level controls. Down-firing bass port demands critical placement. No networking.

the tweeter. Frequency response is published at 48 Hz to 20 kHz (-3dB). The crossover point is at 2.5 kHz on the M040. Genelec does not publish the design characteristics of the woofer, and simply says the tweeter is a metal dome. Having listened to Genelecs for many years, I can say that the upper midrange and top end have that characteristic sound: extreme detail in the vocal range, with a smooth top end, lacking any definitive peaking or ringing.

The first thing I noticed when setting up the speakers was the non-polarized 2-slot power cord—NEMA 1-15 to C7. Genelec states that it has met all the necessary compliance standards to provide this ungrounded plug. Don't lose it! The mains connect vertically, allowing the speakers to be placed closer to a boundary. A combo TRS/XLR connector and standard unbalanced RCA connections provide signal input.

Signal input level is controlled by a toggle switch, with settings of -20 dB, -10 dB and 0 dB. The M040s also provide a degree of bass equalization, with Bass Level Control at 0 dB, -2 dB and -4 dB, starting the descending shelf at 800 Hz with the down-point at 100 Hz. This can provide a certain level of control when using the speakers against a wall, or in a corner. Bass EQ starts a -2dB decrease in response, starting at 200 Hz down to 50 Hz, with 80 Hz being the -2dB down point. All of these settings are very usable when attempting to tame an unruly, nonlinear room. Table Top EQ kicks in a filter at 210 Hz, lowering that frequency by 3 dB. Again, it's a usable control, if not entirely flexible in the selection of additional response curves for varying acoustic anomalies.

Following along the "green" path of design, the M040 employs Intelligent Signal Sensing, ramping up the amplifiers with an approximate 2-second delay from standby mode. If the ISS circuitry does not see signal, it puts the amplifiers in standby mode, thereby only requiring 0.5W in power consumption.

Genelec is thorough in its recommendations for speaker placement, with associated diagrams offering some ideas on where to put the speakers and how to set the EQ and level controls. There are no VESA mounts on the back, so placement is limited to a speaker stand or a surface.

### PLACES! MUSIC PLEASE!

I started with the speakers mounted on stands in free-space. The first thing I noticed was the exceptional imaging, particularly in the horizontal axis. There is a good, solid sense of phantom center, along with the separation of instrumentation, producing a well-defined sound stage. They did seem lacking in bass response, but this is a 6.5-inch speaker; it's not expected to go down to 20 Hz! So, by switching speaker locations with my reference speakers, I found that I could acoustically adjust the space for a more accurate playback.

My speaker stands have two thin strips of rubber on the platform, just enough to raise the speaker slightly off the metal base, so the effect of the down-firing bass port was not skewed by the surface. When placing them on a pair of Primacoustic Recoils (across the bridge), I also used two very thin layers of acoustic foam, one on each rail, obtained from an Auralex MoPad, in order to get the correct angle toward the primary listening position. This setup smoothed out the bass response, if not somewhat in-

creasing the acoustic output at this position. The next test was to remove the MoPads; this changed the bass response slightly, for the better. I then pulled the speakers from the center of the Recoils, to the front edge. This too changed the bass response, but now, it was too much. Conclusions? Placement is critical, as with any speaker, but the down-firing bass port lends a new twist in determining proper placement for accurate response.

Listening to my usual known musical references, I found that vocals were exceedingly well defined. Acoustic guitars sounded natural and

present, with an accurate reproduction of the harmonics. The upper bass can start to mask other frequencies, until you get the placement, EQ and levels dialed in. Still, this is going to be characteristic of a smaller speaker design. The bells of Beethoven's "Wellington's Victory" were distinct in their rich harmonic structure, with the horns clear and realistic. The M040s produced a deep acoustic space that had no smearing.

String sections sounded natural, with fluid-sounding bowing and no trace of harshness. Electronica and EDM pure waves were also reproduced accurately, without distortion. Some of my Dimmu Borgir (heavy metal) tracks started getting some separation issues in the 3 to 5kHz range, as there is a lot of energy coming from the cymbals, guitars and machine-gun kick drums, but that build-up can happen with just about any two-way speaker system. Pianos had that "present" Genelec sound—again, well defined, without a midrange build-up or nasal quality.

The M040 speakers can easily be learned. I found that while both tracking and mixing, the results were reproduced smoothly and accurately on other systems. Every speaker has its own characteristics, and I found that the M040s truly excel in the detail of the vocal range (with punch!) and separation throughout the frequency spectrum. After listening to them for hours on end, mixing and editing, I experienced little, if any, listening fatigue. They really start to "light up" around 92dB SPL.

### TAKE IT TO THE BRIDGE

This new category for Genelec is obviously targeted at the project and home studio markets. With that said, affordability is of utmost importance, along with accuracy of reproduction and translation. The M040 bridges the gap between pro monitoring and the hobbyist, with a speaker system that is not only state-of-the-art "green," but can reproduce, quite accurately, the critical midrange, as well as provide separation of instrumentation throughout the audible spectrum.

The M040s are not exactly bargain basement and are priced with the focused professional in mind: one who cannot quite afford Genelec's high-end monitors but wants the same timbre characteristics of the larger production house. With proper physical placement and an added subwoofer, the M040s will provide a good, working transduction tool to get your mixes to a closer point of transferability. ■

*Bobby Frasier is an author, engineer, educator, guitarist and lover of all things Beatles.*

## LACHAPPELL AUDIO 983S PREAMP

Dual-Channel Tube Gain with Personality Plus



The 983S is based on LaChapell's 500 Series preamp, the 583S.

**L**aChapell Audio is a Nashville-based company comprising designer Scott LaChapell and his father, a retired senior design engineer at Lawrence Livermore Labs who brings the electronics expertise. The 983S reviewed here is their fifth product and is based on the company's 583, a 500 Series preamp module. LaChapell takes a no-compromise approach to design, fit and finish, and it shows in the 983S, which I was able to use across a range of sessions and inputs.

Each channel of the 983S uses a Jensen JT-115 input transformer and a 12AX7/ECC83 vacuum tube. The instrument stage feeds the Hi-Z input directly to the tube and is transformerless. At the output is a Burr-Brown and THAT line driver feeding a Jensen JT-11 output transformer with an 80-percent nickel alloy core. The manual is simple and well written, offering some great ideas for using the device, plus provides a whole complement of suggestions for changing the tube to customize the 983S to your own taste. (It offers ECC803, E83CC, CV4004, 6057, M8137, C492, 7025 and 5751 as user-swappable variations even offering to honor the warranty as long as you color within the lines, so to speak.)

The front panel is well-laid out and offers the usual things you'd expect on a preamp, with a few extras. Controls include separate input and output gain, polarity flip, -20dB pad, phantom power and a 1/4-inch instrument input. There are also switchable 50Hz and 150Hz highpass filters, 5kHz and 10kHz lowpass filters, three LED confidence meters (green input, orange and red output), and one of my favorite things on any preamp: a mute switch. This is especially useful in a desktop-based studio where you don't have the benefit of quickly accessible

console channel mutes to or from the recorder. The front toggles are transparent and LED-backlit, giving a clear indication of the status even from a distance or across a brightly lit room.

### INTO THE STUDIO

I used the 983S in Studio I at The Blackbird Academy on multiple tracking and overdub sessions. The room is built around 32 channels of Dangerous Music's 2-Bus summing system, a Monitor ST, the latest converters from Avid (Pro Tools HDX), and a bevy of outboard gear for the front and back end. Everything from the tech power at the outlet to the listener's ear is top of the game, and either patched or relay-switched. This makes it easy to hear what's going on with microphones, preamps and outboard gear without wondering if the connective tissue is adding to the mix.

I first used the 983S to power a pair of AKG C 12 microphones over a drum kit. I often stay away from tube-to-tube signal flow when picking mics and preamps, but I had high expectations for the 983S and I wasn't disappointed. I first set the output gain higher than the input, wanting to drive the tubes less for a cleaner sound, much like a guitar amp. The cymbals were clear and the rest of the Craviotto maple kit was punchy with plenty of great mids and bottom end. On one session I patched the NT1 Nightpro NT3 EQ into the chain to add some top and low end, and on another, the Dangerous

### TRY THIS

Set the input gain at 10 o'clock and output gain at 12 o'clock when first setting up the 983S. This is the setup most likely to give you a cleaner sound. Then, if the track needs it, turn up the input and gain down the output to maintain nominal level to the recorder while adding more distortion to the signal.



BAX EQ. Both provided excellent clear air at the top and beefed up the kick and toms at the bottom end. This let me build most of my mix from the overheads adding the local mics for stereo placement and extra presence.

On another session, I used the 983S to power a Schoeps V4U microphone used to record a lead vocal. The mic has a clear and open top end, almost too open for my taste, and sometimes pairing a super clean mic like the V4U through a pristine preamp like a GML or Millennia HV-3 can be too much of a good thing. It may work for jazz or orchestral detail, but when you want some personality to provide some glue to set something in a track, a tube is just what's needed. In this case, for this male vocalist, the 983S tamed the clean edge of the mic just enough to give the vocal the right personality for the track.

I used the same Schoeps V4U and a Royer 121 as a pair, placed high in an iso booth when recording a fiddle. Later, the same player switched to banjo, so I pulled the same two mics down closer to the instrument. Both fiddle and banjo can be tricky because they can be strident when closely miked. The combination of the ribbon mic and the tube preamp gave me a number of gain vs. mic combinations to play with. The ultimate mix was 80-percent Royer, with the input gain hotter than the output on the 983S, and 20-percent of the V4U, with the preamp set to a more clean gain setting. The V4U added the right touch of higher, cleaner frequencies to bring out these instruments in the mix without EQ.

The manual offers a tip for getting more tube flavor out of the 983S that I tried on a few guitar amp recordings. I used the 983S to power an RCA BK-5A and Sennheiser 421 placed on a Marshall cabinet and JCM800 head combination. As I mentioned, the combination of input and output gain settings gives you control over the distortion; however, if you add the pad and then gas the input to make up your gain, you'll get even more tube-y flavor. This was exactly the case for this guitar setup. Even though the BK-5A didn't need a pad, being a ribbon with low output, I flipped

## PRODUCT SUMMARY

**COMPANY:** LaChapell Audio

**PRODUCT:** 983S Preamp

**WEBSITE:** lachapellaudio.com

**PRICE:** \$2,400

**PROS:** Well-designed and implemented. Great sound.

**CONS:** Price is out of reach for some.

the pad on, then gained up the input and brought down the output. This setting gave me even more control over the distortion in the control room on the way to Pro Tools.

## ON THE BENCH

We put the 983S on the bench using a Stanford Research SR1 analyzer, which gave some perspective on what makes it tick. For full details, download the Bench Test PDF document posted on mixonline.com. With gain set optimally for the cleanest possible path through the unit (Input 10 o'clock - output 12 o'clock), the generator set at -30 dBu @ 1kHz, the THD+N is 0.301% for the left channel and 0.269% for the right. If this were a preamp from Millennia or Grace, this would be alarming, but the 983S is a tube preamp and supports the high distortion figures. It's interesting that most of the distortion is produced in the 2k range (-50.44 dB), while the upper-frequency distortion products are generally inaudible in the -100dB range. This works great with big guitar sounds, which benefit from some hair around 2k. There were some differences in the left vs. right figures in the bench test, but it wasn't anything I noticed when using the preamps as a pair. With a preamp of this type, these kinds of differences fall into the "personality" department. (Please download the Bench Test report from mixonline; it's worth a look-see.)

## IN THE END

The 983S is an excellent mic preamp. The controls are well thought out and I found it to be a wonderful creative tool in the studio. The only downside I can see is the price. At \$1,125 per channel (street), it is clearly in the boutique category. However, if you're looking for a tube preamp with plenty of gain, rock-solid design and legs to go the distance, this is the one. The 983S sounds great, has much leeway for gain vs. distortion play, and is an instant classic. ■

*Kevin Becka is Mix magazine's technical editor.*



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## CADLIVE D82 MOVING RIBBON MIC

Affordable Passive Transducer for Live Sound

**I**magine 10 or 15 years ago if someone told you that they were going to take ribbon mics on tour to put in front of guitar amps onstage; the thought would have been absurd from every angle. They're too delicate to survive the rigors of the road, they can't handle the SPL, their polar pattern will promote pickup of unwanted crowd sounds at the back of the mic, they're too expensive to break... All of these "disqualifiers" made ribbon mics just plain wrong for live sound.

The CADLive with D82 is a passive ribbon mic that aims to bring studio-quality sound to live performance, at a very attractive price.

### BUILT TO PERFORM

The D82 features some clever new design work from the CAD engineers. First, the ribbon element is designed from the ground up to be more durable. This is achieved by making the element significantly thicker than usual. Classic RCA microphones and newer AEA models feature ribbons as thin as 1.8 microns and never go much thicker than 2. The Royer 121 live edition uses a 4-micron ribbon. The D82 doubles that with an 8-micron design. I would have guessed that a thick ribbon would compromise top-end detail, but the D82 does not seem to struggle in that department at all. It can also handle more SPL than possibly any other ribbon mic available.

High SPL handling is achieved, in part, by the thick ribbon, but bolstered by a dual-stage blast guard built into the capsule assembly. The capsule is further fortified by a dual-layer mesh in the outer basket. Care was taken to ensure that the ribbon is centered inside of this basket providing identical sound from the front and rear. This is key to producing proper imaging when using a mic for any application that depends on a true figure-8 polar pattern.

The other key factor, when considering the production of a modern ribbon mic, is to keep the noise floor down. Considering the low output of the ribbon capsule, some newer designs take advantage of active electronics. The D82 doesn't use this approach, so don't apply phantom power to this mic. Due to the low impedance of the ribbon capsule, however, a transformer is



The D82 incorporates an 8-micron ribbon, making it durable for road use—and abuse.

necessary to match the impedance of the mic's output to the mic preamp. Rather than going with a prefabbed design, the CAD engineers built a custom transformer designed for maximum sensitivity. The job was done well, because I was often surprised when I would set a level for this mic. I usually had the gain set far lower than I would when using a typical passive ribbon mic. This transformer also seemed to provide clean signal with very low noise.

### GUITAR KING

CADLive Series' D80 was clearly designed for miking guitar amps, so I started there. The D82's flat design seemed to lend itself to placement close to the grille of the amp, so I placed the mic dead center on the speaker, a few inches from the grille on a 2x12 tube combo. The max SPL of 140 dB suggested it should be able to handle that placement, but I played it conservative on the amp volume for starters. Playing some clean tones and listening through headphones, it was not surprising to find the sound to be overwhelmingly bassy with no clear highs. Compared to other microphone types, ribbons are far more prone to exhibiting proximity effect, or the over-exaggeration of low frequencies when the mic is very close to the sound source.

Despite that, the mic handled the SPL well, so I had two choices. Ei-

ther I could play with the placement and try to find a more balanced tone, or I could bring in a second mic to add some detail in the top end, and embrace the giant bottom end that this mic was producing. I chose the former and quickly realized that even the slightest changes to the placement of this mic had a profound impact on the overall sound.

I wound up backing the mic up about three feet, still aimed dead

### TRY THIS

A figure-of-8 polar pattern is not just double cardioid. The lobes are more directional than even the hypercardioid pattern and off-axis rejection is unparalleled. When two amps must share one iso booth, try setting up the cabinets in a right angle with their speakers' axis aimed at the same space, but 90° perpendicular to one another. Set up two ribbon mics at the convergence point of the speakers' energy, one pointed at each amp, with each mic's null point aligned with the opposite amp. You'll get great on-axis sound, with very little bleed.



## PRODUCT SUMMARY

**COMPANY:** CAD Audio  
**PRODUCT:** D82  
**PRICE:** \$159  
**WEBSITE:** [www.cadaudio.com](http://www.cadaudio.com)  
**PROS:** Ribbon mic sound in a light, rugged package.  
**CONS:** No shock-mount provided.

center at the cone. The tone started coming together and the top end started to keep up with the bass a bit better. The low end was still a bit out of control. I had been using the mic with the included clip, and it occurred to me that maybe the bass was just resonating through the floor and up through the stand. I suspended the mic in a universal shock-mount, which made a difference. The proximity effect was still something to consider, but now I could bring the mic about a foot away from the amp and the tone was excellent. The detail in the top end was very clear and honest without being harsh. I put my headphones on and off, and the top end of the amp and the room sounded nearly the same. The only real difference was that there was an in-your-face quality to the bottom end. It wasn't over the top, just nicely forward.

I moved the mic a bit closer to the amp for an overdub of a slightly distorted arpeggio of higher notes. There was nothing below the 9th fret, so there was no real chance of the bass getting out of control. I had the mic just off the center of the speaker about 4 inches from the grille and the sound was perfect for cutting through the mix. I had a tube condenser up as well, but it was too brash to be useful. The D82 had the perfect balance of detail in the top end, midrange bite, and the warm tone of the cabinet in the bottom.

I moved over to a small, cranked combo, with a bit of a Brian May-like nasally tone. In this case, the proximity effect hit hard and I wound up finding a sweet spot about 2 feet away from the amp, just off center. As I was moving the mic around, I found that rotating the mic even the smallest amount radically changed the overall sound. Placing the mic slightly off-axis but turned a few degrees toward the center of the speaker, a great flavor appeared, again, sounding like a slightly bottom-heavier version of the truth. The sound was tight and the mic added a little bit of a thump with the pick attack to accentuate the notes.

Given the heavy bass build-up of the mic, I thought I'd try just exploiting that, moving it close to the amp and bringing in a bright dynamic to pair with it. This combo worked really well for chugging, down-tuned, palm-muted chords. The ability to balance the ratio of thud to bite after the fact was useful in mixing. This pairing was also really useful for riffy stomps in the style of Rage Against the Machine or Zeppelin. The D82 provided next to nothing in terms of top end in that placement, so without even needing to EQ, the top and bottom were crossed over between the two mics.

### M/S, STRINGS AND MORE

I moved on to acoustic guitar and set up the mic pointed near where the neck meets the body, about 6 inches from the guitar. The sound was much too bass-heavy, so I backed it off to about 10 inches and started moving further up the neck. Somewhere around the 12th fret, the sound seemed pretty balanced and sounded much like the guitar itself. There wasn't much detail on the pick attack, so I tried rotating the mic in the

mount and cheating it toward the sound hole where the pick was hitting the strings, but could never quite find a spot where that detail came to life without the bass taking over.

From that position, I could record with good overall sound if I rolled off a lot of the bass. A better sound was achieved pointing straight at the neck, and adding a condenser to grab the picking sounds. With those two mics already on hand, I

again played with rotation of the mic and found that the off-axis rejection was superb, so it seemed that the D82 would be a good "side" mic. Indeed it was, and the stereo image that it produced was very wide and clear as the mic caught all of the details of the room and the reflections.

The D82 is a very useful mic and stands on its own. It doesn't really sound like the Royer or Blue ribbon mics, which seem to present a little more top end. There's little comparison to vintage ribbon mics either, as it is rugged, durable, quiet, and still has a different personality than the older designs. It's welcome in the studio, and I look forward to using it again. I didn't get a chance to use it onstage, but with the build quality and high SPL handling, I wouldn't be worried to take it on the road. Being very mindful of placement and pairing it with a shock-mount seem to be important concerns, but if those considerations can be met, this mic won't disappoint. ■

*Brandon Hickey is an audio pro and rabid Blackhawks fan.*

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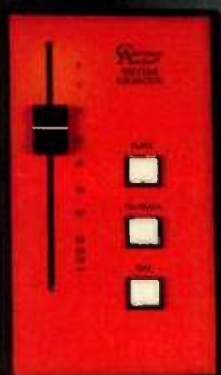
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## Upgrade? Is It Time Yet?



By Kevin Becka

**A**s an engineer, educator, content creator and communicator, I'm constantly wrestling with tech upgrades. But the first question I have to always ask myself is: Will a software/hardware upgrade make

me better at what I do?

On my personal computers, I've thought about upgrading to Mavericks OS, but Avid's support is spotty and my laptop is one of my go-to Pro Tools machines. Additionally, Apple has upgraded Keynote, which I use for presentations to my students. They've eliminated Smart Builds, animation on master slides, customization options for the presenter screen, and other tools I use regularly. Many features from past slide shows will not play in the "improved" version. This double-hit makes Mavericks a low priority for me—at least the current version.

After being an iPhone owner since 2007, I recently switched to a Samsung Galaxy S5 and Android. It was scary to leave the Apple comfort zone. I was hesitant because of the way all my Apple kit shares data. It's so handy to take a picture, write a note or put up a calendar event and have it sync to everything else I own and work with daily. I also wondered if my photos, contacts, and other media I've amassed over seven years would port easily to the S5. I am a natural-born worrier.

But I quickly discovered there is life after Apple! Everything easily came across to my new phone from the Cloud by way of SmartSwitch Mobile. Day to day, I can quickly share files, events, contacts and photos via Google Drive and Plus, and the Galaxy sounds, looks and works better as a phone than my iPhone 5. I upgraded the S5's memory to 128 GB with a \$30 SD card, so I can now carry over 3,000 ALAC song files in my pocket for higher-quality playback than streaming. I know! Carrying song files is so yesterday, but Apple Lossless quality blows away anything I can do via streaming, so I'm in.

On my more personal content creation side, I've opted for Instagram to push my classroom and session photos to all my personal and business socials. I rarely upload to Facebook anymore, and like the rest of the world am finding the platform less and less popular among students, especially younger users. I've been teaching three-day recording camps for high school students and always poll the class on their preferred social networks. Many are only on Facebook because their families are. The newer, faster, more expedient platforms may not have a billion users, but they are hugely

popular. Sell your stock.

On the professional side, on summer break last month at The Blackbird Academy, Nick Shasserre and I brought 31 classroom rigs up to Pro Tools 11 with a bevy of new software from Slate Digital, SoundToys and every UAD-2 plug-in available. Although it took some time, the upgrade was relatively simple. Once I got one of the machines humming with everything in 100-percent working order, Nick cloned it to the other machines over the network, which took no more time really than doing the first one. From there, we uploaded all the new plug-ins and iLok licenses to the new computers and it was done.

Pro Tools 11 is a quantum leap both visually and functionally. The 64-bit operation opens up access to loads of RAM, plus the software is a new ground-up build, meaning it's not dragging along old code with all the problems that brings. The metering options are mind-boggling: Bob Katz's K-12/14/20, metering on sends in assignment view, four choices for gain reduction metering, plus the main meters can be PPM digital/BBC/Nordic/EBU/DIN, Sample Peak, Pro Tools Classic, and more.

But my favorite Pro Tools 11 feature is offline bouncing, which, granted, is old news for some other DAWs, but it's new to Pro Tools. Right-click on any output and up comes a pop-up with the bounce option. You can now render plug-ins from an aux send or track output quickly. Once the bounce is done, you can hide and make the source track inactive, regaining your DSP. It's so close to the "freeze tracks" feature long-offered in DP and Logic that I can only imagine this is coming soon to Pro Tools. I have more than a few friends who are staying on older rigs because of the cost and downtime it takes to do a major upgrade. It's a shame it isn't easier and more affordable to upgrade an HD system, because 11 is worth it.

But back to the beginning of this column. Why do I care about all these things outside of audio? Because we are all now more than just engineers. We are our own brands, content creators, promoters, managers, editors, agents, bookkeepers and a hundred other titles. We are all multi-hyphenates. And all of these jobs become more seamless when your computers, phones, pads, networks and other support software all work to their full potential and cross-connect. When to upgrade is an incredibly important decision—creatively, financially and socially—and we all want to open new doors without shutting others. When you do the research and time it carefully, upgrades can make you better at your gig, whatever that gig might be. ■





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